

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 or 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2022

or

TRANSITION REPORT PURSUANT TO SECTION 13 or 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission File Number: 000-30269

PIXELWORKS, INC.
(Exact name of registrant as specified in its charter)

Oregon
(State or other jurisdiction of incorporation or organization)

16760 Upper Boones Ferry Rd. Ste. 101

Portland, Oregon
(Address of principal executive offices)

91-1761992
(I.R.S. Employer Identification No.)

97224
(Zip Code)

503-601-4545

(Registrant's telephone number, including area code)
Securities registered pursuant to Section 12(b) of the Act:

Title of each class
Common Stock, par value \$0.001 per share

Trading Symbol(s)
PXLW

Name of each exchange on which registered
The Nasdaq Global Market

Securities registered pursuant to Section 12(g) of the Act:
None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. Yes No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or Section 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer
Non-accelerated filer
Emerging growth company

Accelerated filer
Smaller reporting company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. Yes No

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report.

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements.

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b).

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes No

The aggregate market value of the registrant's voting and non-voting common stock held by non-affiliates at June 30, 2022 was \$100,279,450 based on the closing price of \$1.91 per share of common stock on the Nasdaq Global Market on June 30, 2022 (the last business day of the registrant's most recently completed second fiscal quarter). For purposes of this calculation, executive officers and directors are considered affiliates as well as holders of more than 5% of the registrant's common stock known to the registrant. This determination of affiliate status is not a conclusive determination for other purposes.

Number of shares of common stock of the registrant outstanding as of March 3, 2023: 55,690,387

Documents Incorporated by Reference

Part III of this Annual Report on Form 10-K incorporates information by reference to the registrant's definitive proxy statement, to be filed with the Securities and Exchange Commission within 120 days after the close of the fiscal year ended December 31, 2022.

SUMMARY RISK FACTORS

Our business is subject to varying degrees of risk and uncertainty. Investors should consider the risks and uncertainties summarized below, as well as the risks and uncertainties discussed in Part I, Item 1A, "Risk Factors" of this Annual Report on Form 10-K. Investors should also refer to the other information contained or incorporated by reference in this Annual Report on Form 10-K for the year ended December 31, 2022, including our consolidated financial statements and related notes, and our other filings made from time to time with the Securities and Exchange Commission. Our business operations could also be affected by factors that we currently consider to be immaterial or that are unknown to us at the present time. If any of these risks occur, our business, financial condition, and results of operations could be materially and adversely affected, and the trading price of our common stock could decline.

Our business is subject to the following principal risks and uncertainties:

- The ongoing effects of the COVID-19 pandemic have disrupted and may continue to disrupt our business or the business of our customers or suppliers, and as such, may adversely affect our financial condition.
- The continued uncertain global economic environment and volatility in global credit and financial markets could materially and adversely affect our business and results of operations.
- If we fail to meet the evolving needs of our markets, identify new products, services or technologies, or successfully compete in our target markets, our revenue and financial results will be adversely impacted.
- Our product strategy may not address the demands of our target customers and may not lead to increased revenue in a timely manner or at all, which could materially adversely affect our results of operations and limit our ability to grow.
- Achieving design wins involves lengthy competitive selection processes that require us to incur significant expenditures prior to generating any revenue or without any guarantee of any revenue related to this business. If we fail to generate revenue after incurring substantial expenses to develop our products, our business and operating results would suffer.
- If we fail to retain or attract the specialized technical and management personnel required to successfully operate our business, it could harm our business and may result in lost sales and diversion of management resources.
- We have significantly fewer financial resources than most of our competitors, which limits our ability to implement new products or enhancements to our current products, which in turn could adversely affect our future sales and financial condition.
- If we are not profitable in the future, we may be unable to continue our operations.
- A significant amount of our revenue comes from a limited number of customers and distributors exposing us to increased credit risk and subjecting our cash flow to the risk that any of our customers or distributors could decrease or cancel its orders.
- We generally do not have long-term purchase commitments from our customers and if our customers cancel or change their purchase commitments, our revenue and operating results could suffer.
- Our revenue and operating results can fluctuate from period to period, which could cause our share price to decline.
- If we are unable to generate sufficient cash from operations and are forced to seek additional financing alternatives our working capital may be adversely affected and our shareholders may experience dilution or our operations may be impaired.
- We license our intellectual property, which exposes us to risks of infringement or misappropriation, and may cause fluctuations in our operating results.
- We face a number of risks as a result of the concentration of our operations and customers in Asia.
- Our operations in Asia expose us to heightened risks due to natural disasters.
- Our international operations expose us to risks resulting from the fluctuations of foreign currencies.
- If we are unable to maintain effective disclosure controls and internal controls over financial reporting, investors may lose confidence in the accuracy and completeness of our financial reports, and the market price of our common stock may be materially and adversely affected.
- Our dependence on selling to distributors and integrators increases the complexity of managing our supply chain and may result in excess inventory or inventory shortages.
- We may be unable to successfully manage any future growth, including the integration of any acquisition or equity investment, which could disrupt our business and severely harm our financial condition.
- Continued compliance with regulatory and accounting requirements will be challenging and will require significant resources.
- Regulations related to conflict minerals may adversely impact our business.
- Dependence on a limited number of sole-source, third-party manufacturers for our products exposes us to possible shortages based on low manufacturing yield, errors in manufacturing, uncontrollable lead-times for manufacturing, capacity allocation, price increases with little notice, volatile inventory levels and delays in product delivery, any of which could result in delays in satisfying customer demand, increased costs and loss of revenue.

- Shortages of materials used in the manufacturing of our products and other key components of our customers' products may increase our costs, impair our ability to ship our products on time and delay our ability to sell our products.
- Our highly integrated products and high-speed mixed signal products are difficult to manufacture without defects and the existence of defects could result in increased costs, delays in the availability of our products, reduced sales of products or claims against us.
- The development of new products is extremely complex and we may be unable to develop our new products in a timely manner, which could result in a failure to obtain new design wins and/or maintain our current revenue levels.
- Intense competition in our markets may reduce sales of our products, reduce our market share, decrease our gross profit and result in large losses.
- If we are not able to respond to the rapid technological changes and evolving industry standards in the markets in which we compete, or seek to compete, our products may become less desirable or obsolete.
- We use a customer-owned tooling process for manufacturing most of our products, which exposes us to the possibility of poor yields and unacceptably high product costs.
- We depend on manufacturers of our semiconductor products not only to respond to changes in technology and industry standards but also to continue the manufacturing processes on which we rely.
- Because of our long product development process and sales cycles, we may incur substantial costs before we earn associated revenue and ultimately may not sell as many units of our products as we originally anticipated.
- Our developed software may be incompatible with industry standards and challenging and costly to implement, which could slow product development or cause us to lose customers and design wins.
- The competitiveness and viability of our products could be harmed if necessary licenses of third-party technology are not available to us on terms that are acceptable to us or at all.
- Our limited ability to protect our IP and proprietary rights could harm our competitive position by allowing our competitors to access our proprietary technology and to introduce similar products.
- Our products are characterized by average selling prices that can decline over relatively short periods of time, which will negatively affect our financial results unless we are able to reduce our product costs or introduce new products with higher average selling prices.
- The cyclical nature of the semiconductor industry may lead to significant variances in the demand for our products and could harm our operations.
- Risks associated with our operations in China, including the risk of changes in China's political, economic or social conditions or changes in U.S.-China relations, as well as liquidity risks, any of which may adversely and materially affect our results of operations, financial position and value of our securities.
- Legal and operational risks related to the PRC legal system, including uncertainties regarding the enforcement of laws, and sudden or unexpected changes in laws, required approvals and permissions, and regulations in China, which could adversely affect us and limit the legal protections available to the Company and its stockholders, as well as materially and adversely affect our business and value of our securities.
- If we are unable to implement our strategy to expand our PRC operations, our ability to access capital, customers, and talent in China could suffer, which in turn may materially and adversely affect our worldwide growth and revenue potential.
- Even if we complete a listing on The Shanghai Exchange's Science and Technology Innovation Board, known as the STAR Market (the "Listing"), we may not achieve the results contemplated by our business strategy and our strategy for growth in the PRC may not result in increases in the price of our common stock.
- Pixelworks Semiconductor Technology (Shanghai) Co., Ltd.'s ("PWSH") status as a publicly traded company that is controlled, but less than wholly owned, by Pixelworks could have an adverse effect on us.
- The STAR Market is relatively new, and as a result, it is difficult to predict the effect of the proposed Listing, which may in turn negatively affect the price of our common stock on the Nasdaq Global Market.
- If the Listing is completed, Pixelworks and PWSH both will be public reporting companies, but each will be subject to separate, and potentially inconsistent, accounting and disclosure requirements, which may lead to investor confusion or uncertainty that could cause decreased demand for, or fluctuations in the price of, one or both of the companies' publicly traded shares.
- The price of our common stock has and may continue to fluctuate substantially.

PIXELWORKS, INC.
FORM 10-K
FOR THE YEAR ENDED DECEMBER 31, 2022

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NOTE REGARDING COVID-19

In March 2020, the World Health Organization declared the COVID-19 outbreak a pandemic, and the virus continues to exist in areas where we operate and sell our products and services. In response to the COVID-19 pandemic, many state governments in the U.S. and abroad issued restrictive orders, including “shelter in place” or “stay at home” orders, that have restricted their residents from leaving their homes or returning to work. Beginning in March 2022 and lasting through December 2022, various cities in China imposed lockdowns in response to China’s “zero-COVID” policy, leading to weaker consumer demand which has had, and we anticipate may continue to have, an adverse impact on China’s economy, on our customers and on our business. For example, demand in our Mobile market was down during the second half of 2022, which we believe was largely attributable to the imposed lockdowns in China. More recently, China announced a relaxation of its “zero-COVID” policies, which increases the risk of large outbreaks of COVID-19 in China, which could have an adverse impact on China’s economy, on our customers and on our business.

The spread of COVID-19 has caused us to modify our business practices from time-to-time, including implementing work-from-home policies and limiting travel by our employees. Our Shanghai and Shenzhen offices have been alternating between full in-person staffing and remote staffing as local ordinances continue to change in response to new outbreaks. Outbreaks and various strict actions by the Chinese government in response have impacted and are expected to continue to impact the ability of our sales team in China to make in-person sales calls to current and potential customers at the same volume as they did prior to the outbreak of the pandemic. While China has relaxed its "zero-COVID" policies, the risk of an outbreak is now higher, which could also require us to change our practices and disrupt our business. Our offices and supply chain partners in Taiwan, and our offices in Japan and North America are fully operational. The Company has, in the past and may continue, in the future, to take certain mitigation measures. For example, and as previously reported, in 2020 the Company implemented several cost-saving measures, including reductions in executive salaries, elimination of bonus programs, and hiring freezes. Since then, the Company has carefully monitored its costs in light of the uncertainty caused by the pandemic.

COVID-19 has, and may continue to, negatively affect the operations of our suppliers and customers, as their own workforces and operations are disrupted by the pandemic, which could result in the interruption of our distribution system, temporary or long-term disruption in our supply chains, or delays in the delivery of our product. While the Company experienced some mild supply chain disruption in the first quarter of 2022, to date, these concerns do not materially affect the Company’s outlook or business goals, and the Company is not experiencing disruption in its supply chain or delays in the delivery of its products.

The future impact of the pandemic on our business, as well as the business of our suppliers and customers, and the additional measures that may be needed in response to it, including any new cost-saving measures, will depend on many factors beyond our control and knowledge. We will continually monitor the situation to determine what actions may be necessary or appropriate to address the impact of the pandemic, which may include actions mandated or recommended by federal, state or local authorities.

Forward-looking Statements

This Annual Report on Form 10-K, including Management's Discussion and Analysis of Financial Condition and Results of Operation in Part II, Item 7, contains "forward-looking statements" that are based on current expectations, estimates, beliefs, assumptions and projections about our business. Words such as "expects," "anticipates," "intends," "plans," "believes," "seeks," "estimates" and variations of such words and similar expressions are intended to identify such forward-looking statements. These statements are not guarantees of future performance and involve numerous risks, uncertainties and assumptions that are difficult to predict. These forward-looking statements include statements regarding: the features, benefits and applications of our technologies and products; market trends and changes, including in the Mobile, Home & Enterprise and Cinema markets; our strategy, including strategy regarding our products, technology, research and development, sales and marketing and acquisition and other growth opportunities; our strategic plan of re-aligning our Mobile and Home & Enterprise businesses and timing and expectations related thereto, including the Listing and timing and benefits thereof, including improved access to new capital markets and the funding of our growth worldwide; our plans with respect to our reinvestment of our earnings in China; amortization expectations; our expectations with respect to our co-development agreement and related costs and expenses; the sufficiency of our working capital and need for, or ability to secure, financing; the success of our products; customer, distributor and manufacturer concentration; current global economic challenges; exchange rate risk; our competitive advantages in research and development; levels of inventory at distributors and customers; changes in customer ordering patterns or lead times; seasonality; expectations as to revenue associated with sales into certain markets; cost and investment expectations; backlog; future contractual obligations; competition; intellectual property; insufficient, excess or obsolete inventory and variations in inventory valuation; income tax valuation allowance; net operating loss utilization; changes in accounting principles; and internal controls. Factors which may cause actual results to vary materially from those contained in the forward-looking statements include, without limitation: the effects of the COVID-19 global pandemic on the Company and its business, and on the business of its business partners and customers; unanticipated changes in the markets in which the Company operates; the effects of the current macroeconomic climate; our ability to deliver new products in a timely fashion; our new product yield rates; changes in estimated product costs; product mix; the growth of the markets we serve; supply of products from third-party foundries; failure or difficulty in achieving design wins; timely customer transition to new product designs; competitive factors, such as rival chip architectures, introduction or traction by competing designs, or pricing pressures; litigation related to our intellectual property rights; our limited financial resources; economic and political challenges due to operations in Asia and specifically in China; including any governmental approvals; exchange rate fluctuations; failure to retain or attract qualified employees; the sufficiency of our intellectual property and patent portfolio; natural disasters, war or pandemics; the need for additional income tax valuation allowances; limitations on net operating losses, as well as other risks identified in the risk factors contained in Part I, Item 1A of this Annual Report on Form 10-K. These forward-looking statements speak only as of the date on which they are made, and we do not undertake any obligation to update any forward-looking statement to reflect events or circumstances after the date of this Annual Report on Form 10-K unless otherwise required by law. If we do update one or more forward-looking statements, you should not conclude that we will make additional updates with respect thereto or with respect to other forward-looking statements. Except where the context otherwise requires, in this Annual Report on Form 10-K, the terms "Pixelworks," the "Company," "we," "us" and "our" mean Pixelworks, Inc., an Oregon corporation, and its wholly-owned subsidiaries.

PART I

Item 1. Business.

Overview

Pixelworks is a leading provider of high-performance and power-efficient visual processing semiconductor and software solutions that enable consistently high-quality and authentic viewing experiences in a wide variety of applications. We define our primary target markets as Mobile (smartphone and tablet), Home & Enterprise (projectors, personal video recorders ("PVR"), and over-the-air ("OTA") streaming devices), and Cinema (creation, remastering, and delivery of digital video content). Previously we classified our primary target markets as Mobile, Projector, Video Delivery and Cinema, but have since aggregated the Projector and Video Delivery categories into one called "Home & Enterprise".

Pixelworks has been a pioneer in visual processing technology for over 20 years. We were one of the first companies to commercially launch a video System on Chip ("SoC") capable of deinterlacing 1080i HDTV signals and one of the first companies with a commercial dual-channel 1080i deinterlacer integrated circuit. We launched one of the industry's first single-chip SoCs for digital projection. We were the first company to integrate motion estimation / motion compensation technology ("MEMC") as a mobile-optimized solution for smartphones. In 2019, we introduced our Hollywood award-winning TrueCut® video platform, the industry's first motion grading technology that allows fine tuning of motion appearance in cinematic content.

Our core visual processing technology intelligently processes digital images and video from a variety of sources and optimizes the content for a superior viewing experience. Rapid growth in video and gaming consumption, combined with the move towards bright, high resolution, high frame rate and high refresh rate displays, especially in mobile, is increasing the demand for our solutions. Our technologies can be applied across a wide range of applications: cinema theaters, low-power mobile tablets, smartphones, streaming devices, and digital projectors for the home, school, or the workplace. Our products are designed and optimized for power, cost, bandwidth, viewer experience, and overall system performance, according to the requirements of the specific application. On occasion, we have also licensed our technology.

During the third quarter of 2021, we engaged in a strategic plan to re-align our Mobile and Home & Enterprise businesses to improve their focus on their Asia-centered customers and employee stakeholders. Our subsidiary, Pixelworks Semiconductor Technology (Shanghai) Co., Ltd. (or "PWSH"), now operates these businesses as a full profit-and-loss center underneath Pixelworks. In connection with this strategic plan, the Company and PWSH closed three separate financing transactions in 2021 and 2022, which are further described in "Note 14: Redeemable Non-Controlling Interest and Equity Interest of PWSH Sold to Employees", "Note 15: Non-Controlling Interest" and "Note 17: Subsequent Events", which are incorporated by reference into this section.

PWSH is in the process of preparing to file an application for an initial public offering of PWSH shares on the Shanghai Stock Exchange's Science Technology Innovation Board, known as the STAR Market (the "Listing"). We believe that the Listing will have many benefits, including improved access to new capital markets and the funding of PWSH's growth worldwide. We presently intend to qualify PWSH to apply for the Listing in 2023. The process of going public on the STAR Market is lengthy and includes several periods of review by various government agencies of the People's Republic of China ("PRC"), such as the Shanghai Stock Exchange and the China Securities Regulatory Commission ("CSRC"). There is no guarantee that PWSH will be approved for a Listing at any point in the future. The listing of PWSH on the STAR Market will not change the status of PXLW as a U.S. public company. We are neither a PRC operating company nor do we conduct our operations in China through the use of variable interest entities.

Key Markets

We target three key markets with our products and services: Mobile, Home & Enterprise, and Cinema.

Mobile

Our Mobile market category is composed of smartphones and tablets. The user experience with mobile video and gaming is a key driver of growth in the smartphone and tablet market. Smartphones and tablets pose a number of unique challenges as mobile display systems. Digital video content is available in a wide range of resolutions and frame rates. Power is of primary importance, impacting form factor, cost, and performance. As these systems have added more functionality, new features have had to compete for battery life, internal bandwidth, and space. The addition of high-resolution and high refresh rate displays has further increased the burden on these resources. The challenges of playing low resolution and frame rate content on a high resolution and frame rate display and of rendering high resolution and frame rate mobile games in a power-efficient way are limiting the users' visual experience on mobile video and gaming. Our Mobile solutions are designed improve this user experience.

Using the same visual processing technology in a mobile device that was developed for large screen TVs is neither feasible nor desirable. The visual processing pipelines used in TVs consume many watts of power and would be unsuitable for battery powered systems. In TVs, the size constraints on electronics are significantly less stringent when compared to mobile systems. To furnish the Mobile market with appropriate solutions, we have taken a holistic, system-wide view and re-invented its visual processing technology to fit within the mobile constraints of battery life, bandwidth, form factor, performance, and use cases. This approach has enabled us to create technology that meets the power and size requirements of mobile as well as enabling low power but high frame rate, high resolution and high dynamic range video and gaming experiences.

The burgeoning global gaming market is dominated by the smartphone segment. The vast majority of gamers worldwide play games on a smartphone (June 2020 Ericsson Mobility Report). PC-grade AAA/Cinematic games are being deployed for smartphones. These games require more intensive visual processing, including higher frame rate, resolution, photorealistic, picture quality and responsiveness. Cost, size and power limit the rendering capabilities of mobile application processors, which are not keeping up with the sophistication of mobile games. Furthermore, battery life and thermal challenges remain difficult to overcome. Our visual processor solutions enable the most popular mobile games to achieve previously impossible visual experiences and battery life.

As 5G network coverage rapidly expands worldwide, the availability of 5G chipsets targeting smartphones should continue to reinvigorate market growth given the increased speed and lower latency of the wireless connections. In addition, service providers in some countries will also utilize 5G networks to provide fixed wireless broadband. We further believe our compelling Mobile visual processing functionality, combined with 5G capability, may help motivate consumers to replace their 3G and 4G phones at a faster rate than occurred in the past. Finally, a new smartphone category has emerged as top vendors have previewed foldable smartphones which serve as a phone, and a mini tablet when unfolded. As prices for this capability inevitably come down, and further competition emerges, we believe this new category, along with the rollout of 5G networks, can strengthen the Mobile device market.

Home & Enterprise

Our Home & Enterprise market category is composed of digital projection and video delivery devices and applications.

Digital Projection

Increasingly affordable price points are driving continued adoption of digital projectors in business and education, as well as among consumers. Technology improvements are helping to reduce the size and weight of projection devices while increasing their performance. Projector models range from larger units designed to be permanently installed in a conference hall or other venue to ultra-portable devices weighing fewer than two pounds for maximum portability. The feature set of projection systems differs from that of a typical large-screen flat panel display such as a TV. This is primarily because the projector is a sharing and collaboration device while the TV is designed for direct consumption of content.

The digital projection market serves several different areas such as business, education, and home theater. Business users employ multimedia projectors to display both still and video presentation materials from PCs and other sources. Requirements for the business market include portability, compatibility with multiple software and hardware applications, and features that ensure simple operation. In education environments ranging from elementary schools to university campuses, projectors help teachers integrate media-rich instruction into classrooms. Home theater projector systems can drive large-screen displays for content consumption where flat panel displays are either economically not viable or physically incompatible for use.

Consistent with the trends of other consumer products, digital projectors are increasingly incorporating networking capabilities that enable the sharing of video and other content among multiple devices. This, in turn, is enabling new use models for digital projection in both the education and business environments. For example, one teacher can present the same material simultaneously in multiple classrooms, and students in different classrooms can display and discuss their work. Such connectivity allows instant access to content and sharing of content, which promotes interaction and collaboration among dispersed groups. In the business setting, this connectivity enables teleconferencing and the seamless sharing of content for more effective meetings.

Video Delivery

With the acquisition of ViXS Systems Inc. in August 2017, we expanded both our market presence and product portfolio. The video industry continues to evolve and adopt new video standards such as High Efficiency Video Coding, 4K Ultra HD and HDR. The technical and processing demands of these standards are complex and play directly into our core competencies. Our technologies for video delivery are highly integrated, low power, and provide high quality video processing, allowing seamless connectivity between devices while maintaining end-to-end content security. With the advent of digital video, it has become possible to deliver video to consumers in an ever-increasing number of ways. Traditional delivery mechanisms, such as over the air broadcasts, cable, satellite, DVDs, and Blu-ray, are being supplemented with Internet streaming and download services. With these new video delivery options comes the ability to offer more services and improved quality.

High-resolution (UHD/4K), sustained bitrate decoding (100Mbit), and advanced video formats (HDR10, HDR10+) are key requirements for advanced personal video recorder ("PVR") products sold in the Japanese market, where consumers rate video quality as a key acquisition criteria. The advanced PVR market in Japan is experiencing growth as products move from 2K to UHD/4K formats and support new broadcast technologies, like Advanced Digital Satellite Broadcast ("ADSB") in Japan.

Cinema

Our Cinema market category is composed of applications and services for content creation, remastering and video streaming for cinematic video. Our Cinematic solutions expand the creative palette for filmmakers, and ensure the correct presentation of creative intent across screens. In recent years, the trend towards brighter, high dynamic range ("HDR")-capable screens, larger screen sizes and higher resolutions, has amplified artifacts such as judder and strobing and caused the filmed shutter speed to appear faster and more choppy than intended. Furthermore, the mismatch between the 24 frame per second rate that is the standard for cinema and the higher screen refresh rates used on home entertainment screens creates additional artifacts, that all together degrade the viewing experience and are no longer faithful to creative intent.

Our TrueCut Motion platform is the industry's first solution to give filmmakers the ability to cinematically fine-tune motion blur, judder, and frame-rate appearance and can be used as part of the creative process to empower filmmakers to shoot at any frame-rate and then deliver a cinematically-tuned, broader set of motion and frame rate appearances. TrueCut technology preserves artistic intent across screens, from theaters to TVs to smartphones.

Core Products and Technology

Core Products

Our products include the following:

Semiconductor Hardware (integrated circuits or “ICs”)

- Visual Processor ICs for mobile devices
- ImageProcessor SoCs for digital projectors
- Transcoder ICs for media players, set-top-box recorders

Software and Platform Licensing

- Pixelworks Pro display processing software for smartphones
- TrueCut Motion grading, content creation and distribution tools and device certification

Currently the vast majority of our revenue is generated from the sale of the following ICs.

- **ImageProcessor ICs.** Our ImageProcessor ICs include embedded microprocessors, digital signal processing technology and software that control the operations and signal processing within high-end display systems. We have continued to refine the architectures for optimal performance, manufacturing our products on process technologies that align with our customers’ requirements. Additionally, we provide a software development environment and operating system that enables our customers to more quickly develop and customize the "look and feel" of their products.
- **Visual Processor ICs.** Products in this category work with a mobile application processor to enhance the performance or feature set of the overall display solution. Our Visual Processor ICs can be used with many popular mobile application processors (such as from Qualcomm Incorporated and MediaTek Inc.) to help OEMs enhance their smartphone or tablet products. In addition, we provide a software development kit to our gaming eco-system partners (including publishers of AAA mobile games) that enables the use of our Rendering Accelerator technology in our visual processors to improve game performance and reduce overall system power while playing high frame rate mobile games.
- **Transcoder ICs.** Our Transcoder ICs include embedded microprocessors, digital signal processing technology and software that control the operations and signal processing for converting multiple bitrates, resolutions and codecs to provide bandwidth efficient video transmissions based on industry standard protocols. Our transcoder technology allows for single, dual and even quad streaming solutions for OTA products. Like our other ICs, we have continued to refine the architectures for optimal performance, manufacturing our products on process technologies that align with our customers’ requirements. Additionally, we provide a software development environment that enables our customers to more quickly develop and customize their products.

Revenue is also derived from the following software and platform licensing products, which are included in the Engineering services, license and other revenue category:

- **Pixelworks Pro Software.** Our Pro Software is a software development environment that enables our customers to more quickly develop and customize the “look and feel” of their mobile products by use of various features, such as absolute color accuracy, HDR tone mapping, SDR-to-HDR conversion, and others. Customers can use our Pro Software on the application processor or in connection with our visual processor products.
- **TrueCut Motion Platform.** Our TrueCut Motion content creation tools provide filmmakers with the ability to dial in a motion look on a shot-by-shot basis. We provide motion grading services that use these tools as a service, and the tools are also available for license. For content finishing, specific to certain displays, TrueCut Motion will pre-process the content in order to ensure playback according to the original creative intent. For display makers and brands, we provide the certification services, support, and IP licensing necessary to play back TrueCut Motion processed content, and the right to use the TrueCut Motion brand.

For clarity, in the table below we describe the relationship between our products and the markets and applications that each serves.

Market	Product or Service (revenue type)	Application
Mobile	Visual processors (Sales of ICs)	For smartphones and tablets
	License	For use of our technology or software in smartphones and tablets
Home & Enterprise	Image processors (Sales of ICs)	For projectors to be used by businesses, in educational settings and for home entertainment
	Transcoder ICs (Sales of ICs)	For OEMs and ODMs who design personal video recorder (PVR) products and Over the Air products (OTA) for the consumer electronics segment
	Engineering services and Other	Related to our IP streaming applications for PVR and OTA applications and technical support services
Cinema	Engineering services and Other	Related to content creation, remastering and video streaming of cinematic content processed with our content creation tools, such as TrueCut® Motion

Technology

Evolution of Display Technology and The Performance Gap

Display technologies have recently begun to transition from an era of higher resolutions, response times, and frame rates, with lower power and thinner form factors, to one focused on higher contrast, brightness, and more colors.

In mobile devices, Apple Inc. ("Apple") has brought wide color gamut to many of their devices, including the iPhone, iPad Pro, MacBook Pro and iMac. These devices deliver the same color gamut used in digital cinema theaters ("DCI-P3"). Meanwhile, TV manufacturers including Samsung Electronics Co., Ltd. ("Samsung"), TCL Technology, Sony Corporation ("Sony"), and LG Electronics, Inc. ("LG") are bringing high contrast, high brightness, or HDR TVs based on organic light emitting diodes ("OLED") and local-dimming liquid crystal display ("LCD") panels to the living room. Furthermore, most premium and high-tier smartphones and tablets from Apple, Samsung, Sony, LG, and Huawei Technologies Co., Ltd now include HDR as a standard feature.

Hardware improvements in color and contrast are of little value without content that can take advantage of them. In fact, a significant gap now exists between the vast majority of video content available to consumers and these emerging display devices.

- **Contrast and Brightness:** Almost all movies available to consumers today use the "Rec.709" ITU standard format. This format defines brightness levels up to around 100 "nits" (a standard measure of brightness), whereas HDR TVs are five to ten times brighter, from 540 nits upwards. Most mobile devices support over 400 nits and sometimes over 1000 nits of peak brightness.
- **Color Gamut:** DCI-P3 has a 25% larger color gamut than Rec.709.
- **Frame Rate:** TVs commonly display at 120 frames per second (120 Hz) and up to 240 Hz on more sophisticated higher-end models. All premium tier mobile displays were launched in 2020 with 120 Hz screens, which are quickly cascading down to lower price points. Some of the gaming smartphones now have displays that run at up to 144 Hz.
- **Resolution:** TVs have achieved 4k resolutions (3840x2160) and mobile devices today can achieve up to 1440x3240 resolution, and while some content is available in 4k resolution, most movies are only available in FHD or HD resolutions, which is typically 1920x1080 and 1280x720, respectively.

Content formats are evolving to take advantage of these display improvements. For example, Dolby Laboratories, Inc. ("Dolby") introduced the "Dolby Vision™" format for movies and devices, in order to allow consumers to realize the benefits of HDR and wide color gamut. The industry standards body Society of Motion Picture & Television Engineers released a format specification known as "HDR10" that similarly bridges the gap in contrast and color between content and devices. The Ultra-HD Blu-ray disk format and streaming services such as Netflix and Amazon Video now support 4k HDR, aided by improved compression standards such as H.265.

Managing many content formats across a rapidly evolving range of displays is a significant and growing challenge. Older content tends to not get upgraded to the newer formats, yet consumers expect all content to display correctly. As the number of content formats grow, the technology of video processing becomes increasingly complex.

Delivering the intent of the content creator requires sophisticated algorithms and hardware circuits. Frame-rate and motion incompatibilities require a significantly higher level of processing and more sophisticated algorithms in order to avoid creating new problems. For example, Hollywood movies, TV shows, and other premium content are usually authored at 24 frames per second or 24 Hz. At this frame rate, the brain can easily notice the transition from one frame to the next. As the brain and eyes track objects in motion, they have to jump in discrete steps due to the low frame rate. This stop-start motion is perceived by the brain as judder, jitter or strobing, reducing the visible clarity and fidelity of objects in motion and distracting from the main subject of the content. Most TVs today include frame-rate conversion chips, but many reviewers complain about artifacts such as halos, breakup in the image and the so-called "soap opera effect". Unfortunately, without frame-rate conversion, the video can appear to have judder and blur at levels that have increased substantially as a result of the improvements in contrast, color and detail.

Additionally, when a motion sequence is played on a digital display device, the new updated frame is drawn over the top of the still visible previous frame. This "hold" effect is perceived by the brain as motion blur. There are numerous causes of motion blur. The materials used in constructing pixels on the display take a finite amount of time to transition from one state to another. If this time is too long, the image does not update swiftly and motion sequences seem to smear or blur.

Judder and motion blur artifacts are more noticeable on bright, large screen, high contrast displays. Our advanced visual processing technology provides OEMs with solutions that avoid or minimize these artifacts and help realize the potential of their investment in high-resolution displays.

This gap between display capabilities and available content brings significant challenges to video display device manufacturers. Sophisticated visual processing is required to accurately reproduce the intended video on today's displays. We help bridge this gap between the display capabilities and available content with our visual processors and software, as well as with our TrueCut® Motion platform for content creators, distributors and display brands.

Our Technology: Bridging the Gap Between Device and Content While Preserving Creative Intent

Our core technologies are a portfolio of advanced video algorithms and intellectual property to address the many challenges posed by digital video. We believe our technologies can significantly improve video quality and will become increasingly important as the popularity of video content consumption grows, and pixel densities, screen size and image quality increase. Our products are designed with a flexible architecture that allows us to combine algorithms and functional blocks of digital and mixed signal circuitry. Accordingly, our technologies can be implemented across multiple products or in combinations within single products and can be applied to a broad range of applications, including smartphones, tablets, and projectors. The majority of our products include one or more of our technologies to provide optimal high-quality visual processing solutions to our customers, regardless of screen size.

Our core visual processing technologies include:

- **MotionEngine® MEMC.** Our proprietary MEMC technology significantly improves the performance and viewing experience of any screen by addressing problems such as judder and motion blur. Unlike competitive solutions it also reduces halo effects that are a typical byproduct of MEMC technology in general. Halos are objectionable blurred regions that surround moving objects as the MEMC algorithms try to reconstruct missing image data caused by the concealing and revealing of objects as they pass over or behind one another. Removing halos dramatically improves image quality and is of particular importance on high-resolution and bright displays where artifacts become more visible.
- **AI Based Display Processing.** This technology dramatically improves video and image quality and sets a new standard for picture quality on both LCD and OLED mobile displays with a new AI-driven architecture and dynamic refresh rate support for up to 144 Hz. Its lightweight AI display inferencing augments the Company's knowledge base, numerous real time inputs, and fuzzy logic IP to adaptively and intelligently optimize overall picture quality for video, games, and photos at low power, including real time SDR-to-HDR conversion and AI adaptive display.
- **Advanced Scaling.** As display resolutions continue to increase, there is a need to convert lower resolution content to higher resolution in order to display content properly. With the latest wave of high-resolution displays, the quality and quantity demands of scaling have increased significantly. Artifacts become more noticeable on these types of displays as they distract from the realism effect. In addition, with the availability of high-resolution content lagging behind the availability of high-resolution displays, high-quality scaling is required to ensure these new high resolution displays (such as 4K) do not suffer when compared to lesser resolution displays of the same size. Our advanced scaling is designed to ensure that up-conversion of lower resolution content is of the highest quality in maintaining the fidelity of image.
- **Mobile Visual Processing.** We have developed innovative visual processing solutions that are designed to optimize power consumption for mobile devices. Beyond MEMC and advanced scaling, these mobile solutions provide the kind of improvements in color, contrast, sharpness, and de-blur that are currently only found in high quality TVs today. Furthermore, this technology can reduce system power consumption and extend battery life.
- **Transcoding/Decoding.** Digital Delivery forms the bulk of not just video content, but all internet bandwidth today. However, throughout the entire chain from inception to consumption, there are multiple variations in bitrate, resolution, and codecs used for both audio and video. Transcoding is a fundamental technology used throughout this pipeline that leads to moving pictures viewed on TVs and mobile devices. The XCODE family of ASICs has enabled many devices within this pipeline, from the racks in some service providers all the way down to the home user watching broadcast OTA TV on a smartphone. XCODE technology provides solutions that deliver UHD Blu-ray PVRs with capability of transcoding recorded content suitable for viewing on smartphones. The technology supports today's broadcast standards, such as ATSC 1.0, DVB/T/T2/S/S2, ISDB/T/S, and ADSB and is scalable to support upcoming broadcast standards such as ATSC 3.0.
- **SDR to HDR Conversion.** UHD video has standardized on a technology known as HDR to deliver higher dynamic range content. This has resulted in several competing HDR deployments like HDR10, HLG and HDR10+ with support by multiple industry giants. Our HDR conversion technology can not only convert between SDR (Standard Dynamic Range) and HDR10, it can also convert among HDR10, HLG and HDR10+, solving an interconnectivity problem between content formatted in one HDR format and display devices that support a different HDR format.
- **Rendering Accelerator.** We have developed technology that is enabled via a software development kit used by gaming content makers to allow their games to leverage the resources and features of our most current visual processing technology to improve the user experience with high frame rate, high resolution games while reducing overall system power consumption.
- **TrueCut Motion Grading and Pre-processing.** Through our end-to-end platform, filmmakers determine the motion look and their creative intent at the source. Their creative intent is preserved through a certified distribution and playback platform all the way to the final presentation to viewers. This approach provides a closer relationship between the filmmaker and the viewer than has been previously possible.

Customers, Sales and Marketing

IC Products

The key focus of our global sales and marketing strategy for our IC products is to achieve design wins with industry leading branded manufacturers in our target markets and to continue building strong customer relationships. Once a design win has been achieved, sales and marketing efforts are focused on building long-term mutually beneficial business relationships with our customers by providing superior technology and reducing their costs, which complements our customers' product development objectives and meets their expectations for price-performance and time to market. Marketing efforts are focused on building market-leading brand awareness and preference for our solutions.

We utilize direct sales and marketing resources in Japan, China, Europe and Taiwan. In addition to sales and marketing representatives, we have field application engineers who provide technical expertise and assistance to manufacturing customers on final product development.

Our global distribution channel is multi-tiered and involves both indirect and direct distribution channels.

Indirect Distribution Channels

- We have indirect distribution relationships through our distributors. Distributors are resellers in local markets who provide engineering support and stock our semiconductors in direct relation to specific manufacturing customer orders. Our distributors often have valuable and established relationships with our end customers, and in certain countries it is customary to sell to distributors. While a distributor's payment to us is not dependent upon the distributor's ability to resell the product or to collect from the end customer, our distributors may provide longer payment terms to end customers than those we would offer. Sales to distributors accounted for 57% and 56% of revenue in 2022 and 2021 respectively.

One of our distributors, Tokyo Electron Device Ltd. represented more than 10% of revenue in each of 2022 and 2021, and accounted for more than 10% of accounts receivable as of December 31, 2022. Another distributor, Upstar Technology Limited accounted for more than 10% of revenue in 2022 and 2021 and accounted for more than 10% of accounts receivable as of December 31, 2022 and 2021. No other distributor accounted for more than 10% of revenue in 2022 and 2021 or represented more than 10% of accounts receivable as of December 31, 2022 or 2021.

Direct Distribution Channels

We have direct distributor relationships in Japan, China, Europe and Taiwan.

- We have established direct relationships with companies that manufacture high-end display systems. Revenue through direct relationships accounted for 43% and 44% of total revenue in 2022 and 2021, respectively.

We have direct relationships with companies falling into the following three classifications:

- **Integrators.** Integrators are OEMs who build display devices based on specifications provided by branded suppliers.
- **Branded Manufacturers.** Branded manufacturers are globally recognized manufacturers who develop display device specifications and manufacture, market and distribute display devices either directly or through resellers to end-users.
- **Branded Suppliers.** Branded suppliers are globally recognized suppliers who develop display device specifications and then source them from integrators, typically in Asia, and distribute them either directly or through resellers to end-users.

End Customers

Revenue attributable to our top five end customers together represented 76% of revenue in both 2022 and 2021. End customers include customers who purchase directly from us as well as customers who purchase products indirectly through distributors. Sales to Seiko Epson Corporation represented more than 10% of revenue in each of 2022 and 2021, and accounted for more than 10% of accounts receivable as of December 31, 2022 and 2021. Sales to vivo Communication Technology Co. Ltd. represented more than 10% of revenue in each of 2022 and 2021. Sales to Guangdong OPPO Mobile Telecommunications Corporation, Ltd. accounted for more than 10% of revenue in 2022. No other end customer accounted for more than 10% of revenue in 2022 or 2021 or represented more than 10% of accounts receivable as of December 31, 2022 or 2021.

TrueCut Products

The sales and marketing of our TrueCut products differs in approach from that of our IC products. The TrueCut platform includes a mix of services and licensing that is targeted at all levels of the creation, finishing, and distribution of cinematic or streaming digital video. For our TrueCut Motion content creation tools we seek to work directly with filmmakers, providing motion grading services, or the tools are also available for license. For content finishing, specific to certain displays, TrueCut Motion will pre-process the content in order to ensure playback according to the original creative intent. For display makers and brands, we provide the certification services, support, and IP licensing necessary to play back TrueCut Motion processed content, and the right to use the TrueCut Motion brand. We do not use distributors for our TrueCut products. Revenue from our TrueCut products is thus far not material, and therefore we include all such revenue in our Engineering services, license and other category for the Mobile market.

Seasonality

Our business is subject to seasonality related to the markets we serve and the location of our customers. For example, we have historically experienced higher revenue from the digital projector component of the Home & Enterprise market in the third quarter of the year, and lower revenue in the first quarter of the year, as our Japanese customers reduce inventories in anticipation of their March 31 fiscal year end.

Geographic Distribution of Sales

Sales outside the U.S. accounted for approximately 95% and 97% of revenue in 2022 and 2021 respectively.

Financial information regarding our domestic and foreign operations is presented in "Note 13. Segment Information" in Part II, Item 8 of this Annual Report on Form 10-K.

Backlog

Our sales are made pursuant to customer purchase orders for delivery of standard products. The volume of product actually purchased by our customers, as well as shipment schedules, are subject to frequent revisions that reflect changes in both the customers' needs and product availability. In light of industry practice and our own experience, we do not believe that backlog as of any particular date is indicative of future results.

Competition

The vast majority of our revenue is derived from sales of integrated circuits within the intensely competitive semiconductor industry. Further, the markets for higher performance display and projection devices, including the markets for mobile devices, digital projectors and other applications demanding high quality video, are characterized by rapid technological change, evolving industry standards, compressed product life cycles and declining average selling prices. We believe the principal competitive factors in our markets include product performance, time to market, cost, functional versatility provided by software, customer relationships and reputation, patented innovative designs, levels of product integration, compliance with industry standards and system design cost. We believe we compete favorably with respect to these factors.

Our current products face competition from developers of application processors and specialized display controllers designed by merchant chip vendors, our customers, potential customers and display panel vendors. Additionally, new alternative display processing technologies and industry standards may emerge that compete with technologies we offer.

We also compete with specialized and diversified electronics and semiconductor companies that offer display processors or scaling components including: Actions Microelectronics Co., Ltd., ARM Holdings PLC, Dolby Laboratories, Inc., Egis Technology Inc., Hisilicon Technologies Co., Ltd., i-Chips Technology Inc., Lattice Semiconductor Corporation, MediaTek Inc., Novatek Microelectronics Corp., NVIDIA Corporation, Qualcomm Incorporated, Realtek Semiconductor Corp., Renesas Electronics America Inc., Socionext Inc., Solomon Systech (International) Ltd., STMicroelectronics N.V., Sunplus Technology Co., Ltd., Synaptics Incorporated, Texas Instruments Incorporated, Unisoc Communications, Inc., and other companies. Potential and current competitors may include diversified semiconductor manufacturers and the semiconductor divisions or affiliates of some of our customers, including: Apple Inc., Broadcom Inc., LG Electronics, Inc., MegaChips Corporation, Mitsubishi Digital Electronics America, Inc., NEC Corporation, Panasonic Corporation, Samsung Electronics Co., Ltd., Socionext Inc., ON Semiconductor Corporation, Seiko Epson Corporation, Sharp Electronics Corporation, Sony Corporation, and Toshiba America, Inc. In addition, start-up companies may seek to compete in our markets.

Although TrueCut Motion is the first motion grading solution for the cinematic market, competitive solutions could arise rapidly. These competitive solutions could come from several sources, including companies that provide solutions for other post-processing needs (such as Dolby Laboratories, Inc., Epic Games, Inc., Unity Technologies, Adobe, Inc., Soluciones Gráficas por Ordenador S.L. (SGO), The Foundry Visionmongers Limited, and Autodesk, Inc.) as well as visual effects studios that use digital effects to reduce artifacts before they are created (such as Wētā FX, DNEG Plc, Pixar Animation Studios, Digital Domain, and Industrial Light & Magic (ILM)). We believe that we would compete favorably with respect to these potential competitive solutions and services in terms of cost, price, functionality, efficiency, patented methods, and time to market.

Research and Development

Research and development efforts are focused on the development of our solutions for the Mobile, Home & Enterprise and Cinema markets. Our development efforts are focused on pursuing higher levels of video performance, integration and new features in order to provide our customers with solutions that enable them to introduce market leading products and help lower final systems costs.

We have invested, and expect to continue to invest, significant resources in research and development activities. Our research and development expenses were \$30.5 million and \$27.3 million in 2022 and 2021, respectively. During 2022 and 2021, we received reimbursements related to a co-development arrangement with a customer for costs incurred in connection with our development of an IC product. As a result of the reimbursements, our overall research and development expense was reduced by \$4.3 million and \$4.0 million in 2022 and 2021 respectively.

Manufacturing

Within the semiconductor industry we are known as a "fabless" company, meaning that we do not manufacture the semiconductors that we design and develop, but instead contract with a limited number of foundries and assembly and test vendors to produce all of our wafers and for completion of finished products. The fabless approach allows us to concentrate our resources on product design and development where we believe we have greater competitive advantages.

See "Risk Factors" in Part I, Item 1A of this Annual Report on Form 10-K for information on risks related to our manufacturing strategy and processes.

Our TrueCut products do not require manufacturing, since they are based on IP, software, and services.

Intellectual Property

We use a combination of nondisclosure agreements and patent, copyright, trademark and trade secret laws to protect the algorithms, design and architecture of our technology. As of December 31, 2022, we held 291 patents and have 17 patent applications pending, compared to 335 patents and 9 patent applications pending as of December 31, 2021. The patents we hold relate generally to improvements in the visual display of digital image data including, but not limited to, improvements in image scaling, image correction, automatic image optimization and video signal processing for digital displays, and in large part, are implemented in our core technologies and products. Our U.S. and foreign patents are generally enforceable for 20 years from the date they were filed. Accordingly, our issued patents have from approximately 1 to 16 years remaining in their respective term, depending on their filing dates. We believe that the remaining term of our patents is adequate relative to the expected lives of our related products.

We intend to seek patent protection for other significant technologies that we have already developed and expect to seek patent protection for future products and technologies as necessary. Patents may not be issued as a result of any pending applications and any claims allowed under issued patents may be insufficiently broad to protect our technology. Existing or future patents may be invalidated, diluted, circumvented, challenged or licensed to others. Furthermore, the laws of certain foreign countries in which our products are or may be developed, manufactured or sold, including various countries in Asia, may not protect our products or intellectual property rights in the same manner and to the same extent as do the laws of the U.S. and, thus, make the possibility of piracy of our technology and products more likely in these countries.

The semiconductor industry is characterized by vigorous protection of intellectual property rights, which have resulted in significant and often protracted and expensive litigation. We, our customers or our foundries from time to time may be notified of claims that we may be infringing patents or other intellectual property rights owned by third parties. Litigation by or against us relating to patent infringement or other intellectual property matters could result in significant expense to us and divert the efforts of our technical and management personnel, whether or not such litigation results in a determination favorable to us. In the event of an adverse result in any such litigation, we could be required to pay substantial damages, cease the manufacture, use and sale of infringing products, expend significant resources to develop non-infringing technology, discontinue the use of certain processes or obtain licenses to the infringing technology. We may not be able to settle any alleged patent infringement claim through a cross-licensing arrangement. In the event any third party made a valid claim against us, our customers or our foundries, and a license was not made available to us on terms that are acceptable to us or at all, we would be adversely affected.

See "Risk Factors" in Part I, Item 1A, and "Note 10. Commitments and Contingencies" in Part II, Item 8 of this Annual Report on Form 10-K for information on various risks related to intellectual property.

Environmental Matters

Environmental laws and regulations are complex, change frequently and have tended to become more stringent over time. We have incurred, and may continue to incur, significant expenditures to comply with these laws and regulations and we may incur additional capital expenditures and asset impairments to ensure that our products and our vendors' products are in compliance with these regulations. We would be subject to significant penalties for failure to comply with these laws and regulations.

See "Risk Factors" in Part I, Item 1A of this Annual Report on Form 10-K for information on various environmental risks.

Employees

As of December 31, 2022, we had a total of 222 employees, the majority of which were full-time, compared to 217 employees as of December 31, 2021.

Corporate Information

Pixelworks was founded in 1997 and is incorporated under the laws of the state of Oregon. Our stock is traded on the Nasdaq Global Market under the symbol "PXLW".

Availability of Securities and Exchange Commission Filings

We make available through our website our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports and any filings filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act of 1934, free of charge as soon as reasonably practicable after we electronically file or furnish such material with the Securities and Exchange Commission ("SEC"). Our Internet address is www.pixelworks.com. The content on, or that can be accessed through, our website is not incorporated by reference into this filing. Our committee charters and codes of ethics are also available free of charge on our website.

The SEC maintains an Internet site at www.sec.gov that contains our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports, if any, or other filings filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act, and proxy and information statements.

Item 1A. Risk Factors.

The following risks could materially and adversely affect our business, financial condition, and results of operations, and the trading price of our common stock could decline. These risk factors do not identify all of the risks that we face. Our business operations could also be affected by factors that we currently consider to be immaterial or that are unknown to us at the present time. Investors should also refer to the other information contained or incorporated by reference in this Annual Report on Form 10-K for the year ended December 31, 2022, including our consolidated financial statements and related notes, and our other filings made from time to time with the Securities and Exchange Commission ("SEC").

Risks Related to COVID-19

The ongoing effects of the COVID-19 pandemic have disrupted and may continue to disrupt our business or the business of our customers or suppliers, and as such, may adversely affect our financial condition.

Our business, the businesses of our customers, and the businesses of our suppliers have been affected by the effects of the COVID-19 pandemic and the related governmental, business and community responses to it. Additionally, the economies and financial markets of many countries have been impacted by the pandemic, and the longevity and significance of the resulting economic impact is currently unknown. A significant economic downturn could materially and adversely affect our end customers, and thus could negatively impact demand for our products and our operating results. For example, beginning in March 2022 and lasting through December 2022, various cities in China imposed lockdowns in response to China's "zero-COVID" policy, leading to weaker consumer demand which has had, and we anticipate may continue to have, an adverse impact on China's economy, on our customers and on our business. For example, demand in our Mobile market was down during the second half of 2022, which we believe was largely attributable to the imposed lockdowns in China. More recently, China announced a relaxation of its "zero-COVID" policies, which increases the risk of large outbreaks of COVID-19 in China, which could have an adverse impact on China's economy, on our customers and on our business.

The spread of COVID-19 has caused us to modify our business practices from time-to-time, including implementing work-from-home policies and limiting travel by our employees. Our Shanghai and Shenzhen offices have been alternating between full in-person staffing and remote staffing as local ordinances continue to change in response to new outbreaks. Outbreaks and various strict actions by the Chinese government in response have impacted and are expected to continue to impact the ability of our sales team in China to make in-person sales calls to current and potential customers at the same volume as they did prior to the outbreak of the pandemic. While China has relaxed its "zero-COVID" policies, the risk of an outbreak is now higher, which could also require us to change our practices and disrupt our business. Our offices and supply chain partners in Taiwan, and our offices in Japan and North America are fully operational. The Company has taken in the past and may continue to take in the future, certain mitigation measures. For example, and as previously reported, in 2020 the Company implemented several cost-saving measures, including reductions in executive salaries, elimination of bonus programs, and hiring freezes. Since then, the Company has carefully monitored its costs in light of the uncertainty caused by the pandemic.

COVID-19 has, and may continue to, negatively affect the operations of our suppliers and customers, as their own workforces and operations are disrupted by the pandemic, which could result in the interruption of our distribution system, temporary or long-term disruption in our supply chains, or delays in the delivery of our product. For example, the Company experienced some mild supply chain disruption in the first quarter of 2022.

The future impact of the pandemic on our business, as well as the business of our suppliers and customers, and the additional measures that may be needed in response to it, including any new cost-saving measures, will depend on many factors beyond our control and knowledge. We will continually monitor the situation to determine what actions may be necessary or appropriate to address the impact of the pandemic, which may include actions mandated or recommended by federal, state or local authorities.

The continued uncertain global economic environment and volatility in global credit and financial markets could materially and adversely affect our business and results of operations.

The state of the global economy continues to be uncertain. As a result of these conditions, our manufacturers, vendors and customers might experience deterioration of their businesses, cash flow shortages and difficulty obtaining financing, which could result in interruptions or delays in the performance of any contracts, reductions and delays in customer purchases, delays in or the inability of customers to obtain financing to purchase our products, and bankruptcy of customers. Furthermore, the constraints in the capital and credit markets, may limit the ability of our customers to meet their liquidity needs, which could result in an impairment of their ability to make timely payments to us and reduce their demand for our products, adversely

impacting our results of operations and cash flows. This environment has also made it difficult for us to accurately forecast and plan future business activities.

Company Specific Risks

If we fail to meet the evolving needs of our markets, identify new products, services or technologies, or successfully compete in our target markets, our revenue and financial results will be adversely impacted.

Pixelworks designs, develops and markets visual processing and advanced media processing solutions in the Mobile, Home & Enterprise and Cinema markets. Our success depends to a significant extent on our ability to meet the evolving needs of these markets and to enhance our existing products, solutions and technologies. In addition, our success depends on our ability to identify emerging industry trends and to develop new products, solutions and technologies. Our existing markets and products and new markets and products may require a considerable investment of technical, financial, compliance, sales and marketing resources.

We cannot assure you that our strategic direction will result in innovative products and technologies that provide value to our customers and partners. If we fail to anticipate the changing needs of our target markets and emerging technology trends, or adapt that strategy as market conditions evolve, in a timely manner to exploit potential market opportunities our business will be harmed. In addition, if demand for products and solutions from these markets is below our expectations, if we fail to achieve consumer or market acceptance of them or if we are not able to develop these products and solutions in a cost effective or efficient manner, we may not realize benefits from our strategy.

Our target markets remain extremely competitive, and we expect competition to intensify as current competitors expand their product and service offerings, industry standards continue to evolve and new competitors enter these markets. If we are unable to successfully compete in our target markets, demand for our products, solutions and technologies could decrease, which would cause our revenue to decline and our financial results to suffer.

Our product strategy, which is targeted at markets demanding superior video and digital image quality as well as efficient video delivery, may not address the demands of our target customers and may not lead to increased revenue in a timely manner or at all, which could materially adversely affect our results of operations and limit our ability to grow.

We have adopted a product strategy that focuses on our core competencies in visual display processing and delivering high levels of video and digital image quality. This strategy is designed to address the needs of the high-resolution and high-quality segment of these markets. Such markets may not develop or may take longer to develop than we expect. We cannot assure you that the products we are developing will adequately address the demands of our target customers, or that we will be able to produce our new products at costs that enable us to price these products competitively.

Achieving design wins involves lengthy competitive selection processes that require us to incur significant expenditures prior to generating any revenue or without any guarantee of any revenue related to this business. If we fail to generate revenue after incurring substantial expenses to develop our products, our business and operating results would suffer.

We must achieve "design wins" that enable us to sell our semiconductor solutions for use in our customers' products. These competitive selection processes typically are lengthy and can require us to incur significant research and development expenditures and dedicate scarce engineering resources in pursuit of a single customer opportunity. We may not achieve a design win and may never generate any revenue despite incurring significant research and development expenditures. This could cause us to lose revenue and require us to write off obsolete inventory and could weaken our position in future competitive selection processes.

Even if our product strategy is properly targeted, we cannot assure you that the products we are developing will lead to an increase in revenue from new design wins. To achieve design wins, we must design and deliver cost-effective, innovative and integrated semiconductors that overcome the significant costs associated with qualifying a new supplier and which make developers reluctant to change component sources. Additionally, potential developers may be unwilling to select our products due to concerns over our financial strength. Further, design wins do not necessarily result in developers ordering large volumes of our products. Developers can choose at any time to discontinue using our products in their designs or product development efforts. A design win is not a binding commitment by a developer to purchase our products, but rather a decision by a developer to use our products in its design process. Even if our products are chosen to be incorporated into a developer's products, we may still not realize significant revenue from the developer if its products are not commercially successful or it chooses to qualify, or incorporate the products, of a second source. Additionally, even if our product strategy is successful at achieving design wins and increasing our revenue, we may continue to incur operating losses due to the significant research and development costs that are required to develop competitive products.

System security and data protection breaches, as well as cyber-attacks, could disrupt our operations, reduce our expected revenue and increase our expenses, which could adversely affect our stock price and damage our reputation.

Security breaches, computer malware and cyber-attacks have become more prevalent and sophisticated in recent years. These attacks have occurred on our systems in the past and are expected to occur in the future. Experienced computer programmers, hackers and employees may be able to penetrate our security controls and misappropriate or compromise our confidential information, or that of our employees or third parties. These attacks may create system disruptions or cause shutdowns. For portions of our IT infrastructure, including business management and communication software products, we rely on products and services provided by third parties. These providers may also experience breaches and attacks to their products which may impact our systems. Data security breaches may also result from non-technical means, such as actions by an employee with access to our systems.

Actual or perceived breaches of our security measures or the accidental loss, inadvertent disclosure or unapproved dissemination of proprietary information or sensitive or confidential data about us, our partners, our customers or third parties could expose the parties affected to a risk of loss, or misuse of this information, resulting in litigation and potential liability, damage to our brand and reputation or other harm to our business. Our efforts to prevent and overcome these challenges could increase our expenses and may not be successful. We may experience interruptions, delays, cessation of service and loss of existing or potential customers. Such disruptions could adversely impact our ability to fulfill orders and interrupt other critical functions. Delayed sales, lower margins or lost customers as a result of these disruptions could adversely affect our financial results, stock price and reputation.

If we fail to retain or attract the specialized technical and management personnel required to successfully operate our business, it could harm our business and may result in lost sales and diversion of management resources.

Our success depends on the continued services of our executive officers and other key management, engineering, and sales and marketing personnel and on our ability to continue to attract, retain and motivate qualified personnel. Competition for skilled engineers and management personnel is intense within our industry, and we may not be successful in hiring and retaining qualified individuals. For example, we have experienced, and may continue to experience, difficulty and increased compensation expense in order to hire and retain qualified engineering personnel in our Shanghai design center. The loss of, or inability to hire, key personnel could limit our ability to develop new products and adapt existing products to our customers' requirements, and may result in lost sales and a diversion of management resources. Any transition in our senior management team may involve a diversion of resources and management attention, be disruptive to our daily operations or impact public or market perception, any of which could have a negative impact on our business or stock price.

We may not fully realize the estimated savings from our restructurings in a timely manner or at all, and our restructuring programs may result in business disruptions and decrease productivity. Any of the foregoing would negatively affect our financial condition and results of operations.

From time to time, we may have the need to execute restructuring plans to make the operation of the Company more efficient. We may not be able to implement our restructuring programs as planned, and we may need to take additional measures to fulfill the objectives of our restructuring. The anticipated expenses associated with our restructuring programs may differ from or exceed our expectations, and we might not be able to realize the full amount of estimated savings from the restructuring programs in a timely manner or at all. Additionally, our restructuring plans may result in business disruptions or decreases in productivity. As a result, our restructuring plans could have an adverse impact on our financial condition or results of operations.

We have significantly fewer financial resources than most of our competitors, which limits our ability to implement new products or enhancements to our current products and may require us to implement additional future restructuring plans, which in turn could adversely affect our future sales and financial condition.

Financial resource constraints could limit our ability to execute our product strategy or require us to implement additional restructuring plans, particularly if we are unable to generate sufficient cash from operations or obtain additional sources of financing. Any future restructuring actions may slow our development of new or enhanced products by limiting our research and development and engineering activities. Our cash balances are also lower than those of our competitors, which may limit our ability to develop competitive new products on a timely basis or at all. If we are unable to successfully introduce new or enhanced products, our sales, operating results and financial condition will be adversely affected.

If we are not profitable in the future, we may be unable to continue our operations.

We have incurred operating losses each fiscal year since 2010 and have an accumulated deficit of \$451.0 million as of December 31, 2022. If and when we achieve profitability depends upon a number of factors, including our ability to develop and market innovative products, accurately estimate inventory needs, contract effectively for manufacturing capacity and maintain sufficient funds to finance our activities. We cannot assure our investors that we will ever achieve annual profitability, or that we will be able to maintain profitability if achieved. If we are not profitable in the future, we may be unable to continue our operations.

A significant amount of our revenue comes from a limited number of customers and distributors and from time to time we may enter into exclusive deals with customers, exposing us to increased credit risk and subjecting our cash flow to the risk that any of our customers or distributors could decrease or cancel its orders.

The display manufacturing market is highly concentrated and we are, and will continue to be, dependent on a limited number of customers and distributors for a substantial portion of our revenue. Sales to our top distributor represented 29% and 27% of revenue for the years ended December 31, 2022 and 2021, respectively. If any of our distributors ceases to do business with us, it may be difficult for us to find adequate replacements, and even if we do, it may take some time. The loss of any of our top distributors could negatively affect our results of operations. Additionally, revenue attributable to our top five end customers represented 76% of revenue for both the years ended December 31, 2022 and 2021. As of December 31, 2022, we had four accounts that each represented 10% or more of accounts receivable. As of December 31, 2021, we had three accounts that each represented 10% or more of accounts receivable. Orders included in our backlog may be fully or partially cancellable. A reduction, delay or cancellation of orders from one or more of our significant customers, or a decision by one or more of our significant customers to select products manufactured by a competitor or to use its own internally-developed semiconductors, would significantly and negatively impact our revenue. Further, the concentration of our accounts receivable with a limited number of customers increases our credit risk. The failure of these customers to pay their balances, or any customer to pay future outstanding balances, would result in an operating expense and reduce our cash flows.

We generally do not have long-term purchase commitments from our customers and if our customers cancel or change their purchase commitments, our revenue and operating results could suffer.

Substantially all of our sales to date have been made on a purchase order basis. We generally do not have long-term commitments with our customers. As a result, our customers may cancel, change or delay product purchase commitments, which could cause our revenue to decline and materially and adversely affect our results of operations.

Our revenue and operating results can fluctuate from period to period, which could cause our share price to decline.

Our revenue and operating results have fluctuated in the past and may fluctuate from period to period in the future due to a variety of factors, many of which are beyond our control. Factors that may contribute to these fluctuations include those described in this "Risk Factors" section of this report, such as the timing, changes in or cancellation of orders by customers, market acceptance of our products and our customers' products and the timing and extent of product development costs. Additionally, our business is subject to seasonality related to the markets we serve and the location of our customers. For example, we have historically experienced higher revenue from the digital projector component of the Home & Enterprise market in the third quarter of the year, and lower revenue in the first quarter of the year. As a result of these and other factors, the results of any prior quarterly or annual periods should not be relied upon as indications of our future revenue or operating performance. Fluctuations in our revenue and operating results could cause our share price to decline.

If we are unable to generate sufficient cash from operations and are forced to seek additional financing alternatives, or in the event we acquire or make an investment in companies that complement our business, our working capital may be adversely affected and our shareholders may experience dilution or our operations may be impaired.

We may be unable to generate or sustain positive cash flow from operating activities and would then be required to use existing cash and cash equivalents to support our working capital and other cash requirements. Additionally, from time to time, we may evaluate acquisitions of, or investments in, businesses, products or technologies that complement our business. Any transactions, if consummated, may consume a material portion of our working capital or require the issuance of equity securities that may result in dilution to existing shareholders. If additional funds are required to support our working capital requirements, acquisitions or other purposes, we may seek to raise funds through debt and equity financing or from other sources. If we raise additional funds through the issuance of equity or convertible debt securities, the percentage ownership of our shareholders could be significantly diluted, and these newly-issued securities may have rights, preferences or privileges senior to those of existing shareholders. If we raise additional funds by obtaining loans from third parties, the terms of those financing arrangements may include negative covenants or other restrictions on our business that could impair our operating flexibility, and would also require us to incur interest expense. We can provide no assurance that additional financing will be available at all or, if available, that we would be able to obtain additional financing on terms favorable to us.

We license our intellectual property, which exposes us to risks of infringement or misappropriation, and may cause fluctuations in our operating results.

We have licensed certain intellectual property to third parties and may enter into additional license arrangements in the future. We cannot assure you, however, that others will be interested in licensing our intellectual property on commercially favorable terms or at all. We also cannot ensure that licensees will honor agreed-upon market restrictions, not infringe upon or misappropriate our intellectual property or maintain the confidentiality of our proprietary information.

IP license agreements are complex and earning and recognizing revenue under these agreements depends upon many factors, including completion of milestones, allocation of values to delivered items and customer acceptances. Many of these factors require significant judgments. Also, generating revenue from these arrangements is a lengthy and complex process that may last beyond the period in which efforts begin and, once an agreement is in place, the timing of revenue recognition may depend on events such as customer acceptance of deliverables, achievement of milestones, our ability to track and report progress on contracts, customer commercialization of the licensed technology and other factors, any or all of which may or may not be achieved. The accounting rules associated with recognizing revenue from these transactions are complex and subject to interpretation. Due to these factors, the amount of licensing revenue recognized in any period, if any, and our results of operations, may differ significantly from our expectations.

Finally, because licensing revenue typically has a higher margin compared to product sales, licensing revenue can have a disproportionate impact on our gross profit and results of operations. There is no assurance that we will be able to maintain a consistent level of licensing revenue or mix of licensing revenue and revenue from product sales, which could result in wide fluctuations in our results of operations from period to period, making it difficult to accurately measure the performance of our business.

Our net operating loss carryforwards may be limited or they may expire before utilization.

As of December 31, 2022, we had federal, state and foreign net operating loss carryforwards of approximately \$155.0 million, \$9.6 million, and \$42.7 million, respectively, which will begin to expire in 2024. These net operating loss carryforwards may be used to offset future taxable income and thereby reduce our income taxes otherwise payable. However, we cannot assure you that we will have taxable income in the future before all or a portion of these net operating loss carryforwards expire. Additionally, our federal net operating losses may be limited by Section 382 of the Internal Revenue Code of 1986, as amended (the "Code"), which imposes an annual limit on the ability of a corporation that undergoes an "ownership change" to use its net operating loss carryforwards to reduce its tax liability. An ownership change is generally defined as a greater than 50% increase in equity ownership by 5% shareholders in any three-year period. In the event of certain changes in our shareholder base, we may at some time in the future experience an "ownership change" and the use of our federal net operating loss carryforwards may be limited. In addition, the Tax Cuts and Jobs Act (the "TCJA"), limits the deduction for net operating loss carryforwards to 80 percent of taxable income for losses arising in taxable years beginning after December 31, 2020.

We face a number of risks as a result of the concentration of our operations and customers in Asia.

Many of our customers are located in Japan, China, or Taiwan. Sales outside the U.S. accounted for approximately 95% and 97% of revenue for the years ended December 31, 2022 and 2021, respectively. We anticipate that sales outside the U.S. will continue to account for a substantial portion of our revenue in future periods. In addition, customers who incorporate our products into their products sell a substantial portion of their products outside of the U.S. All of our products are also manufactured outside of the U.S. and most of our current manufacturers are located in Taiwan. Furthermore, most of our employees are located in China, Japan and Taiwan. Our Asian operations require significant management attention and resources, and we are subject to many risks associated with operations in Asia, including, but not limited to:

- outbreaks of health epidemics in China or other parts of Asia, including COVID-19;
- difficulties in managing international distributors and manufacturers due to varying time zones, languages and business customs;
- compliance with U.S. laws affecting operations outside of the U.S., such as the Foreign Corrupt Practices Act;
- reduced or limited protection of our IP, particularly in software, which is more prone to design piracy;
- difficulties in collecting outstanding accounts receivable balances;
- changes in tax rates, tax laws and the interpretation of those laws;
- difficulties regarding timing and availability of export and import licenses;
- ensuring that we obtain complete and accurate information from our Asian operations to make proper disclosures in the United States;
- political and economic instability, including tensions between China and each of the U.S., Taiwan and Japan;
- difficulties in maintaining sales representatives outside of the U.S. that are knowledgeable about our industry and products;
- changes in the regulatory environment in China, Japan and Taiwan that may significantly impact purchases of our products by our customers or our customers' sales of their own products;
- imposition of new tariffs, quotas, trade barriers and similar trade restrictions on our sales;
- varying employment and labor laws; and
- greater vulnerability to infrastructure and labor disruptions than in established markets.

Any of these factors could require a disproportionate share of management's attention, result in increased costs or decreased revenues, and could materially affect our product sales, financial condition and results of operations.

Our operations in Asia expose us to heightened risks due to natural disasters.

The risk of natural disasters in the Pacific Rim region is significant. Natural disasters in countries where our manufacturers or customers are located could result in disruption of our manufacturers' and customers' operations, resulting in significant delays in shipment of, or significant reductions in orders for, our products. There can be no assurance that we can locate additional manufacturing capacity or markets on favorable terms, or find new customers, in a timely manner, if at all. Natural disasters in this region could also result in:

- reduced end user demand due to the economic impact of any natural disaster;
- a disruption to the global supply chain for products manufactured in areas affected by natural disasters that are included in products purchased either by us or by our customers;
- an increase in the cost of products that we purchase due to reduced supply; and
- other unforeseen impacts as a result of the uncertainty resulting from a natural disaster.

Our international operations expose us to risks resulting from the fluctuations of foreign currencies.

We are exposed to risks resulting from the fluctuations of foreign currencies, primarily those of Japan, Taiwan, China and Canada. We sell our products to OEMs that incorporate our products into other products that they sell outside of the U.S. While sales of our products to OEMs are denominated in U.S. dollars, the products sold by OEMs are denominated in foreign currencies. Accordingly, any strengthening of the U.S. dollar against these foreign currencies will increase the foreign currency price equivalent of our products, which could lead to a change in the competitive nature of these products in the marketplace. This, in turn, could lead to a reduction in revenue.

In addition, a portion of our operating expenses, such as employee salaries and foreign income taxes, are denominated in foreign currencies. Accordingly, our operating results are affected by changes in the exchange rate between the U.S. dollar and those currencies. Any future strengthening of those currencies against the U.S. dollar will negatively impact our operating results by increasing our operating expenses as measured in U.S. dollars.

We may engage in financial hedging techniques in the future as part of a strategy to address potential foreign currency exchange rate fluctuations. These hedging techniques, however, may not be successful at reducing our exposure to foreign currency exchange rate fluctuations and may increase costs and administrative complexity.

Failure to comply with anti-bribery, anti-corruption, and anti-money laundering laws could subject us to penalties and other adverse consequences.

We are subject to the Foreign Corrupt Practices Act ("FCPA") and other anti-corruption, anti-bribery and anti-money laundering laws in various jurisdictions. From time to time, we may leverage third parties to help conduct our businesses abroad. We and our third-party intermediaries may have direct or indirect interactions with officials and employees of government agencies or state-owned or affiliated entities and may be held liable for the corrupt or other illegal activities of these third-party business partners and intermediaries, our employees, representatives, contractors, channel partners, and agents, even if we do not explicitly authorize such activities. While we have policies and procedures to address compliance with such laws, we cannot assure you that all of our employees and agents will not take actions in violation of our policies and applicable law, for which we may be ultimately held responsible. Any violation of the FCPA or other applicable anti-bribery, anti-corruption laws, and anti-money laundering laws could result in whistleblower complaints, adverse media coverage, investigations, loss of export privileges, severe criminal or civil sanctions, or suspension or debarment from U.S. government contracts, all of which may have an adverse effect on our reputation, our business, results of operations and financial condition.

Our reported financial results may be materially and adversely affected by changes in accounting principles generally accepted in the United States.

Generally accepted accounting principles in the United States are subject to interpretation by the Financial Accounting Standards Board ("FASB"), the SEC, and various bodies formed to promulgate and interpret appropriate accounting principles. A change in these principles or interpretations could have a significant effect on our reported financial results and could materially and adversely affect the transactions completed before the announcement of a change. Additionally, the adoption of new or revised accounting principles may require that we make significant changes to our systems, processes and controls.

If we are unable to maintain effective disclosure controls and internal controls over financial reporting, investors may lose confidence in the accuracy and completeness of our financial reports, and the market price of our common stock may be materially and adversely affected.

If we are unable to maintain effective disclosure controls and internal controls over financial reporting, investors may lose confidence in the accuracy and completeness of our financial reports. For example, in the second quarter of 2019, we identified a material weakness in our internal controls over financial reporting related to the review of aged liabilities for possible extinguishment due to the expiration of the statute of limitation, which was remediated as of December 31, 2019. Additionally, if any new internal control procedures which may be adopted or our existing internal control procedures are deemed inadequate, or if we identify additional material weaknesses in our disclosure controls or internal controls over financial reporting in the future, we will be unable to assert that our internal controls are effective. If we are unable to do so, or if our auditors are unable to attest to the effectiveness of our internal controls, we could lose investor confidence in the accuracy and completeness of our financial reports, which would cause the price of our common stock to decline.

As we have limited insurance coverage, any incurred liability resulting from uncovered claims could adversely affect our financial condition and results of operations.

Our insurance policies may not be adequate to fully offset losses from covered incidents, and we do not have coverage for certain losses. For example, we do not have earthquake insurance related to our Asian operations because adequate coverage is not offered at economically justifiable rates. If our insurance coverage is inadequate to protect us against catastrophic losses, any uncovered losses could adversely affect our financial condition and results of operations.

Our dependence on selling to distributors and integrators increases the complexity of managing our supply chain and may result in excess inventory or inventory shortages.

Selling to distributors and OEMs that build display devices based on specifications provided by branded suppliers, also referred to as integrators, reduces our ability to forecast sales accurately and increases the complexity of our business. Our sales are generally made on the basis of customer purchase orders rather than long-term purchase commitments. Our distributors, integrators and customers may cancel or defer purchase orders at any time, but we must order wafer inventory from our contract manufacturers three to four months in advance.

The estimates we use for our advance orders from contract manufacturers are based, in part, on reports of inventory levels and production forecasts from our distributors and integrators, which act as intermediaries between us and the companies using our products. This process requires us to make numerous assumptions concerning demand and to rely on the accuracy of the reports and forecasts of our distributors and integrators, each of which may introduce error into our estimates of inventory requirements. Our failure to manage this challenge could result in excess inventory or inventory shortages that could materially impact our operating results or limit the ability of companies using our semiconductors to deliver their products. If we overestimate demand for our products, it could lead to significant charges for obsolete inventory. On the other hand, if we underestimate demand, we could forego revenue opportunities, lose market share and damage our customer relationships.

We may be unable to successfully manage any future growth, including the integration of any acquisition or equity investment, which could disrupt our business and severely harm our financial condition.

If we fail to effectively manage any future internal growth, our operating expenses may increase more rapidly than our revenue, adversely affecting our financial condition and results of operations. To manage any future growth effectively in a rapidly evolving market, we must be able to maintain and improve our operational and financial systems, train and manage our employee base and attract and retain qualified personnel with relevant experience. We could spend substantial amounts of time and money in connection with expansion efforts for which we may not realize any profit. Our systems, procedures, controls or financial resources may not be adequate to support our operations and we may not be able to grow quickly enough to exploit potential market opportunities. In addition, we may not be able to successfully integrate the businesses, products, technologies or personnel of any entity that we might acquire in the future, or we may fail to realize the anticipated benefits of any such acquisition. The successful integration of any acquired business as well as the retention of personnel may require significant attention from our management and could divert resources from our existing business, which in turn could have an adverse effect on our business operations. Acquired assets or businesses may not achieve the anticipated benefits we expect due to a number of factors including: unanticipated costs or liabilities associated with such acquisition, including in the case of acquisitions we may make outside of the United States, difficulty in operating in foreign countries or complying with foreign regulatory requirements, incurrence of acquisition-related costs, harm to our relationships with existing customers as a result of such acquisition, harm to our brand and reputation, the loss of key employees in the acquired businesses, use of resources that are needed in other parts of our business, and use of substantial portions of our available cash to consummate any such

acquisition. Any failure to successfully integrate any entity we may acquire or any failure to achieve the anticipated benefits of any such acquisition could disrupt our business and seriously harm our financial condition.

Continued compliance with regulatory and accounting requirements will be challenging and will require significant resources.

We spend a significant amount of management time and external resources to comply with changing laws, regulations and standards relating to corporate governance and public disclosure, including evolving SEC rules and regulations, Nasdaq Global Market rules, the Dodd-Frank Wall Street Reform and Consumer Protection Act and the Sarbanes-Oxley Act of 2002, which requires management's annual review and evaluation of internal control over financial reporting. Failure to comply with these laws and rules could lead to investigation by regulatory authorities, de-listing from the Nasdaq Global Market, or penalties imposed on us.

Regulations related to conflict minerals may adversely impact our business.

The SEC has adopted disclosure and reporting rules intended to improve transparency and accountability concerning the supply of certain minerals, known as conflict minerals, originating from the Democratic Republic of Congo ("DRC") and adjoining countries. These rules require us to conduct a reasonable inquiry to determine the origin of certain materials used in our products and disclose whether our products use any materials containing conflict minerals originating from the DRC and adjoining countries. Since we do not own or operate a semiconductor fabrication facility and do not manufacture our products internally, we are dependent on the information provided by third-party foundries and production facilities regarding the materials used and the supply chains for the materials. Further, there are costs associated with complying with these rules, including costs incurred to conduct inquiries to determine the sources of any materials containing conflict minerals used in our products, to fulfill our reporting requirements and to develop and implement potential changes to products, processes or sources of supply if it is determined that our products contain or use any conflict minerals from the DRC or adjoining countries. There may only be a limited number of suppliers offering "conflict free" materials and we cannot be sure that we will be able to obtain necessary "conflict free" materials from such suppliers in sufficient quantities or at reasonable prices. In addition, we may face reputational challenges if we determine that any of our products contain minerals that are not conflict free or if we are unable to sufficiently verify the origins for all materials containing conflict minerals used in our products through the procedures we may implement.

Our effective income tax rate is subject to unanticipated changes in, or different interpretations of, tax rules and regulations, and forecasting our effective income tax rate is complex and subject to uncertainty.

As a global company, we are subject to taxation by a number of taxing authorities and as such, our tax rates vary among the jurisdictions in which we operate. Unanticipated changes in our tax rates could affect our future results of operations. Our effective tax rates could be adversely affected by changes in the mix of earnings in countries with differing statutory tax rates, changes in tax laws or the interpretation of tax laws either in the U.S. or abroad, or by changes in the valuation of our deferred tax assets and liabilities. The ultimate outcomes of any future tax audits are uncertain, and we can give no assurance as to whether an adverse result from one or more of them would have a material effect on our operating results and financial position.

The computation of income tax expense is complex as it is based on the laws of numerous tax jurisdictions and requires significant judgment on the application of complicated rules governing accounting for tax provisions under U.S. generally accepted accounting principles. Income tax expense for interim quarters is based on our forecasted tax rate for the year, which includes forward looking financial projections, including the expectations of profit and loss by jurisdiction, and contains numerous assumptions. For these reasons, our tax rate may be materially different than our forecast.

We rely upon certain critical information systems for the operation of our business, and the failure of any critical information system may result in serious harm to our business.

We maintain and rely upon certain critical information systems for the effective operation of our business. These information systems include telecommunications, the Internet, our corporate intranet, various computer hardware and software applications, network communications and e-mail. These information systems are subject to attacks, failures and access denials from a number of potential sources including viruses, destructive or inadequate code, power failures, and physical damage to computers, communication lines and networking equipment. To the extent that these information systems are under our control, we have implemented security procedures, such as virus protection software and firewall monitoring, to address the outlined risks. Security procedures for information systems cannot be guaranteed to be failsafe and our inability to use or access these information systems at critical times could compromise the timely and efficient operation of our business. Additionally, any compromise of our information security could result in the unauthorized publication of our confidential business or proprietary

information, cause an interruption in our operations, result in the unauthorized release of customer or employee data, result in a violation of privacy or other laws, or expose us to a risk of litigation or damage our reputation, any or all of which could harm our business and operating results.

Environmental laws and regulations may cause us to incur significant expenditures to comply with applicable laws and regulations, and we may be assessed considerable penalties for noncompliance.

We are subject to numerous environmental laws and regulations. Compliance with current or future environmental laws and regulations could require us to incur substantial expenses which could harm our business, financial condition and results of operations. We have worked, and will continue to work, with our suppliers and customers to ensure that our products are compliant with enacted laws and regulations. Failure by us or our contract manufacturers to comply with such legislation could result in customers refusing to purchase our products and could subject us to significant monetary penalties in connection with a violation, either of which would have a material adverse effect on our business, financial condition and results of operations.

Increasing attention on environmental, social and governance (ESG) matters may have a negative impact on our business, impose additional costs on us, and expose us to additional risks.

Companies are facing increasing attention from investors, customers, partners, consumers and other stakeholders relating to ESG matters, including environmental stewardship, social responsibility, diversity and inclusion, racial justice and workplace conduct. In addition, organizations that provide information to investors on corporate governance and related matters have developed ratings processes for evaluating companies on their approach to ESG matters. Such ratings are used by some investors to inform their investment and voting decisions. Unfavorable ESG ratings may lead to negative investor sentiment toward the Company, which could have a negative impact on our stock price and our access to and costs of capital.

We have established corporate social responsibility programs aligned with sound environmental, social and governance principles. These programs reflect our current initiatives and are not guarantees that we will be able to achieve them. Our ability to successfully execute these initiatives and accurately report our progress presents numerous operational, financial, legal, reputational and other risks, many of which are outside our control, and all of which could have a material negative impact on our business. Additionally, the implementation of these initiatives imposes additional costs on us. If our ESG initiatives fail to satisfy investors, customers, partners and our other stakeholders, our reputation, our ability to sell products and services to customers, our ability to attract or retain employees, and our attractiveness as an investment, business partner or acquirer could be negatively impacted. Similarly, our failure or perceived failure to pursue or fulfill our goals, targets and objectives or to satisfy various reporting standards within the timelines we announce, or at all, could also have similar negative impacts and expose us to government enforcement actions and private litigation.

Company Risks Related to the Semiconductor Industry and Our Markets

Dependence on a limited number of sole-source, third-party manufacturers for our products exposes us to possible shortages based on low manufacturing yield, errors in manufacturing, uncontrollable lead-times for manufacturing, capacity allocation, price increases with little notice, volatile inventory levels and delays in product delivery, any of which could result in delays in satisfying customer demand, increased costs and loss of revenue.

We do not own or operate a semiconductor fabrication facility and do not have the resources to manufacture our products internally. We rely on a limited number of foundries and assembly and test vendors to produce all of our wafers and for completion of finished products. Our wafers are not fabricated at more than one foundry at any given time and our wafers typically are designed to be fabricated in a specific process at only one foundry. Sole sourcing each product increases our dependence on our suppliers. We have limited control over delivery schedules, quality assurance, manufacturing yields, potential errors in manufacturing and production costs. We do not have long-term supply contracts with our third-party manufacturers, so they are not obligated to supply us with products for any specific period of time, quantity or price, except as may be provided in a particular purchase order. Our suppliers can increase the prices of the products we purchase from them with little notice, which may cause us to increase the prices to our customers and harm our competitiveness. Because our requirements represent only a small portion of the total production capacity of our contract manufacturers, they could reallocate capacity to other customers during periods of high demand for our products, as they have done in the past. We expect this may occur again in the future.

Establishing a relationship with a new contract manufacturer in the event of delays or increased prices would be costly and burdensome. The lead time to make such a change would be at least nine months, and the estimated time for us to adapt a product's design to a particular contract manufacturer's process is at least four months. Additionally, we have chosen, and may continue to choose new foundries to manufacture our wafers which in turn, may require us to modify our design methodology flow for the process technology and intellectual property cores of the new foundry. If we have to qualify a new foundry or packaging, assembly and testing supplier for any of our products or if we are unable to obtain our products from our contract manufacturers on schedule, at costs that are acceptable to us, or at all, we could incur significant delays in shipping products, our ability to satisfy customer demand could be harmed, our revenue from the sale of products may be lost or delayed and our customer relationships and ability to obtain future design wins could be damaged.

Shortages of materials used in the manufacturing of our products and other key components of our customers' products may increase our costs, impair our ability to ship our products on time and delay our ability to sell our products.

We have in the past faced shortages of components and materials that are critical to the manufacture of our products and our customers' products. Such critical components and materials may include semiconductor wafers and packages, double data rate memory die, display components, analog-to-digital converters, digital receivers, video decoders and voltage regulators. These shortages may happen again and if so, could increase our costs and prevent us from shipping our products to our customers in a timely fashion, both of which could harm our business and adversely affect our results of operations.

Our highly integrated products and high-speed mixed signal products are difficult to manufacture without defects and the existence of defects could result in increased costs, delays in the availability of our products, reduced sales of products or claims against us.

The manufacture of semiconductors is a complex process and it is often difficult for semiconductor foundries to produce semiconductors free of defects. Some of our products can be more highly integrated than other semiconductors and can incorporate mixed signal analog and digital signal processing, multi-chip modules and embedded memory technology, making them even more difficult to produce without defects. Defective products can be caused by design or manufacturing difficulties. Identifying quality problems can be performed only by analyzing and testing our semiconductors in a system after they have been manufactured. The difficulty in identifying defects is compounded because the process technology is unique to each of the multiple semiconductor foundries we contract with to manufacture our products. Despite testing by both our customers and us, errors or performance problems may be found in existing or new semiconductors. Failure to achieve defect-free products may result in increased costs and delays in the availability of our products. Defects may also divert the attention of our engineering personnel from our product development efforts to find and correct the issue, which would delay our product development efforts.

Additionally, customers could seek damages from us for their losses, and shipments of defective products may harm our reputation with our customers. If a product liability claim is brought against us, the cost of defending the claim could be significant and would divert the efforts of our technical and management personnel and harm our business. Further, our business liability insurance may be inadequate or future coverage may be unavailable on acceptable terms, which could adversely impact our financial results.

We experience a small number of semiconductor field failures infrequently in certain customer applications that required us to institute additional testing. As a result of these field failures, we have incurred warranty costs due to customers returning potentially affected products and have experienced reductions in revenues due to delays in production. Our customers have also experienced delays in receiving product shipments from us that resulted in the loss of revenue and profits. Additionally, shipments of defective products could cause us to lose customers or to incur significant replacement costs, either of which would harm our reputation and our business. Any defects, errors or bugs could also interrupt or delay sales of our new products to our customers, which would adversely affect our financial results.

The development of new products is extremely complex and we may be unable to develop our new products in a timely manner, which could result in a failure to obtain new design wins and/or maintain our current revenue levels.

In addition to the inherent difficulty of designing complex integrated circuits, product development delays may result from:

- difficulties in hiring and retaining necessary technical personnel;
- difficulties in reallocating engineering resources and overcoming resource limitations;
- difficulties with contract manufacturers;
- changes to product specifications and customer requirements;
- changes to market or competitive product requirements; and
- unanticipated engineering complexities.

If we are not successful in the timely development of new products, we may fail to obtain new design wins and our financial results will be adversely affected.

Intense competition in our markets may reduce sales of our products, reduce our market share, decrease our gross profit and result in large losses.

We compete with specialized and diversified electronics and semiconductor companies that offer display processors or scaling components including: Actions Microelectronics Co., Ltd., ARM Holdings PLC, Dolby Laboratories, Inc., Egis Technology Inc., Hisilicon Technologies Co., Ltd., i-Chips Technology Inc., Lattice Semiconductor Corporation, MediaTek Inc., Novatek Microelectronics Corp., NVIDIA Corporation, Qualcomm Incorporated, Realtek Semiconductor Corp., Renesas Electronics America Inc., Socionext Inc., Solomon Systech (International) Ltd., STMicroelectronics N.V., Sunplus Technology Co., Ltd., Synaptics Incorporated, Texas Instruments Incorporated, Unisoc Communications, Inc., and other companies. Potential and current competitors may include diversified semiconductor manufacturers and the semiconductor divisions or affiliates of some of our customers, including: Apple Inc., Broadcom Inc., LG Electronics, Inc., MegaChips Corporation, Mitsubishi Digital Electronics America, Inc., NEC Corporation, Panasonic Corporation, Samsung Electronics Co., Ltd., Socionext Inc., ON Semiconductor Corporation, Seiko Epson Corporation, Sharp Electronics Corporation, Sony Corporation, and Toshiba America, Inc. In addition, start-up companies may seek to compete in our markets.

Many of our competitors have longer operating histories and greater resources to support development and marketing efforts than we do. Some of our competitors operate their own fabrication facilities. These competitors may be able to react more quickly and devote more resources to efforts that compete directly with our own. Additionally, any consolidation in the semiconductor industry may impact our competitive position. Our current or potential customers have developed, and may continue to develop, their own proprietary technologies and become our competitors. Increased competition from both competitors and our customers' internal development efforts could harm our business, financial condition and results of operations by, for example, increasing pressure on our profit margin or causing us to lose sales opportunities. For example, frame rate conversion technology similar to that used in our line of MotionEngine® advanced video co-processors continues to be integrated into the SoC and display timing controller products of our competitors. We cannot assure you that we can compete successfully against current or potential competitors.

If we are not able to respond to the rapid technological changes and evolving industry standards in the markets in which we compete, or seek to compete, our products may become less desirable or obsolete.

The markets in which we compete or seek to compete are subject to rapid technological change and miniaturization capabilities, frequent new product introductions, changing customer requirements for new products and features and evolving industry standards. The introduction of new technologies and emergence of new industry standards could render our products less desirable or obsolete, which could harm our business and significantly decrease our revenue. Examples of changing industry standards include the growing use of broadband to deliver video content, increased display resolution and size, faster screen refresh rates, video capability such as High Dynamic Range, the proliferation of new display devices and the drive to network display devices together. Our failure to predict market needs accurately or to timely develop new competitively priced products or product enhancements that incorporate new industry standards and technologies, including integrated circuits with increasing levels of integration and new features, using smaller geometry process technologies, may harm market acceptance and sales of our products.

Our products are incorporated into our customers' products, which have different parts and specifications and utilize multiple protocols that allow them to be compatible with specific computers, video standards and other devices. If our customers' products are not compatible with these protocols and standards, consumers will return, or not purchase these products and the markets for our customers' products could be significantly reduced. Additionally, if the technology used by our customers becomes less competitive due to cost, customer preferences or other factors relative to alternative technologies, sales of our products could decline.

We use a customer-owned tooling process for manufacturing most of our products, which exposes us to the possibility of poor yields and unacceptably high product costs.

We build most of our products on a customer-owned tooling basis, whereby we directly contract the manufacture of our products, including wafer production, assembly and testing. As a result, we are subject to increased risks arising from wafer manufacturing yields and risks associated with coordination of the manufacturing, assembly and testing process. Poor product yields result in higher product costs, which could make our products less competitive if we increase our prices to compensate for our higher costs or could result in lower gross profit margins if we do not increase our prices.

We depend on manufacturers of our semiconductor products not only to respond to changes in technology and industry standards but also to continue the manufacturing processes on which we rely.

To respond effectively to changes in technology and industry standards, we depend on our contracted foundries to implement advanced semiconductor technologies and our operations could be adversely affected if those technologies are unavailable, delayed or inefficiently implemented. In order to increase performance and functionality and reduce the size of our products, we are continuously developing new products using advanced technologies that further miniaturize semiconductors and we are dependent on our foundries to develop and provide access to the advanced processes that enable such miniaturization. We cannot be certain that future advanced manufacturing processes will be implemented without difficulties, delays or increased expenses. Our business, financial condition and results of operations could be materially adversely affected if advanced manufacturing processes are unavailable to us, substantially delayed or inefficiently implemented.

Creating the capacity for new technological changes may cause manufacturers to discontinue older manufacturing processes in favor of newer ones. We must then either retire the affected part or port (develop) a new version of the part that can be manufactured with a newer process technology. In the event that a manufacturing process is discontinued, our current suppliers may be unwilling or unable to manufacture our current products. We may not be able to place last time buy orders for the old technology or find alternate manufacturers of our products to allow us to continue to produce products with the older technology while we expend the significant costs for research and development and time to migrate to new, more advanced processes.

Because of our long product development process and sales cycles, we may incur substantial costs before we earn associated revenue and ultimately may not sell as many units of our products as we originally anticipated.

We develop products based on anticipated market and customer requirements and incur substantial product development expenditures, which can include the payment of large up-front, third-party license fees and royalties, prior to generating the associated revenue. Our work under these projects is technically challenging and places considerable demands on our limited resources, particularly on our most senior engineering talent. Additionally, the transition to smaller geometry process technologies continues to significantly increase the cost and complexity of new product development, particularly with regards to tooling, software tools, third party IP and engineering resources. Because the development of our products incorporates not only our complex and evolving technology, but also our customers' specific requirements, a lengthy sales process is often required before potential customers begin the technical evaluation of our products. Our customers typically perform numerous tests and extensively evaluate our products before incorporating them into their systems. The time required for testing, evaluation and design of our products into a customer's system can take nine months or more. It can take an additional nine months or longer before a customer commences volume shipments of systems that incorporate our products, if at all. Because of the lengthy development and sales cycles, we will experience delays between the time we incur expenditures for research and development, sales and marketing and inventory and the time we generate revenue, if any, from these expenditures.

Furthermore, we have entered into and may in the future enter into, co-development agreements that do not guarantee future sales volumes and limit our ability to sell the developed products to other customers. The exclusive nature of these development agreements increases our dependence on individual customers, particularly since we are limited in the number of products we are able to develop at any one time.

If actual sales volumes for a particular product are substantially less than originally anticipated, we may experience large write-offs of capitalized license fees, software development tools, product masks, inventories or other capitalized or deferred product-related costs, any of which would negatively affect our operating results.

Our developed software may be incompatible with industry standards and challenging and costly to implement, which could slow product development or cause us to lose customers and design wins.

We provide our customers with software development tools and with software that provides basic functionality for our integrated circuits and enables enhanced connectivity of our customers' products. Software development is a complex process and we are dependent on software development languages and operating systems from vendors that may limit our ability to design software in a timely manner. Also, as software tools and interfaces change rapidly, new software languages introduced to the market may be incompatible with our existing systems and tools, requiring significant engineering efforts to migrate our existing systems in order to be compatible with those new languages. Software development disruptions could slow our product development or cause us to lose customers and design wins. The integration of software with our products adds complexity, may extend our internal development programs and could impact our customers' development schedules. This complexity requires increased coordination between hardware and software development schedules and increases our operating expenses without a corresponding increase in product revenue. This additional level of complexity lengthens the sales cycle and may result in customers selecting competitive products requiring less software integration.

The competitiveness and viability of our products could be harmed if necessary licenses of third-party technology are not available to us on terms that are acceptable to us or at all.

We license technology from independent third parties that is incorporated into our products or product enhancements. Future products or product enhancements may require additional third-party licenses that may not be available to us on terms that are acceptable to us or at all. In addition, in the event of a change in control of one of our licensors, it may become difficult to maintain access to its licensed technology. If we are unable to obtain or maintain any third-party license required to develop new products and product enhancements, we may have to obtain substitute technology with lower quality or performance standards, or at greater cost, either of which could seriously harm the competitiveness of our products.

Our limited ability to protect our IP and proprietary rights could harm our competitive position by allowing our competitors to access our proprietary technology and to introduce similar products.

Our ability to compete effectively with other companies depends, in part, on our ability to maintain the proprietary nature of our technology, including our semiconductor designs and software code. We provide the computer programming code for our software to customers in connection with their product development efforts, thereby increasing the risk that customers will misappropriate our proprietary software. We rely on a combination of patent, copyright, trademark and trade secret laws, as well as nondisclosure agreements and other methods, to help protect our proprietary technologies. As of December 31, 2022, we held 291 patents and had 17 patent applications pending for protection of our significant technologies. Competitors in both the U.S. and foreign countries, many of whom have substantially greater resources than we do, may apply for and obtain patents that will prevent, limit or interfere with our ability to make and sell our products, or they may develop similar technology independently or design around our patents. Effective patent, copyright, trademark and trade secret protection may be unavailable or limited in foreign countries and, thus, make the possibility of piracy of our technology and products more likely in these countries.

We cannot assure you that the degree of protection offered by patent or trade secret laws will be sufficient. Furthermore, we cannot assure you that any patents will be issued as a result of any pending applications or that any claims allowed under issued patents will be sufficiently broad to protect our technology. We may incur significant costs to stop others from infringing our patents. In addition, it is possible that existing or future patents may be invalidated, diluted, circumvented, challenged or licensed to others.

Others may bring infringement or indemnification actions against us that could be time-consuming and expensive to defend.

We may become subject to claims involving patents or other intellectual property rights. In recent years, there has been significant litigation in the U.S. and in other jurisdictions involving patents and other intellectual property rights. This litigation is particularly prevalent in the semiconductor industry, in which a number of companies aggressively use their patent portfolios to bring infringement claims. In recent years, there has been an increase in the filing of so-called "nuisance suits," alleging infringement of intellectual property rights. These claims may be asserted initially or as counterclaims in response to claims made by a company alleging infringement of intellectual property rights. These suits pressure defendants into entering settlement arrangements to quickly dispose of such suits, regardless of merit. We may also face claims brought by companies that are organized solely to hold and enforce patents. In addition, we may be required to indemnify our customers against IP claims related to their usage of our products as certain of our agreements include indemnification provisions from third parties relating to our intellectual property.

IP claims could subject us to significant liability for damages and invalidate our proprietary rights. Responding to such claims, regardless of their merit, can be time-consuming, result in costly litigation, divert management's attention and resources and cause us to incur significant expenses. As each claim is evaluated, we may consider the desirability of entering into settlement or licensing agreements. No assurance can be given that settlements will occur or that licenses can be obtained on acceptable terms or that litigation will not occur. In the event there is a temporary or permanent injunction entered prohibiting us from marketing or selling certain of our products, or a successful claim of infringement against us requiring us to pay damages or royalties to a third-party and we fail to develop or license a substitute technology, our business, results of operations or financial condition could be materially adversely affected. Any IP litigation or claims also could force us to do one or more of the following:

- stop selling products using technology that contains the allegedly infringing IP;
- attempt to obtain a license to the relevant IP, which may not be available on terms that are acceptable to us or at all;
- attempt to redesign those products that contain the allegedly infringing IP; or
- pay damages for past infringement claims that are determined to be valid or which are arrived at in settlement of such litigation or threatened litigation.

If we are forced to take any of the foregoing actions, we may incur significant additional costs or be unable to manufacture and sell our products, which could seriously harm our business. In addition, we may not be able to develop, license or acquire non-infringing technology under reasonable terms. These developments could result in an inability to compete for customers or otherwise adversely affect our results of operations.

Our products are characterized by average selling prices that can decline over relatively short periods of time, which will negatively affect our financial results unless we are able to reduce our product costs or introduce new products with higher average selling prices.

Average selling prices for our products can decline over relatively short periods of time, while many of our product costs are relatively fixed. When our average selling prices decline, our gross profit declines unless we are able to sell more units or reduce the cost to manufacture our products. We have experienced declines in our average selling prices and expect that we will continue to experience them in the future, although we cannot predict when they may occur or how severe they will be. Our financial results will suffer if we are unable to offset any reductions in our average selling prices by increasing our sales volumes, reducing our costs, adding new features to our existing products or developing new or enhanced products in a timely manner with higher selling prices or gross profits.

The cyclical nature of the semiconductor industry may lead to significant variances in the demand for our products and could harm our operations.

In the past, the semiconductor industry has been characterized by significant downturns and wide fluctuations in supply and demand. Also, the industry has experienced significant fluctuations in anticipation of changes in general economic conditions, including economic conditions in Asia, Europe and North America. The cyclical nature of the semiconductor industry has also led to significant variances in product demand and production capacity. We have experienced, and may continue to experience, periodic fluctuations in our financial results because of changes in industry-wide conditions.

Risks Related to Our Operations in China

We face additional risks associated with our operations in China, including the risk of changes in China's political, economic or social conditions or changes in U.S.-China relations, as well as liquidity risks, any of which may adversely and materially affect our results of operations, financial position and value of our securities.

We have, and expect to continue to have, significant operations in China as our Chinese subsidiary, Pixelworks Semiconductor Technology (Shanghai) Co., Ltd (“PWSH”), is a full profit-and-loss center underneath the Company for our Mobile and Home & Enterprise businesses. The economy of China differs from the economies of the United States in important respects such as structure, government involvement, level of development, growth rate, capital reinvestment, allocation of resources, self-sufficiency, rate of inflation, foreign currency flows and balance of payments position, among others. There can be no assurance that China’s economic policies will be consistent or effective and because a significant portion of our operations are in China, our results of operations, financial position and value of our securities may be materially harmed by changes in China’s political, economic or social conditions. Additionally, the political and economic relationship between the U.S. and China is uncertain, and any changes in policy as a result may adversely affect our business. For example, recent statements and actions by the United States regarding the export of certain semiconductor technology, although not applicable to our technology or products, could result in responsive actions taken by China that could adversely impact our operations, financial position, or the value of our securities.

In addition, the Company faces certain liquidity risks from its operations in China. PWSH has, in the past, and may decide in the future, to sell shares of its stock, such as in a private placement similar to that which closed in August 2021, in an initial public offering on a stock exchange located in China, such as the STAR Market in Shanghai, or otherwise. In addition, PWSH may, in the future, become profitable. Any proceeds raised or generated by PWSH are subject to certain PRC laws and regulations that may make it difficult, if not impossible, for the Company to use such proceeds to fund its operations outside of China. For example, China's government imposes control over the convertibility of RMB into foreign currencies, which can cause difficulties converting cash held in RMB to other currencies. It is therefore unlikely that funds raised or generated by PWSH will be readily distributable to the Company or its U.S. shareholders. Additionally, cash is transferred through the Company between entities through settling cash owed between one entity and another, for example for services rendered, through intercompany agreements. While currently the Company has been able to settle cash owed between PWSH and other entities within the Company, PRC laws and regulations could change so as to make it more difficult, if not impossible, to make such transfers in the future, which in turn would adversely affect our results of operations.

We face legal and operational risks related to the PRC legal system, including uncertainties regarding the enforcement of laws, and sudden or unexpected changes in laws, required approvals and permissions, and regulations in China, which could adversely affect us and limit the legal protections available to the Company and its stockholders, as well as materially and adversely affect our business and value of our securities.

While the overall effect of legislation over the past two decades has significantly enhanced the protections afforded to various foreign investments in China, China has not developed a fully integrated legal system based on the rule of law, and recently enacted laws and regulations may not sufficiently cover all aspects of economic activities in China. Because the PRC legal system continues to evolve rapidly, the interpretations of many laws, regulations and rules are not always uniform and enforcement of these laws, regulations and rules involves uncertainties, which may limit legal protections available to the Company. Uncertainties due to evolving laws and regulations could also impede the ability of an entity based in China, such as PWSH, to obtain or maintain permits or licenses required to conduct business in China. In addition, some regulatory requirements issued by certain PRC government authorities may not be consistently applied by other PRC government authorities (including local government authorities), thus making strict compliance with all regulatory requirements impractical, or in some circumstances impossible. In addition, China's legal system is based in part on government policies and internal rules, some of which are not published on a timely basis or at all, which may have a retroactive effect. As a result, we may not be aware of our violation of these policies and rules until after the violation occurs. Any administrative and court proceedings in China may be protracted, resulting in substantial costs and diversion of resources and management attention. Further, since Chinese administrative and court authorities have significant discretion in interpreting and implementing statutory and contractual terms, it may be more difficult to evaluate the outcome of administrative and court proceedings. These uncertainties may also impede our ability to enforce the contracts entered into by PWSH and could materially and adversely affect our business and results of operations.

The PRC government at times will exercise significant oversight and discretion over the conduct of business in the PRC and may intervene or influence business operations as the government deems appropriate to further regulatory, political and societal goals. PWSH is required to obtain certain permits and licenses from certain PRC government agencies to operate businesses in China, such as business licenses from the State Administration for Market Regulation (“SAMR”), registrations with PRC tax authorities, filings with PRC customs for carrying out export and import business activities and registrations with China’s State

Administration of Foreign Exchange (SAFE) for the ability to receive funds from offshore entities and transfer funds to offshore entities. We are not currently required to obtain permissions or approvals from the Cyberspace Administration of China (“CAC”) or China Securities Regulatory Commission (“CSRC”), but would need to obtain approval from CSRC if PWSH applies for a listing on The Shanghai Exchange’s Science and Technology Innovation Board, known as the STAR Market (the “Listing”), and as a listed company PWSH would continue to be subject to CSRC rules and regulations. As of the date of this report, PWSH has obtained the required business licenses from the SAMR and complied with registration and filing requirements of other Chinese government agencies, and has not been denied such registrations or filings by any PRC authority, however, if we do not receive or maintain the necessary permissions or approvals, inadvertently conclude that such permissions or approvals are not required, or applicable laws, regulations or interpretations change and we become required to obtain such permissions or approvals in the future and we fail to do so, we may be subject to investigations, fines, penalties, suspensions in operations, or other punitive action which could result in a material adverse change in our PRC operations and our results of operation, which in turn could cause our stock price to be materially and adversely affected.

Additionally, rules and regulations in China can change quickly and with little advance notice. For example, the PRC government has recently initiated a series of regulatory actions and made a number of public statements on the regulation of businesses in China with little advance notice, including enhancing supervision over China-based companies listed overseas, adopting new measures to extend the scope of cybersecurity reviews, and expanding efforts in anti-monopoly enforcement. While we do not believe we are subject to these regulatory actions or statements, as we have not implemented the kind of monopolistic behavior that is the target of these rules, and our business does not involve large-scale collection of user data, implicate cybersecurity, or involve any other type of restricted industry, and therefore these regulatory actions and statements do not impact our ability to conduct our business, accept foreign investments into PWSH, or list our PWSH shares on the STAR Market, there is no guarantee that the PRC government will refrain from releasing regulations or policies regarding the Company’s industry that could adversely affect our business, financial condition, results of operations or ability to list PWSH shares on the STAR market.

If we are unable to implement our strategy to expand our PRC operations, including the positioning of our subsidiary to qualify and seek an initial public offering on the STAR Market, our ability to access capital, customers, and talent in China could suffer, which in turn may materially and adversely affect our worldwide growth and revenue potential.

In August 2021 we announced our strategic plan to transform PWSH into a profit center for our Mobile and Home & Enterprise businesses to improve our access to capital, customers, and talent in China. As part of this strategic plan, we intend to qualify PWSH to file an application for an initial public offering on the Shanghai Stock Exchange’s Science Technology Innovation Board, known as the STAR Market (the “Listing”) to further improve our access to capital markets and to fund growth. We may not be successful in the implementation of our strategic plan, and we may not be able to complete the Listing for a number of reasons, including those related to the risks we face associated with our operations in China as detailed separately above, many of which are outside our control. With respect to the Listing, PWSH must succeed in obtaining PRC governmental approvals required to permit the Listing, and one or more of those approvals may be denied, or significantly delayed, by the PRC regulators for reasons outside our control or unknown to us, or may be conditioned on requirements that we deem would result in an undue burden or material adverse impact on our business. Similarly, the Listing application may be denied or delayed by the Shanghai Stock Exchange in its discretion. Further, the COVID-19 outbreak, the tensions between the United States and China, or other geopolitical forces, including war, could negatively impact our currently planned projects and investments in the PRC, including the Listing.

Additionally, pursuant to our August 2021 Capital Increase Agreement and the agreements for the employee-owned entities that have invested in PWSH (the “ESOP”), PWSH agreed to attempt to complete all requirements to qualify for a Listing such that the Listing is consummated prior to a certain date (for the private equity and strategic investors (“Investors”), June 30, 2024, and for the employee-owned entities (“ESOP”), December 31, 2024). If PWSH has not consummated the Listing before those dates, or if it seriously violates certain other restructuring actions required by the Capital Increase Agreement such that a Listing by such dates becomes impossible, the respective purchasers may elect to require that we repurchase the purchaser’s respective equity interest for a price equal to the initial purchase price paid by the purchaser (and for the ESOP, plus annual simple interest at a rate of 5%). As noted above, various elements in the Listing process are outside our control or may be subject to conditions that are unacceptable to us, and if we fail to obtain the Listing, the provisions of the Capital Increase Agreement would require a use of cash for purposes not otherwise planned for, which in turn would negatively impact our plans for growth and our cash position.

If we are unable to successfully implement our strategic plan, including the Listing, we may not realize the advantages to our PRC operations contemplated by our business strategy, including improving our access to capital markets, customers, and talent in China. Because it may be several years before we know whether the Listing will be completed, we may, in the interim, forego or postpone other alternative actions to strengthen our market position and operations in the PRC.

PRC companies are critical to the global semiconductor industry, and our current business is substantially concentrated in the PRC market. Our inability to build, or any delay in growing, our PRC-based operations over the next several years would materially and adversely limit our operations and operating results, including our revenue growth. In addition, during that time, the process underlying the Listing could result in significant diversion of management time as well as substantial out-of-pocket costs, which could further impair our ability to expand our business.

Even if we complete the Listing, we may not achieve the results contemplated by our business strategy and our strategy for growth in the PRC may not result in increases in the price of our common stock.

We cannot assure you that, even if the Listing is completed, we will realize any or all of our anticipated benefits of the Listing. Our completion of the Listing may not have the anticipated effects of providing access to new capital markets or strengthening our market position and operations in the PRC. If the Listing is completed, PWSH will have broad discretion in the use of the proceeds from the initial sales of shares to PWSH investors, and it may not spend or invest those proceeds in a manner that results in our operating success or with which the common shareholders of Pixelworks agree. Our failure to successfully leverage the completion of the Listing to enhance our access to new capital markets and expand our PRC business could result in a decrease in the price of our common stock, and we cannot assure you that the success of PWSH will have an associated positive effect on the price of our common stock.

We currently intend to file an application for the Listing in 2023, but there can be no assurances that the Listing will occur in that timeframe, if at all. In the interim, PWSH may require additional funding from Pixelworks to augment its PRC operations, and we cannot give any assurance that such capital will be available from Pixelworks on terms acceptable to us. Any such inability to obtain funds from Pixelworks or other sources may impair the ability of PWSH to grow its operations, which could have a material adverse effect on our consolidated operating results and on the price of our common stock.

PWSH's status as a publicly traded company that is controlled, but less than wholly owned, by Pixelworks could have an adverse effect on us.

PWSH is not currently a wholly owned subsidiary of Pixelworks, and following the Listing, other holders may hold as much as 30% of the subsidiary. The interests of PWSH may diverge from the interests of Pixelworks and its other subsidiaries in the future. We may face conflicts of interest in managing, financing, or engaging in transactions with PWSH, or allocating business opportunities between our subsidiaries, including future arrangements for operating subsidiaries other than PWSH to license and use our intellectual property.

Pixelworks will retain majority ownership of PWSH after the Listing, but PWSH will be managed by a separate board of directors and officers and those directors and officers will owe fiduciary duties to the various stakeholders of PWSH, including shareholders other than Pixelworks. In the operation of PWSH's business, there may be situations that arise whereby the directors and officers of PWSH, in the exercise of their fiduciary duties, take actions that may be contrary to the best interests of Pixelworks or its shareholders. Additionally, because PWSH will be managed by a separate board of directors and officers, our organizational structure will become more complex, which may in turn require substantial financial, operational, and management resources.

In the future, PWSH may issue options, restricted shares, and other forms of share-based compensation to its directors, officers, and employees, which could dilute Pixelworks' ownership in PWSH. In addition, PWSH may engage in capital raising activities in the future that could further dilute Pixelworks' ownership interest.

The STAR Market is relatively new, and as a result, it is difficult to predict the effect of the proposed Listing, which may in turn negatively affect the price of our common stock on the Nasdaq Global Market.

The China Securities Regulatory Commission, or the CSRC, initially launched the STAR Market in June 2019 and trading on that market began in July 2019. No assurance can be given regarding the effect of the Listing on the market price of PWSH shares or on the price of our common stock on the Nasdaq Global Market. The market price of the PWSH shares and Pixelworks common stock may be volatile or may decline for reasons other than the risk and uncertainties described above, as the result of investor negativity or uncertainty with respect to the proposed Listing.

If the Listing is completed, Pixelworks and PWSH both will be public reporting companies, but each will be subject to separate, and potentially inconsistent, accounting and disclosure requirements, which may lead to investor confusion or uncertainty that could cause decreased demand for, or fluctuations in the price of, one or both of the companies' publicly traded shares.

If PWSH completes the Listing, it will be subject to accounting, disclosure, and other regulatory requirements of the STAR Market. At the same time, Pixelworks will remain subject to accounting, disclosure, and other regulatory requirements of the SEC and the Nasdaq Global Market. As a result, Pixelworks and PWSH periodically will disclose information simultaneously pursuant to differing laws and regulations. The information disclosed by the two companies will differ, and may differ materially from time to time, due to the distinct, and potentially inconsistent, accounting standards applicable to the two companies and disclosure requirements imposed by securities regulatory authorities, as well as differences in language, culture, and expression habit, in composition of investors in the United States and PRC, and in the capital markets of the United States and the PRC. Differing disclosures could lead to confusion or uncertainty among investors in the publicly traded shares of one or both companies. Differences between the price of PWSH shares on the STAR Market and the price of Pixelworks common stock on Nasdaq Global Market could lead to increased volatility, as some investors seek to arbitrage price differences. Additionally, news about PWSH may affect the price of Pixelworks' common stock, and vice versa, creating additional uncertainty and volatility.

General Risks

The price of our common stock has and may continue to fluctuate substantially.

Our stock price and the stock prices of technology companies similar to Pixelworks have been highly volatile. The price of our common stock may decline and the value of our shareholders' investment may be reduced regardless of our performance.

The daily trading volume of our common stock has historically been relatively low, although, in the three most recent years, trading volume increased compared to historical levels. As a result of the historically low volume, our shareholders may be unable to sell significant quantities of common stock in the public trading markets without a significant reduction in the price of our common shares. Additionally, market fluctuations, as well as general economic and political conditions, including recessions, interest rate changes or international currency fluctuations, may negatively impact the market price of our common stock. Other factors that could negatively impact our stock price include:

- actual or anticipated fluctuations in our operating results;
- changes in or failure to meet expectations as to our future financial performance;
- changes in or failure to meet financial estimates of securities analysts;
- announcements by us or our competitors of technological innovations, design wins, contracts, standards, acquisitions or divestitures;
- the operating and stock price performance of other comparable companies;
- issuances or proposed issuances of equity, debt or other securities by us, or sales of securities by our security holders; and
- changes in market valuations of other technology companies.

Any inability or perceived inability of investors to realize a gain on an investment in our common stock could have an adverse effect on our business, financial condition and results of operations by potentially limiting our ability to retain our customers, to attract and retain qualified employees and to raise capital. In addition, in the past, following periods of volatility in the overall market and the market price of a particular company's securities, securities class action litigation has often been instituted against these companies. This litigation, if instituted against us, could result in substantial costs and a diversion of our management's attention and resources.

The interest of our current or potential significant shareholders may conflict with other shareholders and they may attempt to effect changes or acquire control, which could adversely affect our results of operations and financial condition.

Our shareholders may from time to time engage in proxy solicitations, advance shareholder proposals, acquire control or otherwise attempt to effect changes, including by directly voting their shares on shareholder proposals. Campaigns by shareholders to effect changes at publicly traded companies are sometimes led by investors seeking to increase short-term shareholder value through actions such as financial restructuring, increased debt, special dividends, stock repurchases or sales of assets or the entire company. Responding to proxy contests and other actions by activist shareholders can be costly and time-consuming, disrupting our operations and diverting the attention of our Board of Directors and senior management from the pursuit of business strategies. Additionally, uncertainty over our direction and leadership may negatively impact our relationship with our customers and make it more difficult to attract and retain qualified personnel and business partners. As a result, shareholder campaigns could adversely affect our results of operations and financial condition.

Future sales of our equity could result in significant dilution to our existing shareholders and depress the market price of our common stock.

It is likely that we will need to seek additional capital in the future and from time to time. If this financing is obtained through the issuance of equity securities, debt convertible into equity securities, options or warrants to acquire equity securities or similar instruments or securities, our existing shareholders will experience dilution in their ownership percentage upon the issuance, conversion or exercise of such securities and such dilution could be significant. For example, in December 2020, we completed a private placement of 3,200,000 shares of common stock to certain accredited investors at a purchase price of \$2.071 per share. The issuance and sale of the shares in the private placement had a dilutive impact on our existing stockholders. Additionally, also in December 2020, we completed the sale of 4,900,000 shares of common stock in an underwritten registered offering and an additional 735,000 shares were issued pursuant to the 30-day over-allotment option exercised by the underwriter, at a price to the public of \$2.45 per share. Additionally, pursuant to our “at the market” equity offering program, we may sell shares of our common stock having aggregate sales proceeds of up to \$25 million from time to time through Cowen and Company, LLC, as our agent. Through December 31, 2022, we sold an aggregate of 1,808,484 shares of our common stock under this at the market offering. The issuance and sale of additional shares of our common stock pursuant to our “at the market” equity offering program or otherwise will have a dilutive impact on our existing stockholders. Additionally, any new equity securities issued by us could have rights, preferences or privileges senior to those of our common stock. Further, the issuance and sale of, or the perception that we may issue and sell, additional shares of common stock pursuant to our “at the market” equity offering program or an additional private placement or another offering could have the effect of depressing the market price of our common stock or increasing the volatility thereof.

Any issuance by us or sales of our securities by our security holders, including by any of our affiliates, or the perception that such issuances or sales could occur, could negatively impact the market price of our securities. For example, a number of shareholders own significant blocks of our common stock. If one or more of these large shareholders were to sell large portions of their holdings in a relatively short time, for liquidity or other reasons, the prevailing market price of our common stock could be negatively affected. This could result in further potential dilution to our existing shareholders and the impairment of our ability to raise capital through the sale of equity, debt or other securities.

We may be unable to maintain compliance with Nasdaq Marketplace Rules which could cause our common stock to be delisted from the Nasdaq Global Market. This could result in the lack of a market for our common stock, cause a decrease in the value of our common stock, and adversely affect our business, financial condition and results of operations.

Under the Nasdaq Marketplace Rules our common stock must maintain a minimum price of \$1.00 per share for continued inclusion on the Nasdaq Global Market. Our stock price was previously below \$1.00 on May 6, 2009 and was \$1.22 on February 12, 2016 and we cannot guarantee that our stock price will remain at or above \$1.00 per share. If the price again drops below \$1.00 per share, our stock could become subject to delisting, and we may seek shareholder approval for a reverse stock split, which in turn could produce adverse effects and may not result in a long-term or permanent increase in the price of our common stock. Further, for continued listing on the Nasdaq Global Market we must have at least 400 total shareholders.

In addition to the minimum \$1.00 per share and 400 total shareholders requirements, the Nasdaq Global Market has other continued listing requirements, and we must meet all of the criteria under at least one of the following three standards: (i) a minimum of \$50.0 million in total asset value and \$50.0 million in revenues in the latest fiscal year or in two of the last three fiscal years, at least 1.1 million publicly held shares, at least \$15.0 million in market value of publicly held shares and at least four registered and active market makers (as such term is defined by the Nasdaq Marketplace Rules); (ii) a minimum of \$50.0 million in market value of listed securities, at least 1.1 million publicly held shares, at least \$15.0 million in market value of publicly held shares and at least four registered and active market makers; or (iii) a minimum of \$10.0 million in shareholders' equity, at least 750,000 publicly held shares, at least \$5.0 million in market value of publicly held shares and at least two registered and active market makers. As of December 31, 2022, we were in compliance with these listing requirements. Our stock price is volatile and we believe that we continue to remain susceptible to the market value of our listed securities and/or the market value of our publicly held securities falling below \$50.0 million and \$5.0 million, respectively. Accordingly, we cannot assure you that we will be able to continue to comply with Nasdaq Global Market's listing requirements. Should we be unable to remain in compliance with these requirements, our stock could become subject to delisting.

If our common stock is delisted, trading of the stock will most likely take place on an over-the-counter market established for unlisted securities. An investor is likely to find it less convenient to sell, or to obtain accurate quotations in seeking to buy, our common stock on an over-the-counter market, and many investors may not buy or sell our common stock due to difficulty in accessing over-the-counter markets, or due to policies preventing them from trading in securities not listed on a national exchange or other reasons. For these reasons and others, delisting would adversely affect the liquidity, trading volume and price of our common stock, causing the value of an investment in us to decrease and having an adverse effect on our business, financial condition and results of operations by limiting our ability to attract and retain qualified executives and employees and limiting our ability to raise capital.

The anti-takeover provisions of Oregon law and in our articles of incorporation could adversely affect the rights of the holders of our common stock, including by preventing a sale or takeover of us at a price or prices favorable to the holders of our common stock.

Provisions of our articles of incorporation and bylaws and provisions of Oregon law may have the effect of delaying or preventing a merger or acquisition of us, making a merger or acquisition of us less desirable to a potential acquirer or preventing a change in our management, even if our shareholders consider the merger, acquisition or change in management favorable or if doing so would benefit our shareholders. In addition, these provisions could limit the price that investors would be willing to pay in the future for shares of our common stock. The following are examples of such provisions:

- if the number of directors is fixed by the board at eight or more, our board of directors is divided into three classes serving staggered terms, which would make it more difficult for a group of shareholders to quickly replace a majority of directors;
- our board of directors is authorized, without prior shareholder approval, to create and issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to acquire us or to effect a change of control, commonly referred to as "blank check" preferred stock;
- members of our board of directors can be removed only for cause and at a meeting of shareholders called expressly for that purpose, by the vote of 75 percent of the votes then entitled to be cast for the election of directors;
- our board of directors may alter our bylaws without obtaining shareholder approval; and shareholders are required to provide advance notice for nominations for election to the board of directors or for proposing matters to be acted upon at a shareholder meeting;
- Oregon law permits our board to consider other factors beyond stockholder value in evaluating any acquisition offer (so-called "expanded constituency" provisions); and
- a supermajority (67%) vote of shareholders is required to approve certain fundamental transactions.

Item 1B. Unresolved Staff Comments.

Not applicable.

Item 2. Properties.

We lease facilities around the world to house our engineering, sales, customer support, administrative and operations functions. We do not own any of our facilities. As of December 31, 2022, our major facilities consisted of the following:

Location	Function(s)	Square Feet Utilized	Lease Expiration
China	Engineering; sales; customer support; administration	36,000	Various dates through December 2025
Toronto	Engineering; administration	12,000	March 2027
California	Administration; engineering; sales	10,000	September 2024
Taiwan	Customer support; sales; operations; engineering	16,000	Various dates through November 2024
Oregon	Administration	5,000	December 2024
Japan	Sales; customer support	3,000	January 2023

Item 3. Legal Proceedings.

We are subject to legal matters that arise from time to time in the ordinary course of our business. Although we currently believe that resolving such matters, individually or in the aggregate, will not have a material adverse effect on our financial position, our results of operations, or our cash flows, these matters are subject to inherent uncertainties and our view of these matters may change in the future.

Item 4. Mine Safety Disclosures.

Not Applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.

Market for Registrant's Common Equity and Related Stockholder Matters

Our common stock is listed for trading on the Nasdaq Global Market under the symbol "PXLW". Our stock began trading on May 19, 2000.

As of March 3, 2023, there were 114 shareholders of record of our common stock and the last per share sales price of the common stock on that date was \$1.63. The number of beneficial owners of our common stock is substantially greater than the number of shareholders of record because a significant portion of our outstanding common stock is held in broker "street name" for the benefit of individual investors.

Item 6. Reserved.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.

Overview

Pixelworks is a leading provider of high-performance and power-efficient visual processing semiconductor and software solutions that enable consistently high-quality and authentic viewing experiences in a wide variety of applications. We define our primary target markets as Mobile (smartphone and tablet), Home & Enterprise (projectors, personal video recorders ("PVR"), and over-the-air ("OTA") streaming devices), and Cinema (creation, remastering, and delivery of digital video content). Previously we classified our primary target markets as Mobile, Projector, Video Delivery and Cinema, but have since aggregated the Projector and Video Delivery categories into one called "Home & Enterprise".

Pixelworks has been a pioneer in visual processing technology for over 20 years. We were one of the first companies to commercially launch a video System on Chip ("SoC") capable of deinterlacing 1080i HDTV signals and one of the first companies with a commercial dual-channel 1080i deinterlacer integrated circuit. We launched one of the industry's first single-chip SoCs for digital projection. We were the first company to integrate motion estimation / motion compensation technology ("MEMC") as a mobile-optimized solution for smartphones. In 2019, we introduced our Hollywood award-winning TrueCut® video platform, the industry's first motion grading technology that allows fine tuning of motion appearance in cinematic content.

Our core visual processing technology intelligently processes digital images and video from a variety of sources and optimizes the content for a superior viewing experience. Rapid growth in video and gaming consumption, combined with the move towards bright, high resolution, high frame rate and high refresh rate displays, especially in mobile, is increasing the demand for our solutions. Our technologies can be applied across a wide range of applications: cinema theaters, low-power mobile tablets, smartphones, streaming devices, and digital projectors for the home, school, or the workplace. Our products are designed and optimized for power, cost, bandwidth, viewer experience, and overall system performance, according to the requirements of the specific application. On occasion, we have also licensed our technology.

During the third quarter of 2021, we engaged in a strategic plan to re-align our Mobile and Home & Enterprise businesses to improve their focus on their Asia-centered customers and employee stakeholders. Our subsidiary, Pixelworks Semiconductor Technology (Shanghai) Co., Ltd. (or "PWSH"), now operates these businesses as a full profit-and-loss center underneath Pixelworks. In connection with this strategic plan, the Company and PWSH closed three separate financing transactions in 2021 and 2022, which are further described in "Note 14: Redeemable Non-Controlling Interest and Equity Interest of PWSH Sold to Employees", "Note 15: Non-Controlling Interest" and "Note 17: Subsequent Events", which are incorporated by reference into this section.

PWSH is in the process of preparing to file an application for an initial public offering of PWSH shares on the Shanghai Stock Exchange's Science Technology Innovation Board, known as the STAR Market (the "Listing"). We believe that the Listing will have many benefits, including improved access to new capital markets and the funding of PWSH's growth worldwide. We presently intend to qualify PWSH to apply for the Listing in 2023. The process of going public on the STAR Market is lengthy and includes several periods of review by various government agencies of the People's Republic of China ("PRC"), such as the Shanghai Stock Exchange and the China Securities Regulatory Commission ("CSRC"). There is no guarantee that PWSH will be approved for a Listing at any point in the future. The listing of PWSH on the STAR Market will not change the status of PXLW as a U.S. public company. We are neither a PRC operating company nor do we conduct our operations in China through the use of variable interest entities.

As of December 31, 2022, we had an intellectual property portfolio of 291 patents related to the visual display of digital image data. We focus our research and development efforts on developing video algorithms that improve quality and architectures that reduce system power, cost, bandwidth and increase overall system performance and device functionality. We seek to expand our technology portfolio through internal development and co-development with business partners, and we continually evaluate acquisition opportunities and other ways to leverage our technology into other high-value markets.

Pixelworks was founded in 1997 and is incorporated under the laws of the state of Oregon. On August 2, 2017, we acquired ViXS Systems Inc., a corporation organized in Canada ("ViXS").

Historically, significant portions of our revenue have been generated by sales to a relatively small number of end customers and distributors. We sell our products worldwide through a direct sales force, distributors and manufacturers' representatives. We sell to distributors in China, Europe, Japan and Taiwan. Our distributors often provide engineering support to our end customers and often have valuable and established relationships with our end customers. In certain countries in which we operate, it is

customary to sell to distributors. While distributor payment to us is not dependent upon the distributor's ability to resell the product or to collect from the end customer, the distributors may provide longer payment terms to end customers than those we would offer.

Significant portions of our products are sold overseas. Sales outside the U.S. accounted for approximately 95% and 97% of revenue in 2022 and 2021, respectively. Our integrators, branded manufacturers and branded suppliers incorporate our products into systems that are sold worldwide. The majority of our revenue to date has been denominated in U.S. dollars.

For additional information regarding how the COVID-19 pandemic has affected us, please see "NOTE REGARDING COVID-19" above.

Seasonality

Our business is subject to seasonality related to the markets we serve and the location of our customers. For example, we have historically experienced higher revenue from the digital projector component of the Home & Enterprise market in the third quarter of the year, and lower revenue in the first quarter of the year, as our Japanese customers reduce inventories in anticipation of their March 31 fiscal year end.

Results of Operations

For the year ended December 31, 2022 compared with year ended December 31, 2021.

Revenue, net

Net revenue was as follows (in thousands):

	Year ended December 31,		2022 v. 2021	
	2022	2021	\$ change	% change
Revenue, net	\$ 70,146	\$ 55,102	\$ 15,044	27 %

Net revenue increased \$15 million, or 27%, from 2021 to 2022.

Revenue recorded in 2022 consisted of \$68.2 million in revenue from the sale of IC products and \$1.9 million in revenue related to engineering services, license revenue and other. Revenue recorded in 2021 consisted of \$50.8 million in revenue from the sale of IC products and \$4.3 million in revenue related to engineering services, license revenue and other.

The increase in IC revenue from 2021 compared to 2022 is due to the following factors:

- Sales into the Mobile market increased \$5.0 million or 31%, primarily due to a change in product mix as customers transitioned to newer generation product offerings.
- Sales into the Home & Enterprise market (previously referred to as the projector and video delivery market) increased \$12.4 million or 35%, primarily due to an increase in units sold driven by increased customer demand as well as implementing an end-of-life on some of our legacy products sold into the video delivery market. The increase in revenue was also due to a change in product mix, resulting in higher overall average selling prices. Average selling prices also increased partially due to passing on increased supplier costs to our customers.

Revenue related to engineering services, license revenue and other decreased \$2.4 million or 54% primarily due to a decrease in licensing revenue in the Mobile market. Revenue related to the Cinema market was not material in 2022 or 2021 and was therefore included in the engineering services, license revenue and other category within the Mobile market.

Cost of revenue and gross profit

Cost of revenue and gross profit were as follows (in thousands):

	Year ended December 31,			
	2022	% of revenue	2021	% of revenue
Direct product costs and related overhead ¹	\$ 34,070	49 %	\$ 25,987	47 %
Amortization of acquired developed technology	72	0	899	2
Inventory charges ²	82	0	480	1
Stock-based compensation	41	0	43	0
Total cost of revenue	\$ 34,265	49 %	\$ 27,409	50 %
Gross profit	\$ 35,881	51 %	\$ 27,693	50 %

¹ Includes purchased materials, assembly, test, labor, employee benefits and royalties.

² Includes charges to reduce inventory to lower of cost or net realizable value and a benefit for sales of previously written down inventory.

Gross profit margin increased to 51% in 2022 compared to 50% in 2021, primarily due to product mix. The increase in sales into the Home & Enterprise market favorably impacted gross profit margin, while the increase in sales into the Mobile market unfavorably impacted gross profit margin. The increase was also due to decreased amortization of acquired developed technology, largely offset by a decrease in high margin license revenue.

Pixelworks' gross profit margin is subject to variability based on changes in revenue levels, product mix, average selling prices, startup costs, amortization related to acquired developed technology and the timing and execution of manufacturing ramps as well as other factors.

Research and development

Research and development expense includes compensation and related costs for personnel, development-related expenses including non-recurring engineering and fees for outside services, depreciation and amortization, expensed equipment, facilities and information technology expense allocations and travel and related expenses.

Co-Development Agreement

During the third quarter of 2021, we entered into a best-efforts co-development agreement with a customer to defray a portion of the research and development expenses we expect to incur in connection with our development of an integrated circuit product. We expect our development costs to exceed the amounts received from the customer, and although we expect to sell units of the product to the customer, there is no commitment or agreement from the customer for such sales at this time. Additionally, we retain ownership of any modifications or improvements to our pre-existing intellectual property and may use such improvements in products sold to other customers.

Under the co-development agreement, \$5.8 million was payable by the customer within 60 days of the date of the agreement and three additional payments of \$2.5 million, \$1.9 million and \$1.3 million are each payable upon completion of certain development milestones. As amounts become due and payable, they are offset against research and development expense on a pro rata basis. We recognized offsets to research and development expense of approximately \$4.3 and \$4.0 million during the years ended December 31, 2022 and 2021, respectively.

Research and development expense was as follows (in thousands):

	Year ended December 31,		2022 v. 2021	
	2022	2021	\$ change	% change
Research and development	\$ 30,521	\$ 27,250	\$ 3,271	12 %

Research and development expense increased \$3.3 million, or 12%, from 2021 to 2022 due to the following factors:

- Compensation expense increased \$2.8 million due to an increase in headcount and annual merit salary increases.
- Depreciation and amortization increased \$0.9 million due to the timing of development activities.
- These increases were partially offset by a \$0.4 million increase in the credit recognized related to the co-development agreement in 2022, compared to the credit recognized in 2021.

Selling, general and administrative

Selling, general and administrative expense includes compensation and related costs for personnel, sales commissions, allocations for facilities and information technology expenses, travel, outside services and other general expenses incurred in our sales, marketing, customer support, management, legal and other professional and administrative support functions.

Selling, general and administrative expense was as follows (in thousands):

	Year ended December 31,		2022 v. 2021	
	2022	2021	\$ change	% change
Selling, general and administrative	\$ 22,177	\$ 20,445	\$ 1,732	8 %

Selling, general and administrative expense increased \$1.7 million, or 8%, from 2021 to 2022 due to the following factors:

- Compensation expense increased \$1.0 million due to an increase in headcount and annual merit salary increases.
- Foreign currency gains and losses increased \$0.7 million primarily due to the change in the CNY exchange rate.
- Various professional fees increased \$0.7 million as a result of our strategic plan with our PWSH subsidiary.
- Marketing expenses increased \$0.2 million due to increased focus on marketing to expand our gaming eco-system.
- These increases were partially offset by a \$0.9 million decrease in stock based compensation expense due the timing of awards granted and due to the resignation of our former Chief Financial Officer in January 2022.

Interest income and other, net

Interest income and other, net, consisted of the following (in thousands):

	Year ended December 31,	
	2022	2021
Other income	\$ 80	\$ 246
Interest income	670	211
Interest expense	(50)	—
Total interest income and other, net	\$ 700	\$ 457

The increase in interest income in 2022 compared to 2021 is due to increased interest earned on our cash and cash equivalents balance due to our increased average cash balance throughout the year in 2022 compared to 2021.

Provision (benefit) for income taxes

The benefit for income taxes was as follows (in thousands):

	Year ended December 31,	
	2022	2021
Benefit for income taxes	\$ (884)	\$ (133)

The income tax benefit of \$0.9 million recorded for the year ended December 31, 2022 is primarily composed of \$1.8 million of tax benefit for the reversal of tax contingencies in foreign jurisdictions, partially offset by tax expense of \$0.3 million for our profitable cost-plus jurisdictions and deferred tax expense of approximately \$0.6 million related to a change in the realizability of our Canadian deferred tax assets.

The income tax benefit of \$0.1 million recorded for the year ended December 31, 2021 is primarily comprised of current tax expense of approximately \$0.6 million for our profitable cost-plus foreign jurisdictions and accruals for tax contingencies in foreign jurisdictions offset by a deferred tax benefit of approximately \$0.7 million primarily associated with recognition of Canadian deferred tax assets. Included in current tax expense is a tax benefit of \$0.6 million associated with the reversal of withholding taxes on our China earnings as we now plan to reinvest these earnings indefinitely, which resulted from the changes made in the third quarter of 2021 related to our strategic plan with our PWSH subsidiary. Also included in current tax expense is \$0.8 million of expense resulting from the revaluation of our uncertain tax position in China to the statutory tax rate as we no longer qualify for the tax holiday we were under.

We continue to record a full valuation allowance against our U.S. and China net deferred tax assets as of December 31, 2022 and 2021, as it is not more likely than not that we will realize a benefit from these assets in a future period. In the fourth quarter of 2021, we recognized \$0.6 million of our Canadian net deferred tax assets. As of December 31, 2022, we are no longer more-likely-than-not to realize our remaining Canadian deferred tax assets and have recorded a full valuation allowance. We have not provided a valuation allowance against our other foreign net deferred tax assets as we have concluded it is more-likely-than-not that we will realize a benefit from these assets in a future period because our subsidiaries in these jurisdictions are cost-plus taxpayers. The net valuation allowance decreased \$4.4 million for the year ended December 31, 2022 and decreased \$4.6 million for the year ended December 31, 2021.

As of December 31, 2022, we have federal, state and foreign net operating loss carryforwards of approximately \$155.0 million, \$9.6 million, and \$42.7 million respectively, which will begin expiring in 2024. As of December 31, 2022, we have available federal, state and foreign research and experimentation tax credit carryforwards of approximately \$6.7 million, \$5.2 million and \$21.9 million respectively. The federal and state tax credits will begin expiring in 2023 while the foreign tax credits have an indefinite life. In addition, our Canadian subsidiary has unclaimed scientific and experimental expenditures to be carried forward and applied against future income in Canada of approximately \$120.3 million. We have a general foreign tax credit of \$0.1 million, which will begin expiring in 2023. Our ability to utilize our federal net operating losses may be limited by Section 382 of the Internal Revenue Code of 1986, as amended, which imposes an annual limit on the ability of a corporation that undergoes an "ownership change" to use its net operating loss carryforwards to reduce its tax liability. An ownership change is generally defined as a greater than 50% increase in equity ownership by 5% shareholders in any three-year period.

Liquidity and Capital Resources

Cash and cash equivalents

Total cash and cash equivalents decreased \$4.8 million from \$61.6 million at December 31, 2021 to \$56.8 million at December 31, 2022. The net decrease was the result of \$12.8 million used in operating activities, \$3.0 million used for purchases of property and equipment and licensed technology and \$1.5 million used for payments on other asset financings. These decreases were partially offset by increases of \$12.1 million received in net proceeds from our non-controlling interest and certain entities owned by employees and \$0.4 million in proceeds from the issuances of common stock under our employee equity incentive plans.

As of December 31, 2022, our cash and cash equivalents balance consisted of \$33.0 million in cash and \$18.8 million in cash equivalents held in U.S. dollar denominated money market funds and \$5.0 million held in U.S. dollar denominated certificates of deposit. Our investment policy requires that our portfolio maintains a weighted average maturity of less than 12 months. Additionally, no maturities can extend beyond 24 months and concentrations with individual securities are limited. At the time of purchase, short-term credit rating must be rated at least A-2 / P-2 / F-2 by at least two Nationally Recognized Statistical Rating Organizations ("NRSRO") and securities of issuers with a long-term credit rating must be rated at least A or A3 by at least two NRSROs. Our investment policy is reviewed at least annually by our Audit Committee.

Accounts receivable, net

Accounts receivable, net increased to \$10.0 million at December 31, 2022 from \$8.7 million at December 31, 2021. Average number of days sales outstanding increased to 54 days at December 31, 2022 from 47 days at December 31, 2021. The increase in accounts receivable and days sales outstanding was due to normal fluctuations in the timing of sales and customer receipts within the fourth quarter of 2022, and the fourth quarter of 2021.

Inventories

Inventories increased to \$1.8 million at December 31, 2022 from \$1.5 million at December 31, 2021. Inventory turnover decreased to 13.7 at December 31, 2022 from 19.5 at December 31, 2021 primarily due to higher average inventory balances in the fourth quarter of 2022 compared to the fourth quarter of 2021. Inventory turnover is calculated based on annualized quarterly operating results and average inventory balances during the quarter.

Capital resources

At the Market Offering

On June 5, 2020, we entered into a sales agreement (the "Sales Agreement") with Cowen and Company, LLC ("Cowen"), pursuant to which we may issue and sell shares of the Company's common stock, par value \$0.001 per share, having an aggregate offering price of up to \$25.0 million, from time to time, through an "at the market" equity offering program under which Cowen will act as sales agent. Under the Sales Agreement, Cowen may sell the shares by methods deemed to be an "at the market offering" as defined in Rule 415(a)(4) promulgated under the Securities Act of 1933, as amended, including sales made by means of ordinary brokers' transactions on the Nasdaq Global Market or on any other existing trading market for the common stock or otherwise at market prices prevailing at the time of sale, in block transactions, or as otherwise directed by us. We pay Cowen a commission equal to three percent (3.0%) of the gross sales proceeds of any common stock sold through Cowen under the Sales Agreement. The Sales Agreement may be terminated by us upon prior notice to Cowen or by Cowen upon prior notice to us, or at any time under certain circumstances, including but not limited to the occurrence of a material adverse change in the Company. We are not obligated to sell any shares under the Sales Agreement.

During the year ended December 31, 2021, we sold an aggregate of 61,018 shares of our common stock under this at the market offering, resulting in aggregate net proceeds to us of approximately \$0.3 million, and gross proceeds of approximately \$0.4 million, and paid Cowen commissions and fees and other expenses of approximately \$0.1 million.

There was no activity under this at the market offering during the year ended December 31, 2022.

Capital Increase Agreements

We have entered into a Capital Increase Agreement pursuant to which our subsidiary PWSH, received net proceeds from the sale of its securities pursuant thereto in an amount of RMB 279.7 million (\$42.3 million USD). Additional information is provided in "Note 14: Redeemable Non-Controlling Interest and Equity Interest of PWSH Sold to Employees", which is incorporated by reference into this section.

On December 21, 2022, the Company and its subsidiary, PWSH, entered into a Capital Increase Agreement with certain private equity investors based in China who have agreed to pay a total of RMB 100.0 million (\$14.3 million USD). Additional information is provided in "Note 17: Subsequent Events", which is incorporated by reference into this section.

Equity Transfer Agreement

We have entered into an Equity Transfer Agreement pursuant to which we received net proceeds of \$10.7 million in exchange for a 2.73% equity interest in PWSH. Additional information is provided in "Note 15: Non-Controlling Interest", which is incorporated by reference into this section.

Liquidity

As of December 31, 2022, our cash and cash equivalents balance of \$56.8 million was highly liquid. We currently anticipate that our existing working capital will be adequate to fund our operating, investing and financing needs for the twelve months following our 2022 fiscal year end and beyond. We may pursue financing arrangements including the issuance of debt or equity securities or reduce expenditures, or both, to meet the Company's cash requirements, including in the longer term. There is no assurance that, if required, we will be able to raise additional capital or reduce discretionary spending to provide the required liquidity which, in turn, may have an adverse effect on our results of operations, financial position and cash flows.

From time to time, we evaluate acquisitions of businesses, products or technologies that complement our business. Any transactions, if consummated, may consume a material portion of our working capital or require the issuance of equity securities that may result in dilution to existing shareholders. Our ability to generate cash from operations is also subject to substantial risks described in Part I, "Item 1A., Risk Factors." If any of these risks occur, we may be unable to generate or sustain positive cash flow from operating activities. We would then be required to use existing cash and cash equivalents to support our working capital and other cash requirements. If additional funds are required to support our working capital requirements, acquisitions or other purposes, we may seek to raise funds through debt financing, equity financing or from other sources. If we raise additional funds through the issuance of equity or convertible debt securities, the percentage ownership of our shareholders could be significantly diluted, and these newly-issued securities may have rights, preferences or privileges senior to those of existing shareholders. If we raise additional funds by obtaining loans from third parties, the terms of those financing arrangements may include negative covenants or other restrictions on our business that could impair our operating flexibility, and would also require us to incur interest expense. We can provide no assurance that additional financing will be available at all or, if available, that we would be able to obtain additional financing on terms favorable to us.

Critical Accounting Estimates

The preparation of financial statements in conformity with U.S. generally accepted accounting principles requires us to make estimates and judgments that affect the amounts reported. On an ongoing basis, we evaluate our estimates, including those related to revenue recognition, inventories, property and equipment, impairment of long-lived assets, valuation of goodwill, valuation of share-based payments, income taxes, litigation and other contingencies. We base our estimates on historical experience and various other assumptions that we believe to be reasonable under the circumstances. Actual results may differ from these estimates under different assumptions or conditions.

We believe the following critical accounting policies affect our more significant judgments and estimates used in the preparation of our consolidated financial statements:

Revenue Recognition - Revenue is recognized when control of the promised good or service is transferred to our customers, in an amount that reflects the consideration we expect to be entitled to in exchange for those goods or services. Our principal revenue generating activities consist of the following:

Product Sales - We sell integrated circuit products, also known as "chips" or "ICs", based upon a customer purchase order, which includes a fixed price per unit. ICs are sold into two target markets: Mobile and Home & Enterprise. We have elected to account for shipping and handling as activities to fulfill the promise to transfer the goods, and not evaluate whether these activities are promised services to the customer. We generally satisfy our single performance obligation upon shipment of the goods to the customer and recognize revenue at a point in time upon shipment of the underlying product.

Our shipments are subject to limited return rights subject to our limited warranty for our products sold. In addition, we may provide other credits to certain customers pursuant to price protection and stock rotation rights, all of which are considered variable consideration when estimating the amount of revenue to recognize. We use the “most likely amount” method to determine the amount of consideration to which we are entitled. Our estimate of variable consideration is reassessed at the end of each reporting period based on changes in facts and circumstances. Historically, returns and credits have not been material.

Engineering Services - We enter into contracts for professional engineering services that include software development and customization. We identify each performance obligation in our engineering services agreements (“ESAs”) at contract inception. The ESA generally includes project deliverables specified by the customer. The performance obligations in the ESA are generally combined into one deliverable, with the pricing for services stated at a fixed amount. Services provided under the ESA generally result in the transfer of control over time. We recognize revenue on ESAs based on the proportion of labor hours expended to the total hours expected to complete the contract performance obligation. ESAs could include substantive customer acceptance provisions. In ESAs that include substantive customer acceptance provisions, we recognize revenue upon customer acceptance.

License Revenue - On occasion, we derive revenue from the license of our internally developed intellectual property (“IP”). Additionally, for certain IP license agreements, royalties are collected as customers sell their own products that incorporate our IP. IP licensing agreements that we enter into generally provide licensees the right to incorporate our IP components in their products with terms and conditions that vary by licensee. Fees under these agreements generally include license fees or royalty fees relating to our IP and support service fees, resulting in two performance obligations. We evaluate each performance obligation, which generally results in the transfer of control at a point in time for the license fee and over time for support services. Royalties are recognized as revenue is earned, generally when the customer sells its products that incorporate our IP.

Other - From time-to-time, we enter into arrangements for other revenue generating activities, such as providing technical support services to customers through technical support agreements. In each circumstance, we evaluate such arrangements for our performance obligations which generally results in the transfer of control for such services over time. Historically, such arrangements have not been material to our operating results.

Inventory Valuation. We value inventory at the lower of cost or net realizable value. In addition, we write down any obsolete, unmarketable or otherwise impaired inventory to net realizable value. The determination of obsolete or excess inventory requires us to estimate the future demand for our products. The estimate of future demand is compared to inventory levels to determine the amount, if any, of obsolete or excess inventory. If actual market conditions are less favorable than those we projected at the time the inventory was written down, additional inventory write-downs may be required. Inventory valuation is re-evaluated on a quarterly basis.

Useful Lives and Recoverability of Equipment and Other Long-Lived Assets. We evaluate the recoverability of equipment and other assets, including identifiable intangible assets, whenever events or changes in circumstances indicate that the carrying amount of the assets may not be recoverable. If there is an indicator of impairment, we prepare an estimate of future, undiscounted cash flows expected to result from the use of each asset and its eventual disposition. If these cash flows are less than the carrying value of the asset, we adjust the carrying amount of the asset to its estimated fair value. We have concluded that the carrying value of our long-lived assets is recoverable as of December 31, 2022.

Goodwill. Goodwill is not amortized, rather tested, at least annually, for impairment at a reporting unit level. Impairment of goodwill is the condition that exists when the carrying amount of a reporting unit that includes goodwill exceeds its fair value. A goodwill impairment loss is recognized for the amount that the carrying amount of the reporting unit, including goodwill, exceeds its fair value, limited to the total amount of goodwill allocated to that reporting unit. If the fair value of a reporting unit exceeds the carrying amount, goodwill of the reporting unit is not considered impaired.

We evaluate impairment using the guidance set forth in FASB Accounting Standards Update (“ASU”) No. 2017-04, *Intangibles-Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment* (“ASU 2017-04”) which states that an entity may first assess qualitative factors to determine whether it is necessary to perform the quantitative goodwill impairment test. If determined to be necessary, the quantitative impairment test shall be used to identify goodwill impairment and measure the amount of goodwill impairment loss to be recognized. An entity has an unconditional option to bypass the qualitative assessment for any reporting unit in any period and proceed directly to the quantitative goodwill impairment test. Accordingly, we have elected to bypass the qualitative assessment and proceed directly to the quantitative goodwill impairment test. We tested goodwill for impairment under the quantitative goodwill impairment test during the fourth quarter and concluded that goodwill was not impaired.

Stock-Based Compensation. Stock-based compensation expense is measured at the grant date, based on the estimated fair value of the award using the Black-Scholes option pricing model for stock options and market price for restricted stock units. The use of the Black-Scholes option pricing model, requires certain estimates, including expected term of options granted, the method of calculating expected volatilities and the risk-free interest rate used in the option-pricing model. The resulting calculated fair value of stock options is recognized as compensation expense over the requisite service period, which is generally the vesting period. When there are changes to the assumptions used in the option-pricing model, including fluctuations in the market price of our common stock, there will be variations in the calculated fair value of our future stock option awards, which results in variation in the stock-based compensation expensed recognized. Additionally, any modification of an award that increases its fair value will require us to recognize additional expense.

Income Taxes. We record deferred income taxes for temporary differences between the amount of assets and liabilities for financial and tax reporting purposes and we record a valuation allowance to reduce our deferred tax assets to the amount that is more likely than not to be realized. We also regularly conduct a comprehensive review of our uncertain tax positions. In this regard, an uncertain tax position represents our expected treatment of a tax position taken in a filed tax return, or planned to be taken in a future tax return, that has not been reflected in measuring income tax expense for financial reporting purposes. Until these positions are sustained by the taxing authorities, we do not recognize the tax benefits resulting from such positions and report the tax effects for uncertain tax positions in our consolidated balance sheets.

Recent Accounting Pronouncements

See "Note 2: Summary of Significant Accounting Policies" in Part II, Item 8 of this Form 10-K for a description of recent accounting pronouncements, including the expected dates of adoption and estimated effects, if any, on our consolidated financial statements.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk.

Not applicable.

Item 8. Financial Statements and Supplementary Data.

The following financial statements and reports are included in Item 8:

[Report of Independent Registered Public Accounting Firm \(PCAOB ID: 32\)](#)
[Consolidated Balance Sheets as of December 31, 2022 and 2021](#)
[Consolidated Statements of Operations for the years ended December 31, 2022 and 2021](#)
[Consolidated Statements of Comprehensive Loss for the years ended December 31, 2022 and 2021](#)
[Consolidated Statements of Cash Flows for the years ended December 31, 2022 and 2021](#)
[Consolidated Statements of Shareholders' Equity for the years ended December 31, 2022 and 2021](#)
[Notes to Consolidated Financial Statements](#)

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders
Pixelworks, Inc.
Portland, Oregon

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Pixelworks, Inc. and its subsidiaries (the Company) as of December 31, 2022 and 2021, and the related consolidated statements of operations, comprehensive loss, shareholders' equity, and cash flows for each of the two years ended December 31, 2022, and the related notes (collectively referred to as the consolidated financial statements).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2022 and 2021, and the results of its operations and its cash flows for each of the two years ended December 31, 2022 in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

The Company's management is responsible for these consolidated financial statements. Our responsibility is to express an opinion on the Company's consolidated financial statements. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Revenue Recognition — Refer to Note 2 to the Consolidated Financial Statements

Critical Audit Matter Description

The Company recognizes revenue upon transfer of control of promised products or services to customers in an amount that reflects the consideration the Company expects to receive in exchange for those products or services. The Company's contract may contain one or more performance obligations, including hardware, professional engineering services, internally developed intellectual property ("IP") and technical support services.

Significant judgment is exercised by the Company in determining revenue recognition for these customer agreements, and includes the following:

- Determination of whether products and services are considered distinct performance obligations that should be accounted for separately versus together.
- Determination of stand-alone selling prices for each distinct performance obligation (i.e., for IP license fee and support service fee that are sold together under IP licensing arrangements).
- The pattern of delivery (i.e., timing of when revenue is recognized) for each distinct performance obligation.
- Estimation of variable consideration when determining the amount of revenue to recognize, primarily on product sale arrangements (e.g., customer credits pursuant to price protection rights, stock rotation rights and limited return rights).

Given these factors, the related audit effort in evaluating management's judgments in determining revenue recognition for these customer agreements was extensive and required a high degree of auditor judgment.

How the Critical Audit Matter Was Addressed in the Audit

Our principal audit procedures related to the Company's revenue recognition for these customer agreements included the following:

- We selected a sample of customer agreements and performed the following procedures:
 - Obtained and read contract source documents for each selection, including master agreements, and other documents that were part of the agreement to identify significant terms.
 - Tested management's identification of significant terms for completeness, including the identification of distinct performance obligations and variable consideration.
 - Assessed the terms in the customer agreement and evaluated the appropriateness of management's application of their accounting policies, along with their use of estimates, in the determination of revenue recognition conclusions.
- We evaluated the reasonableness of management's estimate of stand-alone selling prices for products and services that are not sold separately.
- We evaluated the reasonableness and accuracy of management's judgements and estimates used in accounting for customer credits pursuant to price protection rights, stock rotation rights and limited return rights ("variable consideration"). This included testing management's estimate of calculating expected credits issued to customers and determining whether such credits were completely and accurately reserved as of December 31, 2022.
- We tested the mathematical accuracy of management's calculations of revenue and the associated timing of recognizing the related revenue subject to any constraints in the consolidated financial statements.

Inventory Valuation— Refer to Note 2 to the Financial Statements

Critical Audit Matter Description

The Company computes inventory cost on a first-in-first out basis and applies judgment in determining the forecast for products and the valuation of inventories. The Company assesses inventory at each reporting date in order to assert that it is recorded at net realizable value, giving consideration to, among other factors: whether the product is valued at the lower of cost or net realizable value; and the estimation of excess and obsolete inventory or that which is not of saleable quality. Most of the Company's inventory provisions are based on the Company's inventory levels and future product purchase commitments compared to assumptions about future demand and market conditions.

Significant judgment is exercised by the Company to determine inventory carrying value adjustments, specifically the provisions for excess or obsolete inventories, and includes the following:

- Developing assumptions such as forecasts of future sales quantities, which are sensitive to the competitiveness of product offerings, customer requirements, and product life cycles.
- Applying management judgment on not reserving certain inventory units (e.g. in case they are items that can be used for Return Merchandise Authorization "RMA"/warranty purpose).

Given these factors and assumptions are forward-looking and could be affected by future economic and market conditions, the related audit effort to evaluate management's inventory valuation adjustments was extensive and required a high degree of auditor judgment.

How the Critical Audit Matter Was Addressed in the Audit

Our principal audit procedures related to the Company's inventory valuation methodology included the following:

- We selected a sample of inventory items and performed the following procedures:
 - Tested the mathematical accuracy of the schedule by comparing the quantities and carrying value of on-hand inventories to related unit sales, both historical and forecasted.
 - Assessed and tested the reasonableness of the significant assumptions (e.g., sales and marketing forecast, build plans, RMA requirements, usage and open sales-orders).
 - Inquired with the management team and evaluated the adequacy of management's sales forecasts by analyzing potential technological changes in line with product life cycles and/or identified alternative customer uses.
 - Assessed whether there were any potential sources of contrary information, including historical forecast accuracy or history of significant revisions to previously recorded inventory valuation adjustments, and performed sensitivity analyses over significant assumptions to evaluate the changes in inventory valuation that would result from changes in the assumptions.

/s/ Armanino ^{LLP}

We have served as the Company's auditor since 2020.

San Ramon, California

March 8, 2023

PIXELWORKS, INC.
CONSOLIDATED BALANCE SHEETS
(In thousands, except share data)

	December 31,	
	2022	2021
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 56,821	\$ 61,587
Accounts receivable, net	10,047	8,708
Inventories	1,760	1,469
Prepaid expenses and other current assets	3,745	2,732
Total current assets	72,373	74,496
Property and equipment, net	4,632	5,656
Operating lease right-of-use assets	3,331	4,789
Other assets, net	3,580	3,162
Acquired intangible assets, net	—	90
Goodwill	18,407	18,407
Total assets	\$ 102,323	\$ 106,600
LIABILITIES, REDEEMABLE NON-CONTROLLING INTEREST AND SHAREHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	\$ 3,143	\$ 2,747
Accrued liabilities and current portion of long-term liabilities	8,849	13,563
Current portion of income taxes payable	519	128
Total current liabilities	12,511	16,438
Long-term liabilities, net of current portion	1,005	519
Deposit liability	13,537	12,716
Operating lease liabilities, net of current portion	2,148	2,853
Income taxes payable, net of current portion	872	2,948
Total liabilities	30,073	35,474
Commitments and contingencies (Note 10)		
Redeemable non-controlling interest	28,919	30,905
Shareholders' equity:		
Preferred stock, \$0.001 par value, 50,000,000 shares authorized, none issued	—	—
Common stock, \$0.001 par value; 250,000,000 shares authorized, 55,113,186 and 53,367,136 shares issued and outstanding as of December 31, 2022 and 2021, respectively.	481,229	475,644
Accumulated other comprehensive income (loss)	2,178	(468)
Accumulated deficit	(450,985)	(434,955)
Total Pixelworks, Inc. shareholders' equity	32,422	40,221
Non-controlling interest	10,909	—
Total shareholders' equity	43,331	40,221
Total liabilities, redeemable non-controlling interest and shareholders' equity	\$ 102,323	\$ 106,600

See accompanying notes to consolidated financial statements.

PIXELWORKS, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands, except per share data)

	Year Ended December 31,	
	2022	2021
Revenue, net	\$ 70,146	\$ 55,102
Cost of revenue (1)	34,265	27,409
Gross profit	35,881	27,693
Operating expenses:		
Research and development (2)	30,521	27,250
Selling, general and administrative (3)	22,177	20,445
Total operating expenses	52,698	47,695
Loss from operations	(16,817)	(20,002)
Interest income and other, net	700	457
Loss before income taxes	(16,117)	(19,545)
Benefit for income taxes	(884)	(133)
Net loss	(15,233)	(19,412)
Less: Net income attributable to non-controlling interests and redeemable non-controlling interests	(797)	(409)
Net loss attributable to Pixelworks, Inc.	\$ (16,030)	\$ (19,821)
Net loss attributable to Pixelworks, Inc. per share - basic and diluted	\$ (0.30)	\$ (0.38)
Weighted average shares outstanding - basic and diluted	54,335	52,509
(1) Includes:		
Amortization of acquired intangible assets	72	899
Stock-based compensation	41	43
(2) Includes stock-based compensation	2,351	2,363
(3) Includes:		
Stock-based compensation	2,806	3,678
Amortization of acquired intangible assets	18	219

See accompanying notes to consolidated financial statements.

PIXELWORKS, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(In thousands)

	Year Ended December 31,	
	2022	2021
Net loss	\$ (15,233)	\$ (19,412)
Other comprehensive loss:		
Foreign currency translation adjustment	2,612	(520)
Foreign pension adjustment	53	6
Tax effect of foreign pension adjustment	(19)	(1)
Comprehensive loss	(12,587)	(19,927)
Less: comprehensive income attributable to redeemable non-controlling interest	(797)	(409)
Total comprehensive loss attributable to Pixelworks, Inc.	\$ (13,384)	\$ (20,336)

See accompanying notes to consolidated financial statements.

PIXELWORKS, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	Year Ended December 31,	
	2022	2021
Cash flows from operating activities:		
Net loss	\$ (15,233)	\$ (19,412)
Adjustments to reconcile net loss to net cash used in operating activities:		
Stock-based compensation	5,198	6,084
Depreciation and amortization	4,657	3,648
Reversal of uncertain tax positions	(2,171)	(2)
Deferred income tax expense (benefit)	428	(768)
Amortization of acquired intangible assets	90	1,118
Other	8	10
Changes in operating assets and liabilities:		
Accounts receivable, net	(1,339)	(4,036)
Inventories	(291)	976
Prepaid expenses and other current and long-term assets, net	1,535	(46)
Accounts payable	486	1,282
Accrued current and long-term liabilities	(6,688)	1,537
Income taxes payable	486	452
Net cash used in operating activities	<u>(12,834)</u>	<u>(9,157)</u>
Cash flows from investing activities:		
Purchases of property and equipment	(1,592)	(3,475)
Purchases of licensed technology	(1,415)	—
Proceeds from sales and maturities of marketable securities	—	250
Net cash used in investing activities	<u>(3,007)</u>	<u>(3,225)</u>
Cash flows from financing activities:		
Net proceeds from issuance of equity interest to non-controlling interest	10,738	—
Payments on asset financings	(1,457)	(1,195)
Net proceeds from issuance of equity interest to certain entities owned by employees	1,407	12,329
Proceeds from issuances of common stock under employee equity incentive plans	387	1,282
Net proceeds from issuance of equity interest to redeemable non-controlling interest	—	29,976
Net proceeds from "at the market" equity offering	—	320
Net cash provided by financing activities	<u>11,075</u>	<u>42,712</u>
Net increase (decrease) in cash and cash equivalents	(4,766)	30,330
Cash and cash equivalents, beginning of period	61,587	31,257
Cash and cash equivalents, end of period	<u>\$ 56,821</u>	<u>\$ 61,587</u>
Supplemental disclosure of cash flow information:		
Cash paid during the year for interest	\$ 196	\$ 162
Cash paid for income taxes, net of refunds received	188	376
Non-cash investing and financing activities:		
Acquisitions of property and equipment and other assets under extended payment terms	\$ 1,674	\$ 1,229

See accompanying notes to consolidated financial statements.

PIXELWORKS, INC.
CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY
(In thousands, except share data)

	Common Stock		Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Non- Controlling Interest	Total Shareholders' Equity
	Shares	Amount				
Balance as of December 31, 2020	51,078,942	467,957	47	(415,134)	—	52,870
Stock issued under employee equity incentive plans	2,227,176	1,282	—	—	—	1,282
"At the market" equity offering	61,018	321	—	—	—	321
Stock-based compensation expense	—	6,084	—	—	—	6,084
Foreign currency translation adjustment	—	—	(520)	—	—	(520)
Net loss attributable to Pixelworks, Inc.	—	—	—	(19,821)	—	(19,821)
Foreign pension adjustment, net of tax of \$1	—	—	5	—	—	5
Balance as of December 31, 2021	53,367,136	475,644	(468)	(434,955)	—	40,221
Stock issued under employee equity incentive plans	1,746,050	387	—	—	—	387
Stock-based compensation expense	—	5,198	—	—	—	5,198
Foreign currency translation adjustment	—	—	2,612	—	—	2,612
Net proceeds from issuance of equity interest to non-controlling interest	—	—	—	—	10,738	10,738
Net income attributable to non-controlling interest	—	—	—	—	171	171
Net loss attributable to Pixelworks, Inc.	—	—	—	(16,030)	—	(16,030)
Foreign pension adjustment, net of tax of \$19	—	—	34	—	—	34
Balance as of December 31, 2022	55,113,186	\$ 481,229	\$ 2,178	\$ (450,985)	\$ 10,909	\$ 43,331

See accompanying notes to consolidated financial statements.

PIXELWORKS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(In thousands, except share and per share data)

NOTE 1. BASIS OF PRESENTATION

Nature of Business

Pixelworks is a leading provider of high-performance and power-efficient visual processing semiconductor and software solutions that enable consistently high-quality and authentic viewing experiences in a wide variety of applications. We define our primary target markets as Mobile (smartphone and tablet), Home & Enterprise (projectors, personal video recorders ("PVR"), and over-the-air ("OTA") streaming devices), and Cinema (creation, remastering, and delivery of digital video content). Previously we classified our primary target markets as Mobile, Projector, Video Delivery and Cinema, but have since aggregated the Projector and Video Delivery categories into one called "Home & Enterprise".

Pixelworks has been a pioneer in visual processing technology for over 20 years. We were one of the first companies to commercially launch a video System on Chip ("SoC") capable of deinterlacing 1080i HDTV signals and one of the first companies with a commercial dual-channel 1080i deinterlacer integrated circuit. We launched one of the industry's first single-chip SoCs for digital projection. We were the first company to integrate motion estimation / motion compensation technology ("MEMC") as a mobile-optimized solution for smartphones. In 2019, we introduced our Hollywood award-winning TrueCut® video platform, the industry's first motion grading technology that allows fine tuning of motion appearance in cinematic content.

Our core visual processing technology intelligently processes digital images and video from a variety of sources and optimizes the content for a superior viewing experience. Rapid growth in video and gaming consumption, combined with the move towards bright, high resolution, high frame rate and high refresh rate displays, especially in mobile, is increasing the demand for our solutions. Our technologies can be applied across a wide range of applications: cinema theaters, low-power mobile tablets, smartphones, streaming devices, and digital projectors for the home, school, or the workplace. Our products are designed and optimized for power, cost, bandwidth, viewer experience, and overall system performance, according to the requirements of the specific application. On occasion, we have also licensed our technology.

During the third quarter of 2021, we engaged in a strategic plan to re-align our Mobile and Home & Enterprise businesses to improve their focus on their Asia-centered customers and employee stakeholders. Our subsidiary, Pixelworks Semiconductor Technology (Shanghai) Co., Ltd. (or "PWSH"), now operates these businesses as a full profit-and-loss center underneath Pixelworks. In connection with this strategic plan, the Company and PWSH closed three separate financing transactions in 2021 and 2022, which are further described in "Note 14: Redeemable Non-Controlling Interest and Equity Interest of PWSH Sold to Employees", "Note 15: Non-Controlling Interest" and "Note 17: Subsequent Events", which are incorporated by reference into this section.

PWSH is in the process of preparing to file an application for an initial public offering of PWSH shares on the Shanghai Stock Exchange's Science Technology Innovation Board, known as the STAR Market (the "Listing"). We believe that the Listing will have many benefits, including improved access to new capital markets and the funding of PWSH's growth worldwide. We presently intend to qualify PWSH to apply for the Listing in 2023. The process of going public on the STAR Market is lengthy and includes several periods of review by various government agencies of the People's Republic of China ("PRC"), such as the Shanghai Stock Exchange and the China Securities Regulatory Commission ("CSRC"). There is no guarantee that PWSH will be approved for a Listing at any point in the future. The listing of PWSH on the STAR Market will not change the status of PXLW as a U.S. public company. We are neither a PRC operating company nor do we conduct our operations in China through the use of variable interest entities.

Our consolidated financial statements include the accounts of Pixelworks and its subsidiaries. Intercompany accounts and transactions have been eliminated. All foreign subsidiaries use the U.S. dollar as the functional currency, and as a result, transaction gains and losses are included in the consolidated statements of operations. Transaction (gains) and losses were \$394 and \$(258) for the years ended December 31, 2022 and 2021, respectively.

Use of Estimates

The preparation of consolidated financial statements in conformity with U.S. generally accepted accounting principles ("U.S. GAAP") requires us to make estimates and judgments that affect amounts reported in the financial statements and accompanying notes. Our significant estimates and judgments include those related to revenue recognition, valuation of excess and obsolete inventory, lives and recoverability of equipment and other long-lived assets, valuation of goodwill, stock-based compensation and income taxes. The actual results experienced could differ materially from our estimates.

NOTE 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Cash and Cash Equivalents

We classify all cash and highly liquid investments with original maturities of three months or less at the date of purchase as cash and cash equivalents. Cash equivalents totaled \$18,836 and \$15,254 as of December 31, 2022 and 2021, respectively and consisted of U.S. denominated money market funds and certificates of deposit.

Marketable Securities

Our investments in marketable securities are classified as available-for-sale. Available-for-sale securities are stated at fair value based on quoted market prices with unrealized holding gains or losses, net of tax, included in accumulated other comprehensive income, a component of shareholders' equity. The cost of securities sold is based on the specific identification method.

Accounts Receivable

Accounts receivable are recorded at invoiced amount and do not bear interest when recorded or accrue interest when past due. We maintain an allowance for doubtful accounts for estimated losses that may result from the inability of our customers to make required payments. At the end of each reporting period, we estimate the allowance for doubtful accounts based on an account-by-account risk analysis of outstanding receivable balances. The determination to write-off specific accounts receivable balances is made based on the likelihood of collection and past due status. Past due status is based on invoice date and terms specific to each customer.

Inventories

Inventories consist of finished goods and work-in-process, and are stated at the lower of standard cost (which approximates actual cost on a first-in, first-out basis) or net realizable value.

Property and Equipment

Property and equipment are stated at cost. Depreciation and amortization is calculated on a straight-line basis over the estimated useful life of the assets which are generally as follows:

Software	Lesser of 3 years or contractual license term
Equipment, furniture and fixtures	2 years
Tooling	2 to 4 years
Leasehold improvements	Lesser of lease term or estimated useful life

The cost of property and equipment repairs and maintenance is expensed as incurred.

Licensed Technology

We have capitalized licensed technology assets in other long-term assets. These assets are stated at cost and are amortized on a straight-line basis over the term of the license or the estimated life of the asset, if the license is not contractually limited, which is generally two to five years.

Useful Lives and Recoverability of Equipment and Other Long-Lived Assets

We evaluate the remaining useful life and recoverability of equipment and other assets, including identifiable intangible assets, whenever events or changes in circumstances indicate that the carrying amount of the assets may not be recoverable. If there is an indicator of impairment, we prepare an estimate of future, undiscounted cash flows expected to result from the use of each asset and its eventual disposition. If these cash flows are less than the carrying value of the asset, we adjust the carrying amount of the asset to its estimated fair value. We have concluded that the carrying value of our long-lived assets is recoverable as of December 31, 2022.

Goodwill

Goodwill is not amortized, rather it is tested, at least annually, for impairment at a reporting unit level. Impairment of goodwill is the condition that exists when the carrying amount of a reporting unit that includes goodwill exceeds its fair value. A goodwill impairment loss is recognized for the amount that the carrying amount of the reporting unit, including goodwill, exceeds its fair value, limited to the total amount of goodwill allocated to that reporting unit. If the fair value of a reporting unit exceeds the carrying amount, goodwill of the reporting unit is not considered impaired.

We evaluate impairment using the guidance set forth in FASB Accounting Standards Update No. 2017-04, *Intangibles-Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment* ("ASU 2017-04") which states that an entity may first assess qualitative factors to determine whether it is necessary to perform the quantitative goodwill impairment test. If determined to be necessary, the quantitative impairment test shall be used to identify goodwill impairment and measure the amount of goodwill impairment loss to be recognized. An entity has an unconditional option to bypass the qualitative assessment for any reporting unit in any period and proceed directly to the quantitative goodwill impairment test. Accordingly, we have elected to bypass the qualitative assessment and proceed directly to the quantitative goodwill impairment test. We tested goodwill for impairment under the quantitative goodwill impairment test during the fourth quarter of 2022 and concluded that goodwill was not impaired.

Warranty Program

We warrant that our products will be free from defects in material and workmanship for a period of twelve months from delivery. Warranty repairs are guaranteed for the remainder of the original warranty period. Our warranty is limited to repairing or replacing products, or refunding the purchase price. At the end of each reporting period, we estimate a reserve for warranty returns based on historical experience and knowledge of any applicable events or transactions. The reserve for warranty returns is included in accrued liabilities in our consolidated balance sheets.

Stock-Based Compensation

We currently sponsor a stock incentive plan that allows for issuance of employee stock options and restricted stock awards, including restricted stock units. We also have an employee stock purchase plan for all eligible employees. The fair value of share-based payment awards is expensed straight-line over the requisite service period, which is generally the vesting period, for the entire award. Additionally, any modification of an award that increases its fair value will require us to recognize additional expense.

The fair value of our stock option grants and purchase rights under our employee stock purchase plan are estimated as of the grant date using the Black-Scholes option pricing model which is affected by our estimates of the risk free interest rate, our expected dividend yield, expected term and the expected share price volatility of our common shares over the expected term. The fair value of our restricted stock awards are based on the market value of our stock on the date of grant.

Research and Development

Costs associated with research and development activities are expensed as incurred, except for items with alternate future uses which are capitalized and depreciated over their estimated useful lives.

On occasion, we enter into co-development arrangements with current or prospective customers to defray a portion of the research and development expenses we expect to incur in connection with our development of an IC product. As amounts become due and payable, they are offset against research and development expense on a pro-rata basis.

Income Taxes

We account for income taxes under the asset and liability method. This approach requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of temporary differences between financial statement carrying amounts and tax bases of assets and liabilities. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. We establish a valuation allowance to reduce deferred tax assets if it is "more likely than not" that a portion or all of the asset will not be realized in future tax returns.

An uncertain tax position represents treatment of a tax position taken in a filed tax return, or planned to be taken in a future tax return, that has not been reflected in measuring income tax expense for financial reporting purposes. Until these positions are sustained by the taxing authorities, we do not recognize the tax benefits resulting from such positions and report the tax effects for uncertain tax positions in our consolidated balance sheets.

Risks and Uncertainties

Concentration of Suppliers

We do not own or operate a semiconductor fabrication facility and do not have the resources to manufacture our products internally. We rely on a limited number of foundries and assembly and test vendors to produce all of our wafers and for completion of finished products. We do not have any long-term agreements with any of these suppliers. In light of these dependencies, it is reasonably possible that failure to perform by one of these suppliers could have a severe impact on our results of operations. Additionally, the concentration of these vendors within Taiwan and the People's Republic of China increases our risk of supply disruption due to natural disasters, economic instability, political unrest or other regional disturbances.

Risk of Technological Change

The markets in which we compete, or seek to compete, are subject to rapid technological change, frequent new product introductions, changing customer requirements for new products and features, and evolving industry standards. The introduction of new technologies and the emergence of new industry standards could render our products less desirable or obsolete, which could harm our business.

Concentrations of Credit Risk

Financial instruments that potentially subject us to concentrations of credit risk consist of cash equivalents and accounts receivable. We limit our exposure to credit risk associated with cash equivalent balances by holding our funds in high quality, highly liquid money market accounts. We limit our exposure to credit risk associated with accounts receivable by carefully evaluating creditworthiness before offering terms to customers.

Recent Accounting Pronouncements

In December 2019, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2019-12, *Simplifying the Accounting for Income Taxes* ("ASU 2019-12"). ASU 2019-12 removes certain exceptions to the general principles in Accounting Standards Codification ("ASC") 740 and also clarifies and amends existing guidance to provide for more consistent application. ASU 2019-12 became effective for us in the first quarter of fiscal year 2021, and early adoption is permitted. The adoption of ASU 2019-12 did not have a material impact on our financial position, results of operations and cash flows.

NOTE 3. BALANCE SHEET COMPONENTS**Accounts Receivable, Net**

Accounts receivable consists of the following:

	December 31,	
	2022	2021
Accounts receivable, gross	\$ 10,124	\$ 8,744
Allowance for doubtful accounts	(77)	(36)
Accounts receivable, net	<u>\$ 10,047</u>	<u>\$ 8,708</u>

The following is a summary of the change in our allowance for doubtful accounts:

	Year Ended December 31,	
	2022	2021
Balance at beginning of year	\$ 36	\$ 41
Additions charged (reductions credited)	41	(5)
Balance at end of year	<u>\$ 77</u>	<u>\$ 36</u>

Inventories

Inventories consist of the following:

	December 31,	
	2022	2021
Finished goods	\$ 480	\$ 461
Work-in-process	1,280	1,008
Inventories	<u>\$ 1,760</u>	<u>\$ 1,469</u>

We recorded inventory write-downs of \$99 and \$488 for the years ended December 31, 2022 and 2021, respectively. The inventory write-downs were for lower of cost or net realizable value and excess and obsolescence exposure. The inventory write-downs were offset by sales of previously written-down inventory of \$17 and \$9 for the years ended December 31, 2022 and 2021, respectively.

Prepaid Expenses and Other Current Assets

Prepaid expenses and other current assets consist of current prepaid expenses, deposits, income taxes receivable and other receivables.

Property and Equipment, Net

Property and equipment consists of the following:

	December 31,	
	2022	2021
Equipment, furniture and fixtures	\$ 9,637	\$ 9,463
Tooling	2,903	5,749
Software	6,739	5,230
Leasehold improvements	1,513	1,375
	<u>20,792</u>	<u>21,817</u>
Accumulated depreciation and amortization	(16,160)	(16,161)
Property and equipment, net	<u>\$ 4,632</u>	<u>\$ 5,656</u>

Software amortization was \$1,505 and \$1,214 for the years ended December 31, 2022 and 2021, respectively. Depreciation and amortization expense for equipment, furniture, fixtures, tooling and leasehold improvements was \$2,620 and \$2,281 for the years ended December 31, 2022 and 2021, respectively.

Other Assets, Net

Other assets consist primarily of deposits, deferred tax assets and licensed technology. Amortization of licensed technology was \$532 and \$153 for the years ended December 31, 2022 and 2021, respectively.

Acquired Intangible Assets, Net

In connection with the Acquisition, we recorded certain identifiable intangible assets. Acquired intangible assets resulting from this transaction consist of the following:

	December 31,	
	2022	2021
Developed technology	\$ 5,050	\$ 5,050
Customer relationships	1,270	1,270
Backlog and tradename	410	410
	<u>6,730</u>	<u>6,730</u>
Less: accumulated amortization	(6,730)	(6,640)
Acquired intangible assets, net	<u>\$ —</u>	<u>\$ 90</u>

Developed technology and customer relationships were fully amortized as of March 31, 2022, tradename was fully amortized as of March 31, 2019 and backlog was fully amortized as of September 30, 2018.

Amortization expense for intangible assets was \$90 for the year ended December 31, 2022, \$72 was included in cost of revenue and \$18 was included in selling, general and administrative for the year ended December 31, 2022, in the condensed consolidated statements of operations.

Goodwill

Goodwill resulted from the Acquisition, whereby we recorded goodwill of \$18,407. See Note 2: "Summary of Significant Accounting Policies" for information on our assessment of goodwill impairment.

Accrued Liabilities and Current Portion of Long-Term Liabilities

Accrued liabilities and current portion of long-term liabilities consist of the following:

	December 31,	
	2022	2021
Accrued payroll and related liabilities	\$ 3,632	\$ 3,490
Operating lease liability, current	1,391	2,439
Current portion of accrued liabilities for asset financings	876	1,077
Accrued interest payable	246	361
Deferred revenue	230	50
Accrued commissions and royalties	210	259
Liability for warranty returns	15	—
Deferred research and development reimbursement	—	1,838
Other	2,249	4,049
Accrued liabilities and current portion of long-term liabilities	<u>\$ 8,849</u>	<u>\$ 13,563</u>

The following is a summary of the change in deferred revenue:

	Year Ended December 31,	
	2022	2021
Deferred revenue:		
Balance at beginning of period	\$ 50	\$ 179
Revenue recognized	(1,474)	(1,127)
Revenue deferred	1,654	998
Balance at end of period	<u>\$ 230</u>	<u>\$ 50</u>

NOTE 4. FAIR VALUE MEASUREMENTS

Fair Value Measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Three levels of inputs may be used to measure fair value:

- Level 1: Valuations based on quoted prices in active markets for identical assets and liabilities.
- Level 2: Valuations based on inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly.
- Level 3: Valuations based on unobservable inputs in which there is little or no market data available, which require the reporting entity to develop its own assumptions.

The following table presents information about our assets and liabilities measured at fair value on a recurring basis in the consolidated balance sheets as of December 31, 2022 and 2021:

	Level 1	Level 2	Level 3	Total
As of December 31, 2022:				
Assets:				
Cash equivalents:				
Money market funds	\$ 18,836	\$ —	\$ —	\$ 18,836
Certificates of deposit	5,000	—	—	5,000
As of December 31, 2021:				
Assets:				
Cash equivalents:				
Money market funds	\$ 15,254	\$ —	\$ —	\$ 15,254

We primarily use the market approach to determine the fair value of our financial instruments. The fair value of our current assets and liabilities, including accounts receivable and accounts payable approximates the carrying value due to the short-term nature of these balances. We have currently chosen not to elect the fair value option for any items that are not already required to be measured at fair value in accordance with U.S. GAAP.

NOTE 5. LEASES

We determine if an arrangement is a lease at inception. Operating leases are included in operating lease right-of-use (“ROU”) assets, other current liabilities, and operating lease liabilities in our consolidated balance sheets.

ROU assets represent our right to use an underlying asset for the lease term and lease liabilities represent our obligation to make lease payments arising from the lease. Operating lease ROU assets and liabilities are recognized at commencement date based on the present value of lease payments over the lease term. As most of our leases do not provide an implicit rate, we use our incremental borrowing rate based on the information available at commencement date in determining the present value of lease payments. Operating lease ROU assets also exclude lease incentives received. For purposes of calculating operating lease liabilities, lease terms may be deemed to include options to extend or terminate the lease when it is reasonably certain that the Company will exercise that option.

We have operating leases for office buildings and one vehicle. Our leases have remaining lease terms of 1 year to 5 years. Supplemental information related to lease expense and valuation of the ROU assets and lease liabilities was as follows:

	Year Ended December 31,	
	2022	2021
Operating lease cost	\$ 2,657	\$ 2,622
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash flows from operating leases	2,676	2,809
Leased assets obtained in exchange for new operating lease liabilities	994	629
Weighted average remaining lease term (in years)	3.12	2.95
Weighted average discount rate	5.55 %	4.96 %

Future minimum lease payments under non-cancellable leases as of December 31, 2022 were as follows:

Operating Lease Payments

Years ending December 31:

2023	\$ 1,553
2024	1,223
2025	638
2026	342
2027	86
Total operating lease payments	3,842
Less imputed interest	(303)
Total operating lease liabilities	\$ 3,539

As of December 31, 2022, the Company had no operating lease liabilities that had not commenced.

NOTE 6. REVENUE

Revenue is recognized when control of the promised good or service is transferred to our customers, in an amount that reflects the consideration we expect to be entitled to in exchange for those goods or services. Our principal revenue generating activities consist of the following:

Product Sales - We sell integrated circuit products, also known as “chips” or “ICs”, based upon a customer purchase order, which includes a fixed price per unit. ICs are sold into two target end markets: Mobile and Home & Enterprise. We have elected to account for shipping and handling as activities to fulfill the promise to transfer the goods, and not evaluate whether these activities are promised services to the customer. We generally satisfy our single performance obligation upon shipment of the goods to the customer and recognize revenue at a point in time upon shipment of the underlying product.

Our shipments are subject to limited return rights subject to our limited warranty for our products sold. In addition, we may provide other credits to certain customers pursuant to price protection and stock rotation rights, all of which are considered variable consideration when estimating the amount of revenue to recognize. We use the “most likely amount” method to determine the amount of consideration to which we are entitled. Our estimate of variable consideration is reassessed at the end of each reporting period based on changes in facts and circumstances. Historically, returns and credits have not been material.

Engineering Services - We enter into contracts for professional engineering services that include software development and customization. We identify each performance obligation in our engineering services agreements (“ESAs”) at contract inception. The ESA generally includes project deliverables specified by the customer. The performance obligations in the ESA are generally combined into one deliverable, with the pricing for services stated at a fixed amount. Services provided under the ESA generally result in the transfer of control over time. We recognize revenue on ESAs based on the proportion of labor hours expended to the total hours expected to complete the contract performance obligation. ESAs could include substantive customer acceptance provisions. In ESAs that include substantive customer acceptance provisions, we recognize revenue upon customer acceptance.

License Revenue - On occasion, we derive revenue from the license of our internally developed intellectual property ("IP"). Additionally, for certain IP license agreements, royalties are collected as customers sell their own products that incorporate our IP. IP licensing agreements that we enter into generally provide licensees the right to incorporate our IP components in their products with terms and conditions that vary by licensee. Fees under these agreements generally include license fees or royalty fees relating to our IP and support service fees, resulting in two performance obligations. We evaluate each performance obligation, which generally results in the transfer of control at a point in time for the license fee and over time for support services. Royalties are recognized as revenue is earned, generally when the customer sells its products that incorporate our IP.

Other - From time-to-time, we enter into arrangements for other revenue generating activities, such as providing technical support services to customers through technical support agreements. In each circumstance, we evaluate such arrangements for our performance obligations which generally results in the transfer of control for such services over time. Historically, such arrangements have not been material to our operating results.

The following table provides information about disaggregated revenue based on the preceding categories, with IC sales disaggregated further into net revenue from external customers for each group of similar products, for the years ended December 31, 2022 and 2021:

	Year ended December 31,	
	2022	2021
IC sales	\$ 68,168	\$ 50,807
Engineering services, license and other	1,978	4,295
Total revenues	\$ 70,146	\$ 55,102

IC sales by end market:

	Year ended December 31,	
	2022	2021
Mobile market	\$ 21,160	\$ 16,113
Home & Enterprise market	47,008	34,694
Total IC sales	\$ 68,168	\$ 50,807

For segment information, including revenue by geographic region, see "Note 13. Segment Information".

Our contract balances include accounts receivable, deferred revenue and our liability for warranty returns. For information concerning these contract balances, see "Note 3. Balance Sheet Components".

Payment terms and conditions for goods and services provided vary by contract; however, payment is generally required within 30 to 60 days of invoicing.

We have not identified any material costs incurred associated with obtaining a contract with a customer which would meet the criteria to be capitalized, therefore, these costs are expensed as incurred.

There is no amount of transaction price allocated to unsatisfied performance obligations with an original expected duration of greater than one year.

Revenue related to the Cinema market was not material in 2022 or 2021 and was therefore included in the engineering services, license revenue and other category within the Mobile market.

NOTE 7. INTEREST INCOME AND OTHER, NET

Interest income and other, consists of the following:

	Year Ended December 31,	
	2022	2021
Other income	\$ 80	\$ 246
Interest income	670	211
Interest expense	(50)	—
Total interest income and other, net	<u>\$ 700</u>	<u>\$ 457</u>

The increase in interest income in 2022 compared to 2021 is due to increased interest earned on our cash and cash equivalents balance due to our increased average cash balance throughout the year in 2022 compared to 2021.

NOTE 8. RESEARCH AND DEVELOPMENT

During the third quarter of 2021, we entered into a best-efforts co-development agreement with a customer to defray a portion of the research and development expenses we expect to incur in connection with our development of an integrated circuit product. We expect our development costs to exceed the amounts received from the customer, and although we expect to sell units of the product to the customer, there is no commitment or agreement from the customer for such sales at this time. Additionally, we retain ownership of any modifications or improvements to our pre-existing intellectual property and may use such improvements in products sold to other customers.

Under the co-development agreement, \$5,800 was payable by the customer within 60 days of the date of the agreement and three additional payments of \$2,500, \$1,900 and \$1,300 are each payable upon completion of certain development milestones. As amounts become due and payable, they are offset against research and development expense on a pro rata basis. We recognized offsets to research and development expense of \$4,338 and \$3,962 during the years ended December 31, 2022 and 2021, respectively.

NOTE 9. INCOME TAXES**Current and Deferred Income Tax Expense**

Domestic and foreign pre-tax loss is as follows:

	Year Ended December 31,	
	2022	2021
Domestic	\$ (20,196)	\$ (10,967)
Foreign	4,079	(8,578)
Domestic and foreign pre-tax loss	<u>\$ (16,117)</u>	<u>\$ (19,545)</u>

Income tax expense (benefit) attributable to operations is comprised of the following:

	Year Ended December 31,	
	2022	2021
Current:		
Federal	\$ 396	\$ (27)
State	14	19
Foreign	(1,722)	643
Total current	<u>(1,312)</u>	<u>635</u>
Deferred:		
Federal	(364)	—
Foreign	792	(768)
Total deferred	<u>428</u>	<u>(768)</u>
Income tax benefit	<u>\$ (884)</u>	<u>\$ (133)</u>

The reconciliation of the U.S. federal statutory income tax rate to our effective income tax rate is as follows:

	Year Ended December 31,	
	2022	2021
Federal statutory rate	21 %	21 %
Impact of foreign earnings	(27)	3
Change in valuation allowance	28	24
Tax contingencies, net of reversals	13	(5)
Corporate restructuring	(11)	(38)
Expiration of tax attributes	(12)	(6)
Permanent items	(2)	4
Research and development credits	4	2
Stock-based compensation	(4)	(1)
Other	(5)	(3)
Effective income tax rate	5 %	1 %

Deferred Tax Assets, Liabilities and Valuation Allowance

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amount of assets and liabilities for financial reporting purposes and the amounts for income tax purposes. Significant components of our deferred tax assets and liabilities are as follows:

	December 31,	
	2022	2021
Deferred tax assets:		
Research and experimentation credit and deduction carryforwards	\$ 60,041	\$ 62,771
Net operating loss carryforwards	44,424	45,985
Depreciation and amortization	5,568	5,664
Reserves and accrued expenses	1,000	992
Deferred stock-based compensation	821	994
Foreign tax credit carryforwards	163	208
Other	1,201	1,451
Total gross deferred tax assets	113,218	118,065
Deferred tax liabilities:		
Foreign earnings	(212)	—
Other	(620)	(812)
Total gross deferred tax liabilities	(832)	(812)
Less valuation allowance	(111,941)	(116,372)
Net deferred tax assets	\$ 445	\$ 881

We continue to record a full valuation allowance against our U.S. and China net deferred tax assets as of December 31, 2022 and 2021, as it is not more likely than not that we will realize a benefit from these assets in a future period. In the fourth quarter of 2021, we released a portion of the valuation allowance against our Canadian deferred tax assets in conjunction with forecasted income within our Canada subsidiary. During the year ended December 31, 2022, our Canadian subsidiary generated taxable profits which were able to be offset by our Canadian deferred tax assets. As of December 31, 2022, a valuation allowance against our remaining net Canadian deferred tax assets was established as future utilization is uncertain based upon updated projections of income within our Canada Subsidiary. We have not provided a valuation allowance against our other foreign net deferred tax assets as we have concluded it is more likely than not that we will realize a benefit from these assets in a future period because our subsidiaries in these jurisdictions are cost-plus taxpayers. The net valuation allowance decreased \$4,431 for the year ended December 31, 2022 and decreased \$4,609 for the year ended December 31, 2021.

As of December 31, 2022, we had federal, state and foreign net operating loss carryforwards of \$154,992, \$9,600 and \$42,668 respectively, which will begin to expire in 2024 with \$31,705 of our federal net operating loss carryforward lasting indefinitely. As of December 31, 2022, we had available federal, state and foreign research and experimentation tax credit carryforwards of

\$6,747, \$5,173, and \$21,850 respectively. The federal and state tax credits will begin expiring in 2023 while the foreign credits have an indefinite life. In addition, our Canadian subsidiary has unclaimed scientific and experimental expenditures to be carried forward and applied against future income in Canada of approximately \$120,277. We have a general foreign tax credit of \$84 which will begin to expire in 2023.

Our ability to utilize our federal net operating losses may be limited by Section 382 of the Internal Revenue Code of 1986, as amended, which imposes an annual limit on the ability of a corporation that undergoes an "ownership change" to use its net operating loss carryforwards to reduce its tax liability. An ownership change is generally defined as a greater than 50% increase in equity ownership by 5% shareholders in any three-year period.

We are not indefinitely reinvested in the earnings of our subsidiaries in Canada, Japan and Taiwan and have accrued tax on the future repatriation of cash for jurisdictions where withholding taxes would apply.

The Tax Cuts and Jobs Act ("TCJA") was enacted on December 22, 2017. Included in the TCJA is the requirement to capitalize and amortize research and experimental expenditures starting with the first tax year after December 31, 2021. The required capitalization and amortization of these costs resulted in an increase to our taxable income before utilization of our operating loss carryforward. The capitalization did not have a significant impact to our income tax benefit in the current year.

Uncertain Tax Positions

We have recorded tax liabilities to address potential exposures involving positions that could be challenged by taxing authorities. As of December 31, 2022, the amount of our uncertain tax positions was a liability of \$378 and a reduction to deferred tax assets of \$1,353. As of December 31, 2021, the amount of our uncertain tax positions was a liability of \$2,493 and a reduction to deferred tax assets of \$1,254.

The following is a summary of the change in our liability for uncertain tax positions and interest and penalties:

	2022	2021
Uncertain tax positions:		
Balance at beginning of year	\$ 3,646	\$ 2,711
Accrual for positions taken in a prior year	(214)	825
Accrual for positions taken in current year	117	121
Reversals due to lapse of statute of limitations	(97)	(11)
Reversals due to positions taken in the current year	(1,809)	—
Balance at end of year	<u>\$ 1,643</u>	<u>\$ 3,646</u>
Interest and penalties:		
Balance at beginning of year	\$ 101	\$ 88
Accrual for positions taken in prior year	11	16
Accrual for positions taken in current year	—	—
Reversals due to lapse of statute of limitations	(24)	(3)
Balance at end of year	<u>\$ 88</u>	<u>\$ 101</u>

During the years ended December 31, 2022 and 2021 we recognized \$11 and \$16, respectively, of interest and penalties in income tax expense in our consolidated statements of operations.

During the year ended December 31, 2022, our China subsidiary settled a portion of the outstanding intercompany debt with the US parent, Pixelworks, Inc. The portion that was not able to be settled was forgiven and was recognized as taxable income in China. We previously accrued for a long term liability in the event that the full amount of the intercompany debt would be recognized as taxable income in China. The related uncertain tax position was reversed as a part of the settlement of the intercompany debt.

We file income tax returns in the U.S. and various foreign jurisdictions. A number of years may elapse before an uncertain tax position is resolved by settlement or statute of limitations. Settlement of any particular position could require the use of cash. If the uncertain tax positions we have accrued for are sustained by the taxing authorities in our favor, the reduction of the liability will reduce our effective tax rate. We reasonably expect reductions in the liability for unrecognized tax benefits and interest and penalties of approximately \$1 within the next twelve months due to the expiration of statutes of limitation in federal, state and foreign jurisdictions.

We are no longer subject to U.S. federal, state, and foreign examinations for years before 2019, 2018 and 2015, respectively. Our net operating loss and tax credit carryforwards from all years may be subject to adjustment for three years following the year in which utilized. We do not anticipate that any potential tax adjustments will have a significant impact on our financial position or results of operations.

We were not subject to, nor have we received any notice of, income tax examinations in any jurisdiction as of December 31, 2022.

NOTE 10. COMMITMENTS AND CONTINGENCIES

Royalties

We license technology from third parties and have agreed to pay certain suppliers a royalty based on the number of chips sold or manufactured, the net sales price of the chips containing the licensed technology or a fixed non-cancelable fee. Royalty expense is recognized based on our estimated average unit cost for royalty contracts with non-cancelable prepayments and the stated contractual per unit rate for all other agreements. Royalty expense was \$272 and \$225 for the years ended December 31, 2022 and 2021, respectively, which is included in cost of revenue in our consolidated statements of operations.

401(k) Plan

We sponsor a 401(k) plan for eligible employees. Participants may defer a percentage of their annual compensation on a pre-tax basis, not to exceed the dollar limit that is set by law. A discretionary matching contribution by the Company is allowed and is equal to a uniform percentage of the amount of salary reduction elected to be deferred, which percentage will be determined each year by the Company. We made contributions of \$54 and \$55 to the 401(k) plan during the years ended December 31, 2022 and 2021, respectively.

Software licenses

We acquire rights to use certain software engineer design tools under software licenses.

As of December 31, 2022, future minimum payments under non-cancelable software licenses are as follows:

Year Ending December 31,	Software licenses
2023	\$ 898
2024	520
2025	400
2026	40
	1,858
Less: Interest component	(95)
Present value of minimum software license payments	1,763
Less: Current portion	(876)
Long-term portion of obligations	\$ 887

Other Contractual Obligation

As part of the acquisition of ViXS Systems, Inc. ("ViXS") in 2017, we acquired debt associated with an agreement with the Government of Canada called Technology Partnerships Canada ("TPC"). As part of the TPC agreement, ViXS was provided funding to assist in research and development expenses of which a portion was later required to be repaid because the conditions for repayment were met. The scheduled payments are made on a quarterly basis and end in January 2024. \$308 and \$504 are included in accrued liabilities and current portion of long-term liabilities in our consolidated balance sheet as of December 31, 2022 and 2021, respectively. \$0 and \$57 are included in long-term liabilities, net of current portion in our consolidated balance sheets as of December 31, 2022 and 2021, respectively.

Contract Manufacturers

In the normal course of business, we commit to purchase products from our contract manufacturers to be delivered within the next 90 days. In certain situations, should we cancel an order, we could be required to pay cancellation fees. Such obligations could impact our immediate results of operations but would not materially affect our business.

Indemnifications

Certain of our agreements include limited indemnification provisions for claims from third-parties relating to our products and technology. It is not possible for us to predict the maximum potential amount of future payments or indemnification costs under these or similar agreements due to the conditional nature of our obligations and the unique facts and circumstances involved in each particular agreement. We have not made any payments under these agreements in the past, and as of December 31, 2022, we have not incurred any material liabilities arising from these indemnification obligations. In the future, however, such obligations could immediately impact our results of operations but are not expected to materially affect our business.

Legal Proceedings

We are subject to legal matters that arise from time to time in the ordinary course of our business. Although we currently believe that resolving such matters, individually or in the aggregate, will not have a material adverse effect on our financial position, our results of operations, or our cash flows, these matters are subject to inherent uncertainties and our view of these matters may change in the future.

NOTE 11. EARNINGS PER SHARE

Basic earnings per share amounts are computed based on the weighted average number of common shares outstanding. Diluted weighted average shares outstanding include the weighted average number of common shares outstanding plus potentially dilutive common shares outstanding during the period.

The following schedule reconciles the computation of basic and diluted net loss per share (in thousands, except per share data):

	Year Ended December 31,	
	2022	2021
Net loss	\$ (15,233)	\$ (19,412)
Less: Net income attributable to non-controlling interests and redeemable non-controlling interests	(797)	(409)
Less: Net income attributable to certain entities owned by employees	(89)	(198)
Net loss attributable to Pixelworks Inc. - for purposes of earnings per share calculation	\$ (16,119)	\$ (20,019)
Weighted average shares outstanding - basic and diluted	54,335	52,509
Net loss attributable to Pixelworks, Inc. per share - basic and diluted	\$ (0.30)	\$ (0.38)

Basic and diluted earnings (loss) per share was computed by dividing the net income (loss) by the weighted-average number of common shares outstanding for the period. The numerator adjustments include an allocation of PWSH income to the non-controlling interests, the redeemable non-controlling interests and the employee owned entities. The equity interest associated with the employee-owned entities are considered participating securities at PWSH and will be allocated income, however, they are not required to fund losses, and therefore, no allocations of losses will be made to the employee owned entities in periods of loss at PWSH. Potentially dilutive common shares from employee equity incentive plans are determined by applying the treasury stock method to the assumed exercise of outstanding stock options, the assumed vesting of outstanding restricted stock units, and the assumed issuance of common stock under the employee stock purchase plan.

The following shares were excluded from the calculation of diluted net loss per share as their effect would have been anti-dilutive (in thousands):

	Year Ended December 31,	
	2022	2021
Employee equity incentive plans	4,071	3,832

Potentially dilutive common shares from employee equity incentive plans are determined by applying the treasury stock method to the assumed exercise of outstanding stock options, the assumed vesting of outstanding restricted stock units, and the assumed issuance of common stock under the employee stock purchase plan.

NOTE 12. SHAREHOLDERS' EQUITY

Preferred Stock

The Company is authorized to issue 50,000,000 shares of preferred stock with a par value of \$0.001 per share. The Board of Directors is authorized to fix or alter the rights, preferences, privileges and restrictions granted to, or imposed on, each series of preferred stock. There were no shares of preferred stock issued as of December 31, 2022 and 2021.

Common Stock

The Company is authorized to issue 250,000,000 shares of common stock with a par value of \$0.001 per share. Shareholders of common stock have unlimited voting rights and are entitled to receive the net assets of the Company upon dissolution, subject to the rights of the preferred shareholders, if any.

At the Market Offering

On June 5, 2020, we entered into a sales agreement (the "Sales Agreement") with Cowen and Company, LLC ("Cowen"), pursuant to which we may issue and sell shares of the Company's common stock, par value \$0.001 per share, having an aggregate offering price of up to \$25,000, from time to time, through an "at the market" equity offering program under which Cowen will act as sales agent. Under the Sales Agreement, Cowen may sell the shares by methods deemed to be an "at the market offering" as defined in Rule 415(a)(4) promulgated under the Securities Act of 1933, as amended, including sales made by means of ordinary brokers' transactions on the Nasdaq Global Market or on any other existing trading market for the common stock or otherwise at market prices prevailing at the time of sale, in block transactions, or as otherwise directed by the Company. We pay Cowen a commission equal to three percent (3.0%) of the gross sales proceeds of any common stock sold through Cowen under the Sales Agreement. The Sales Agreement may be terminated by us upon prior notice to Cowen or by Cowen upon prior notice to us, or at any time under certain circumstances, including but not limited to the occurrence of a material adverse change in the Company. We are not obligated to sell any shares under the Sales Agreement.

During the year ended December 31, 2021, we sold an aggregate of 61,018 shares of our common stock under this at the market offering, resulting in aggregate net proceeds to us of approximately \$321.

There was no activity under this at the market offering during the year ended December 31, 2022.

Employee Equity Incentive Plans

On May 23, 2006, our shareholders approved the adoption of the Pixelworks, Inc. 2006 Stock Incentive Plan (the "2006 Plan"). The 2006 Plan has since been amended and restated on certain occasions, most recently on May 12, 2022 when our shareholders approved an increase to the total number of authorized shares to 24,533,333 shares. As of December 31, 2022, 1,996,019 shares were available for grant under the 2006 Plan.

Stock Options

The contractual life of newly issued stock option awards is six years. Our new hire vesting schedule provides that each option becomes exercisable at a rate of 25% on the first anniversary date of the grant and 2.083% on the last day of every month thereafter for a total of 36 additional increments. Our merit vesting schedule provides that merit-type awards become exercisable monthly over a period of three years.

The following is a summary of stock option activity:

	Number of shares	Weighted average exercise price
Options outstanding as of December 31, 2021:	354,609	\$ 2.52
Granted	108,891	1.97
Exercised	—	—
Canceled and forfeited	—	—
Expired	(63,500)	2.75
Options outstanding as of December 31, 2022:	<u>400,000</u>	<u>\$ 2.33</u>

The following table summarizes information about options outstanding as of December 31, 2022:

Range of exercise prices	Options Outstanding			Options Exercisable	
	Number outstanding as of December 31, 2022	Weighted average remaining contractual life	Weighted average exercise price	Number exercisable as of December 31, 2022	Weighted average exercise price
\$1.86 - \$1.86	52,745	5.69	\$ 1.86	—	\$ —
2.00 - 2.00	234,000	3.85	2.00	234,000	2.00
2.07- 6.05	113,255	3.52	3.25	55,016	4.42
\$1.86 - \$6.05	400,000	4.00	\$ 2.33	289,016	\$ 2.46

During the years ended December 31, 2022 and 2021, the total intrinsic value of options exercised was \$0 and \$445, respectively, for which no income tax benefit has been recorded because a full valuation allowance has been provided for our U.S. deferred tax assets. As of December 31, 2022, options outstanding had a total intrinsic value of \$0.

Options outstanding that have vested and are expected to vest as of December 31, 2022 are as follows:

	Number of shares	Weighted average exercise price	Weighted average remaining contractual term	Aggregate intrinsic value
Vested	289,016	\$ 2.46	3.44	\$ —
Expected to vest	99,081	2.01	5.44	—
Total	388,097	\$ 2.35	3.95	\$ —

Restricted Stock

The 2006 Plan provides for the issuance of restricted stock, including restricted stock units. During the years ended December 31, 2022 and 2021 we granted 2,289,418 and 2,123,844 shares, respectively, of restricted stock with a weighted average grant date fair value of \$2.58 and \$3.70 per share, respectively.

The following is a summary of restricted stock activity:

	Number of shares	Weighted average grant date fair value
Unvested at December 31, 2021:	3,316,035	\$ 3.69
Granted	2,289,418	2.58
Vested	(1,574,430)	3.51
Canceled	(655,269)	3.59
Unvested at December 31, 2022:	3,375,754	\$ 2.99
Expected to vest after December 31, 2022	3,122,812	\$ 3.01

Employee Stock Purchase Plans

On May 18, 2010, our shareholders approved the adoption of the 2010 Pixelworks, Inc. Employee Stock Purchase Plan (the "ESPP") for U.S. employees and for certain foreign subsidiary employees. The ESPP provides for separate offering periods commencing on February 1 and August 1, with the first offering period beginning August 1, 2010. Each offering period continues for a period of 18 months with purchases every six months. Each eligible employee may purchase up to 3,000 shares of stock on each purchase date, with a maximum annual purchase amount of \$25. The purchase price is equal to 85% of the lesser of the fair market value of the shares on the offering date or on the purchase date. On May 15, 2020 the ESPP was amended when our shareholders approved an increase to the total number of shares of common stock reserved for issuance to 3,300,000. During the years ended December 31, 2022 and 2021, we issued 171,620 and 159,177 shares, respectively for proceeds of \$388 and \$411, respectively, under the ESPP.

Stock-Based Compensation Expense

The fair value of stock-based compensation was determined using the Black-Scholes option pricing model and the following weighted average assumptions:

	Year Ended December 31,	
	2022	2021
Stock Option Plans:		
Risk free interest rate	3.08 %	0 %
Expected dividend yield	0 %	0 %
Expected term (in years)	5.00	0.00
Volatility	71 %	0 %
Employee Stock Purchase Plan:		
Risk free interest rate	2.30 %	0.12 %
Expected dividend yield	0 %	0 %
Expected term (in years)	1.33	1.17
Volatility	104 %	75 %

The weighted average fair value of options granted during the years ended December 31, 2022 and 2021 was \$1.19 and \$0.00, respectively. The risk free interest rate is estimated using an average of treasury bill interest rates. The expected dividend yield is zero as we have not paid any dividends to date and do not expect to pay dividends in the future. Expected volatility is estimated based on the historical volatility of our common stock over the expected term as this represents our best estimate of future volatility. The contractual life of newly issued stock options is six years, and we have elected to use the "simplified method" to estimate expected term. Under the simplified method, an option's expected term is calculated as the average of its vesting period and original contractual life. The expected term of ESPP purchase rights is based on the estimated weighted average time to purchase.

As of December 31, 2022, unrecognized stock-based compensation expense is \$4,696, which is expected to be recognized as stock-based compensation expense over a weighted average period of 1.05 years.

NOTE 13. SEGMENT INFORMATION

We operate in one segment: the design, development, marketing and sale of IC solutions for use in electronic display devices. We generate our revenue from two broad product markets: the Mobile market and the Home & Enterprise market. The chief operating decision maker, or CODM, is our CEO. Our CODM evaluates financial performance and allocates resources using financial information reported on a company-wide basis. The Cinema market does not contribute material revenue and is therefore being included in this one segment.

Geographic Information

Revenue by geographic region, was as follows:

	Year Ended December 31,	
	2022	2021
Japan	\$ 37,675	\$ 27,001
China	25,570	23,977
U.S.	3,442	1,624
Taiwan	3,032	2,142
Korea	277	116
Europe	150	242
	<u>\$ 70,146</u>	<u>\$ 55,102</u>

Significant Customers

The percentage of revenue attributable to our distributors, top five end customers, and individual distributors or end customers that represented more than 10% of revenue in at least one of the periods presented, is as follows:

	Year Ended December 31,	
	2022	2021
Distributors:		
All distributors	57 %	56 %
Distributor A	29 %	27 %
Distributor B	17 %	13 %
End Customers: ¹		
Top five end customers	76 %	76 %
End customer A	37 %	35 %
End customer B	14 %	22 %
End customer C	13 %	8 %

¹ End customers include customers who purchase directly from us, as well as customers who purchase our products indirectly through distributors.

Each of the following accounts represented 10% or more of total accounts receivable in at least one of the periods presented:

	December 31,	
	2022	2021
Account W	31 %	41 %
Account X	27 %	27 %
Account Y	12 %	1 %
Account Z	11 %	15 %

NOTE 14. REDEEMABLE NON-CONTROLLING INTEREST AND EQUITY INTEREST OF PWSH SOLD TO EMPLOYEES

During the third quarter of 2021, Pixelworks and our subsidiary, PWSH, entered into a capital increase agreement (the "Capital Increase Agreement") with certain private equity and strategic investors based in China (collectively, the "Investors") and certain entities which collectively are owned by approximately 75% of the employees of PWSH and its subsidiaries (collectively, the "ESOP") (together, the "Investors" and the "ESOP" are referred to below as the "Capital Contributors"). The ESOP entities do not qualify as Employee Share Ownership Programs under IRC 4975(e)(7), but do qualify as employee share ownership plans qualified under the laws of China, under which the employees hold a pro rata share of an ESOP partnership entity that then holds an equity ownership in trust for employees.

Under the Capital Increase Agreement, during 2021, the Investors invested approximately \$30,844 in exchange for a redeemable non-controlling equity interest of 10.45% of PWSH and the ESOP entities invested approximately \$12,329 in exchange for a redeemable non-controlling equity interest representing 5.95% of PWSH, which includes a discount of 30% from the valuation paid by the Investors. The agreement further provided that the Capital Contributors have a liquidation preference in PWSH, a right to co-sell their interest in PWSH along with Pixelworks on the same terms and conditions as Pixelworks, a right to participate on a pro rata basis in any future financing rounds of PWSH, and Pixelworks' agreement while it remains an owner of PWSH and for two (2) years thereafter to not compete with the business of PWSH, nor solicit or otherwise cause any of PWSH's core employees or customers to end their relationship with PWSH. These rights all expire upon initial public offering on the STAR Market.

Prior to entering into a certain supplemental agreement, each Investor had the right to require PWSH to redeem the entire equity interest held by such Investor, at the original purchase price paid plus 3% annual interest, if PWSH did not consummate an initial public offering on the STAR Market on or before June 30, 2024. Based on this contingency, the initial carrying amount of the redeemable non-controlling interests was recorded at fair value on the date of issuance of PWSH equity interests, net of issuance costs and presented in temporary equity on the condensed consolidated balance sheets. Until the interest that was to accrue on the redeemable non-controlling interest was deleted with the Supplemental Agreement, the Company had elected to accrete changes in the redemption value of the redeemable non-controlling interests from the issuance date through the earliest redemption date of June 30, 2024 using the interest method (as the non-controlling interest was probable of becoming redeemable upon the passage of time for the original issuance price plus 3% annual interest).

On March 24, 2022, Pixelworks and our subsidiary, PWSH, entered into a supplemental agreement to the Capital Increase Agreement (the "Supplemental Agreement") with the Capital Contributors. The Supplemental Agreement, among other things, deletes the interest that was to accrue on the redemption obligation of affiliated entities of PWSH, and adds a provision that will suspend the redemption obligation on the date PWSH files its initial public offering listing documents pending the approval of such documents by the applicable authorities. The suspension ends if PWSH withdraws the listing application or such application is finally rejected, at which point the redemption obligation will once again become effective with a deadline of the later of the date of the withdrawal/rejection and June 30, 2024.

In connection with the Supplemental Agreement, on March 24, 2022, Pixelworks and the Capital Contributors entered into a side letter to the Capital Increase Agreement (the "Side Letter") which provides that, in the event of a change in control of Pixelworks, Pixelworks shall ensure that the definitive agreement related to such transaction includes a post-closing repurchase covenant that requires the successor entity in such transaction to repurchase all of PWSH's equity held by a Capital Contributor at the original subscription price plus 20% upon the request of the Capital Contributor within 60 days after (a) the change in control; or (b) if PWSH fails to consummate its initial public offering by June 30, 2024, because Pixelworks decides against pursuing the offering. If PWSH continues to diligently pursue the application but the initial public offering still fails to launch by June 30, 2024, the redemption obligation of the Supplemental Agreement would instead apply. The Side Letter terminates on the launch date of PWSH's initial public offering.

After entering into the Supplemental Agreement, the redeemable non-controlling interest will no longer accrete up to a redemption amount because the interest component has been removed. The Investors will continue to hold PWSH equity and be considered as a redeemable non-controlling interest, however, the redeemable non-controlling interest is only probable of becoming redeemable upon the passage of time for its original issuance price. Therefore, until the redemption feature expires, we will only allocate profits to the redeemable non-controlling interest and continue to recognize the non-controlling interest at an amount at least equal to its redemption value. Because the redeemable non-controlling interest is denominated in RMB, it will be revalued to USD at the end of each reporting period, with the changes in carrying value attributable to foreign currency being reflected within accumulated other comprehensive income on the condensed consolidated balance sheets.

Each of the ESOP entities has the right to require PWSH to redeem the entire equity interest held by such ESOP entities at the original purchase price paid plus 5% annual interest, if PWSH does not achieve its Listing on or before December 31, 2024.

Because the ESOP entities are owned by employees of PWSH and its subsidiaries and employees are required to render service until either the initial public offering on the STAR Market or repurchase date, the equity interest owned by the ESOP entities will be accounted for under ASC 718 (Compensation - Stock Compensation). The initial carrying amount of the investment has been recorded as a long-term deposit liability on the condensed consolidated balance sheets as the initial public offering cannot be considered probable at this time. We will recognize the periodic interest component of the award as compensation expense and accrete the long-term deposit liability to its redemption value as of December 31, 2024. Because the long-term deposit liability is denominated in RMB and is considered a monetary liability as defined in ASC 255 (Changing Prices), it will be revalued to USD at the end of each reporting period, with the changes in carrying value recorded as foreign currency gain/loss in our condensed consolidated statements of operations. The Supplemental Agreement does not remove the obligation of PWSH to repurchase the ESOP interests if PWSH fails to consummate an initial public offering by December 31, 2024 along with the 5% annual simple interest.

On December 21, 2022, the Company and its subsidiary, PWSH, entered into a capital increase agreement (the “CIA”) with Jing Xin Ying (Shanghai) Management Consulting Partnership (Limited Partnership), an entity owned by certain of the employees of PWSH (the “ESOP”). The ESOP invested approximately \$1,407 in exchange for an equity interest in PWSH of 0.54%, based on a pre-money valuation of PWSH of RMB 1,750,000 (\$251,256 USD), which includes a discount of 50%.

The CIA provides that if there is a change in control of PWSH that closes prior to its filing an application for the Listing, each capital contributor would be entitled to a minimum return of 10% on the price they paid for their respective equity interest, payable by Company in cash at the close of the change in control transaction, with such right terminating automatically upon the filing by PWSH of the Listing. The ESOP has a redemption right that is identical to that held by the other ESOP investors from the financing round that closed in 2021: if the Listing is not consummated prior December 31, 2024, the 2022 ESOP may elect to require a repurchase of its respective equity interest for a price equal to the initial purchase price paid plus annual simple interest at a rate of 5%.

The process of going public on the STAR Market includes several periods of review and is therefore a lengthy process. There can be no assurances that PWSH will complete the Listing by June 30, 2024, or at all. In the event Pixelworks is required to redeem the entire equity interest held by the Investors or the ESOP entities, we may be required to seek additional capital in order to redeem their PWSH shares and there would be no assurances that such capital would be available on terms acceptable to us, if at all. Any redemptions could have a material adverse effect on our business, financial condition and results of operations. The listing of PWSH on China's STAR Market will not change our status as a U.S. public company.

The components of the change in redeemable non-controlling interests for the year ended December 31, 2022 are presented in the following table (in thousands):

Carrying Value of Redeemable NCI as of January 1, 2022	\$	30,905
Net income attributable to redeemable non-controlling interest		626
Effect of foreign currency translation attributable to redeemable non-controlling interest		(2,612)
Carrying Value of Redeemable NCI as of December 31, 2022	\$	28,919

NOTE 15: NON-CONTROLLING INTEREST

On August 15, 2022, the Company entered into an Equity Transfer Agreement with certain private equity investors based in China (Hainan Qixin Investment Partnership (Limited Partnership) and Suzhou Saixiang Equity Investment Partnership (Limited Partnership)) (collectively, the “Purchasers”). Under this agreement, the Purchasers agreed to pay to the Company, subject to customary closing conditions, a total of 87,500 RMB, approximately \$10,738 (net of issuance costs) at closing, in exchange for a 2.74% equity interest in PWSH. The Company incurred costs related to the sale of equity in PWSH of \$275 paid to a third party for assisting in the transaction close as well as 8,408 RMB to fulfill Chinese withholding tax requirements. Both of these costs are direct and incremental and related to the sale of equity in PWSH and as such will be included as costs that reduce proceeds and carrying amount of the NCI in the Company’s balance sheet.

The Equity Transfer Agreement provides the Purchasers with some additional rights: (1) if there is a change in control of PWSH that closes prior to its filing an application for a listing on the STAR Board of the Shanghai Stock Exchange (the “Listing Application”), each Purchaser would be entitled to a minimum return of 10% on the price they paid for their respective equity interest, payable by Company in cash at the close of the change in control transaction, with such right terminating automatically upon the filing by PWSH of the Listing Application; and (2) the Company would cause PWSH to give each Purchaser a right to participate on a pro rata basis in any future financing rounds of PWSH, which right also would expire on the filing of a Listing Application.

When the Company's relative ownership interest in PWSH changes, adjustments to non-controlling interest and paid-in capital, tax effected, will occur. Because these changes in the ownership interest in PWSH do not result in a change of control, the transactions are accounted for as equity transactions under ASC Topic 810, (-Consolidations), which requires that any differences between the carrying value of the Company's interest in PWSH and the fair value of the consideration received are recognized directly in equity and attributed to the controlling interest. Additionally, there are no substantive profit-sharing arrangements that would cause distributions to be other than pro rata. Therefore, profits and losses are attributed to the common shareholders of PWSH and non-controlling interest pro rata based on ownership interests in PWSH. The following table reconciles the initial investment by the Purchasers and the carrying value of their non-controlling interest as of the Closing Date (as defined in the Equity Transfer Agreement):

Carrying Value of Permanent Equity Non-Controlling Interest as of January 1, 2022	\$	—
Increase in additional paid-in capital		12,184
Closing and direct costs incurred		(1,446)
Net income attributable to non-controlling interest		171
Carrying Value of Permanent Equity Non-Controlling Interest as of December 31, 2022	\$	10,909

NOTE 16. QUARTERLY FINANCIAL DATA (UNAUDITED)

	Quarterly Period Ended			
	March 31	June 30	September 30	December 31
2022				
Revenue, net	\$ 16,628	\$ 19,078	\$ 17,552	\$ 16,888
Gross profit	8,763	9,348	8,796	8,974
Loss from operations	(3,881)	(5,197)	(4,731)	(3,008)
Loss before income taxes	(3,719)	(5,096)	(4,566)	(2,736)
Net loss attributable to Pixelworks Inc.	(4,592)	(5,008)	(4,496)	(1,934)
Net loss attributable to Pixelworks Inc. per share - basic and diluted	(0.09)	(0.09)	(0.08)	(0.04)
2021				
Revenue, net	\$ 9,270	\$ 14,050	\$ 15,196	\$ 16,586
Gross profit	3,725	7,110	7,985	8,873
Loss from operations	(7,914)	(4,457)	(3,904)	(3,727)
Loss before income taxes	(7,858)	(4,275)	(3,850)	(3,562)
Net loss attributable to Pixelworks Inc.	(8,075)	(4,382)	(4,073)	(3,291)
Net loss attributable to Pixelworks Inc. per share - basic and diluted	(0.16)	(0.08)	(0.08)	(0.06)

NOTE 17. SUBSEQUENT EVENTS

On December 21, 2022, the Company and its subsidiary, PWSH, entered into a capital increase agreement (the "CIA") with certain private equity investors based in China who have agreed to pay a total of RMB 100,000 (\$14,300 USD) in exchange for an equity interest in PWSH of 2.76%, based on a pre-money value of PWSH of RMB 3,500,000 (\$501,400 USD). This transaction closed in February 2023.

The CIA provides that if there is a change in control of PWSH that closes prior to its filing an application for the Listing, each capital contributor would be entitled to a minimum return of 10% on the price they paid for their respective equity interest, payable by Company in cash at the close of the change in control transaction, with such right terminating automatically upon the filing by PWSH of the Listing.

Item 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosure.

None.

Item 9A. Controls and Procedures.**Disclosure Controls and Procedures**

As of the end of the period covered by this report, we conducted an evaluation under the supervision and with the participation of our Chief Executive Officer (our Principal Executive Officer) and Chief Financial Officer (our Principal Accounting and Financial Officer) of our disclosure controls and procedures (as defined in Rule 13a-15(e) and Rule 15d-15(e) of the Securities Exchange Act of 1934, as amended (the "Exchange Act")). Based on this evaluation, the Chief Executive Officer and Chief Financial Officer concluded that, as of December 31, 2022, our disclosure controls and procedures were effective to ensure that information required to be disclosed in our periodic reports filed or submitted under the Securities Exchange Act is (i) recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission's rules and forms, and (ii) accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding disclosure.

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining a system of internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with U.S. generally accepted accounting principles ("U.S. GAAP"). All internal control systems, no matter how well designed, have inherent limitations.

Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, under the oversight of our Board of Directors, we evaluated the effectiveness of our internal control over financial reporting as of December 31, 2022, the last day of our fiscal year. This evaluation was based on the criteria established in *Internal Control - Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on our assessment, management has concluded that our internal control over financial reporting was effective as of the end of the fiscal year to provide reasonable assurances regarding the reliability of financial reporting and the preparation of financial statements for external reporting purposes in accordance with U.S. GAAP.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting for external purposes in accordance with U.S. GAAP. A company's internal control over financial reporting includes those policies and procedures that:

- pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with GAAP, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate. Accordingly, even effective internal control over financial reporting can only provide reasonable assurance of achieving its control objectives.

Management's assessment of the effectiveness of the Company's internal control over financial reporting as of December 31, 2022 has not been audited by the Company's independent registered public accounting firm. Management's report is not subject to attestation by the Company's independent registered public accounting firm pursuant to the rules of the Securities and Exchange Commission that permit the Company to provide only management's report in this Annual Report.

Changes in Internal Control Over Financial Reporting

There were no changes to our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) that occurred during the fourth quarter of 2022 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information.

Not applicable.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

Information required by Item 10 with respect to our directors and executive officers will be set forth under the captions "Proposal No. 1: Election of Directors - Director Nominees for Election" and "Information about our Executive Officers" in our Proxy Statement for our 2023 Annual Meeting of Shareholders (the "2023 Proxy Statement") to be filed within 120 days after December 31, 2022 and pursuant to Regulation 14A and is incorporated herein by reference.

Item 405 of Regulation S-K calls for disclosure of any known late filing or failure by an insider to file a report required by Section 16(a) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). To the extent disclosure for delinquent reports is being made, it can be found under the caption "Delinquent Section 16(a) Reports" in the 2023 Proxy Statement and is herein incorporated by reference.

We have adopted a Code of Business Conduct and Ethics (the "Code of Business Conduct and Ethics") that applies to all directors and employees, including our Chief Executive Officer (our Principal Executive Officer) and our Chief Financial Officer (our Principal Accounting and Financial Officer). We have also adopted a Code of Ethics for Senior or Designated Financial Personnel (the "Code of Ethics for Senior or Designated Financial Personnel") that applies to our Chief Executive Officer (our Principal Executive Officer), our Chief Financial Officer (our Principal Accounting and Financial Officer) and other designated financial personnel. The Code of Business Conduct and Ethics and the Code of Ethics for Senior or Designated Financial Personnel are each available on our website free of charge at www.pixelworks.com. We intend to disclose any changes in or waivers from our Code of Business Conduct and Ethics or Code of Ethics for Senior or Designated Financial Personnel by posting such information on our website at www.pixelworks.com or by filing a Current Report on Form 8-K.

We have a separately designated standing audit committee established in accordance with the Securities Exchange Act of 1934. The members of the audit committee are Dean W. Butler, Daniel J. Heneghan, and C. Scott Gibson. The audit committee has the responsibility and authority described in the Pixelworks, Inc. Charter of the Audit Committee of the Board of Directors, which has been approved by our board of directors. A copy of the audit committee charter is available on our website at www.pixelworks.com. Our board of directors has determined that Mr. Butler, Mr. Heneghan and Mr. Gibson meet the independence requirements set forth in Rule 10A-3(b)(1) under the Exchange Act and in the applicable rules of Nasdaq. In addition, our board of directors has determined that Mr. Butler, Mr. Heneghan and Mr. Gibson each qualify as an audit committee financial expert as defined by Securities and Exchange Commission rules.

Item 11. Executive Compensation.

Information required by Item 11 with respect to executive compensation will be included under the captions "Executive Compensation" and "Information About Our Board of Directors - Director Compensation" in our 2023 Proxy Statement and is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

Information required by Item 12 with respect to security ownership of certain beneficial owners and management and related stockholder matters will be included under the captions "Security Ownership of Certain Beneficial Owners and Management" and "Information about our Equity Compensation Plans" in our 2023 Proxy Statement and is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence.

Information required by Item 13 with respect to certain relationships and related transactions and director independence will be included under the captions "Certain Relationships and Related Person Transactions" and "Information About Our Board of Directors" in our 2023 Proxy Statement and is incorporated herein by reference.

Item 14. Principal Accounting Fees and Services.

Information required by Item 14 with respect to principal accounting fees and services will be set forth under the captions "Principal Accounting Fees and Services" and "Pre-Approval of Audit and Permissible Non-Audit Services" in our 2023 Proxy Statement and is incorporated herein by reference.

PART IV

Item 15. Exhibits and Financial Statement Schedules.

(a) 1. Financial Statements.

The following financial statements are included in Part II, Item 8 Financial Statements and Supplementary Data:

[Report of Independent Registered Public Accounting Firm \(PCAOB ID: 32\)](#)
[Consolidated Balance Sheets as of December 31, 2022 and 2021](#)
[Consolidated Statements of Operations for the years ended December 31, 2022 and 2021](#)
[Consolidated Statements of Comprehensive Loss for the years ended December 31, 2022 and 2021](#)
[Consolidated Statements of Cash Flows for the years ended December 31, 2022 and 2021](#)
[Consolidated Statements of Shareholders' Equity for the years ended December 31, 2022 and 2021](#)
[Notes to Consolidated Financial Statements](#)

(a) 2. Financial Statement Schedules.

All schedules have been omitted because the required information is included in the consolidated financial statements or the notes thereto, or is not applicable or required.

(a) 3. Exhibits.

The exhibits listed below are either filed with this report or incorporated by reference into this report.

<u>Exhibit Number</u>	<u>Description</u>
3.1	Sixth Amended and Restated Articles of Incorporation of Pixelworks, Inc., as amended (incorporated by reference to Exhibit 3.1 to the Company's Annual Report on Form 10-K filed on March 9, 2022).
3.2	Third Amended and Restated Bylaws of Pixelworks, Inc. (incorporated by reference to Exhibit 3(ii).1 to the Company's Current Report on Form 8-K filed February 2, 2023).
4.1	Description of securities registered pursuant to Section 12 of the Securities Exchange Act of 1934 (incorporated by reference to Exhibit 4.1 to the Company's Annual Report on Form 10-K filed on March 11, 2020).
10.1+	Form of Indemnity Agreement between Pixelworks, Inc. and each of the members of the Board and Haley Aman, the Company's Chief Financial Officer. (incorporated by reference to Exhibit 10.1 to the Company's Annual Report on Form 10-K filed on March 14, 2018).
10.2+	Pixelworks, Inc. Amended and Restated 2010 Employee Stock Purchase Plan (incorporated by reference to Exhibit 10.2 to the Company's Annual Report on Form 10-K filed on March 9, 2022).
10.3+	Pixelworks, Inc. Amended and Restated 2006 Stock Incentive Plan.
10.4+	Pixelworks, Inc. Amended and Restated 2006 Stock Incentive Plan, Terms and Conditions of Restricted Stock Awards (incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q filed on May 7, 2009).
10.5+	Pixelworks, Inc. Amended and Restated 2006 Stock Incentive Plan, Terms and Conditions of Option Grants (incorporated by reference to Exhibit 10.9 to the Company's Annual Report on Form 10-K filed March 8, 2012).

- 10.6+ [Pixelworks, Inc. Amended and Restated 2006 Stock Incentive Plan, Terms and Conditions of Director Stock Unit Awards \(incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q filed on November 4, 2010\).](#)
- 10.7+ [Pixelworks, Inc. Amended and Restated 2006 Stock Incentive Plan, Terms and Conditions of Restricted Stock Unit Award. \(incorporated by reference to Exhibit 10.8 to the Company's Annual Report on Form 10-K filed on March 4, 2015\).](#)
- 10.8+ [Form of Performance-Based Restricted Stock Unit Agreement \(incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on April 13, 2021\).](#)
- 10.9+ [Summary of Pixelworks, Inc. Non-Employee Director Compensation \(incorporated by reference to Exhibit 10.2 to the Company's Annual Report on Form 10-K filed on March 9, 2022\).](#)
- 10.10+ [Form of Pixelworks, Inc. Senior Management Bonus Plan \(incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed December 31, 2009\).](#)
- 10.11+ [Offer Letter with Todd A. DeBonis dated December 9, 2015 \(incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed on February 2, 2016\).](#)
- 10.12+ [Change of Control Severance Agreement effective January 4, 2016, by and between Pixelworks, Inc. and Todd A. DeBonis \(incorporated by reference to Exhibit 10.18 to the Company's Annual Report on Form 10-K filed March 8, 2017\).](#)
- 10.13+ [Amended and Restated Change of Control and Severance Agreement by and between Pixelworks, Inc. and Todd A. Debonis, dated April 11, 2019 \(incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on April 15, 2019\).](#)
- 10.14+ [Form of Addendum to Change of Control Agreement for Officers \(incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on May 23, 2014\).](#)
- 10.15+ [Executive Compensation Recovery Policy, adopted April 11, 2019 by the Pixelworks, Inc. Board of Directors \(incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on April 15, 2019\).](#)
- 10.16 [Office Lease Agreement dated December 2005, by and between CA-The Concourse Limited Partnership and Pixelworks, Inc. \(incorporated by reference to Exhibit 10.42 to the Company's Annual Report on Form 10-K filed March 13, 2006\).](#)
- 10.17 [Office Lease Agreement dated September 10, 2008 and commencing December 1, 2008 by and between Pixelworks, Inc. and Durham Plaza, LLC \(incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q filed on November 7, 2008\).](#)
- 10.18 [First Amendment to Office Lease Agreement, dated April 16, 2013, by and between CA-The Concourse Limited Partnership and Pixelworks, Inc. \(incorporated by reference to Exhibit 10.19 to the Company's Annual Report on Form 10-K filed on March 4, 2015\).](#)
- 10.19 [Second Amendment to Office Lease Agreement, dated July 25, 2018, by and between Hudson Concourse, LLC, and Pixelworks, Inc. \(incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q filed on November 9, 2018\).](#)
- 10.20 [First Amendment to Lease, dated July 1, 2013, by and between Durham Plaza, LLC and Pixelworks, Inc. \(incorporated by reference to Exhibit 10.20 to the Company's Annual Report on Form 10-K filed on March 4, 2015\).](#)

- 10.21 [Second Amendment to Lease, dated May 18, 2016, by and between Kalberer Company and Pixelworks, Inc. \(incorporated by reference to Exhibit 10.25 to the Company's Annual Report on Form 10-K filed on March 8, 2017\).](#)
- 10.22 [Third Amendment to Lease, dated January 30, 2019, by and between Kalberer Company and Pixelworks, Inc. \(incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q filed on May 10, 2019\).](#)
- 10.23 [Sales Agreement, dated June 5, 2020, between Pixelworks, inc. and Cowen and Company, LLC \(incorporated by reference to Exhibit 1.1 to the Company's Current Report on Form 8-K filed on June 5, 2020\).](#)
- 10.24* [Amended and Restated Securities Purchase Agreement dated December 4, 2020, between the Company and the investors named therein. \(incorporated by reference to Exhibit 10.39 to the Company's Annual Report on Form 10-K filed on March 10, 2021\).](#)
- 10.25* [Form of Capital Increase Agreement \(incorporated by reference to Exhibit 10.02 to the Company's Quarterly Report on Form 10-Q filed on August 11, 2021\).](#)
- 10.26 [Schedule identifying agreements substantially identical to the form of Agreement in Exhibit 10.25 hereto \(incorporated by reference to Exhibit 10.02a to the Company's Quarterly Report on Form 10-Q filed on August 11, 2021\).](#)
- 10.27 [Change of Control and Severance Agreement by and between Pixelworks, Inc. and Haley F. Aman, dated January 28, 2022 \(incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on January 31, 2022\).](#)
- 10.28 [Supplemental Agreement to Capital Increase Agreement dated as of March 24, 2022 between the Company and the other parties named therein \(incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on March 28, 2022\).](#)
- 10.29 [Side Letter to Capital Increase Agreement dated as of March 24, 2022 between the Company and the other parties named therein \(incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed on March 28, 2022\).](#)
- 10.30 [Form of Equity Transfer Agreement \(incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q filed on November 8, 2022\).](#)
- 10.31 [Schedule identifying agreements substantially identical to the form of Agreement filed as Exhibit 10.33 hereto \(incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q filed on November 8, 2022\).](#)
- 10.32* [Form of Capital Increase Agreement.](#)
- 10.33 [Schedule identifying agreements substantially identical to the form of Agreement in Exhibit 10.32 hereto.](#)
- 21 [Subsidiaries of Pixelworks, Inc.](#)
- 23.1 [Consent of Armanino LLP.](#)
- 24.1 [Power of Attorney \(contained on the signature page to this Form 10-K\).](#)
- 31.1 [Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 \(18 U.S.C. Section 1350\).](#)

31.2	Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (18 U.S.C. Section 1350).
32.1**	Certification of Chief Executive Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (18 U.S.C. Section 1350).
32.2**	Certification of Chief Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (18 U.S.C. Section 1350).
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (formatted as inline XBRL and contained in Exhibit 101)

+ Indicates a management contract or compensation arrangement.

* Certain schedules and exhibits to this agreement have been omitted pursuant to Item 601(b) of Regulation S-K. The registrant hereby undertakes to furnish supplementally a copy of any omitted schedule or exhibit to such agreement to the SEC upon request.

** Exhibits 32.1 and 32.2 are being furnished and shall not be deemed to be "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), or otherwise subject to the liability of that section, nor shall such exhibits be deemed to be incorporated by reference in any registration statement or other document filed under the Securities Act of 1933, as amended, or the Exchange Act, except as otherwise stated in such filing.

(b) Exhibits.

See Item 15 (a) (3) above.

(c) Financial Statement Schedules.

See Item 15 (a) (2) above.

Item 16. Form 10-K Summary.

Not applicable.

APPENDIX A

PIXELWORKS, INC.

AMENDED AND RESTATED 2006 STOCK INCENTIVE PLAN

1. Purposes of the Plan. The purposes of this Stock Incentive Plan are to attract, retain and reward individuals who can and do contribute to the Company's success by providing Employees and Consultants an opportunity to share in the equity of the Company and to more closely align their interests with the Company and its shareholders.

2. Definitions. As used herein, the following definitions shall apply:

2.1. **Administrator** shall mean the Board or any of its Committees appointed to administer the Plan, in accordance with Section 4.1.

2.2. **Award** shall mean an award of an Option, SAR or Sale of Shares under the Plan.

2.3. **Award Agreement** shall mean a written agreement between the Company and a Grantee evidencing the terms and conditions of an individual Award grant. The Award Agreement is subject to the terms and conditions of the Plan.

2.4. **Board** shall mean the Board of Directors of the Company.

2.5. **Code** shall mean the Internal Revenue Code of 1986, as amended.

2.6. **Committee** shall mean a committee appointed by the Board in accordance with Section 4.1 of the Plan.

2.7. **Common Stock** shall mean the common stock of the Company.

2.8. **Company** shall mean Pixelworks, Inc., an Oregon corporation.

2.9. **Consultant** shall mean any non-Employee who is engaged by the Company or any Parent or Subsidiary to render consulting services and is compensated for such consulting services and any Director of the Company whether compensated for such services or not.

2.10. **Continuous Status as an Employee or Consultant** shall mean the absence of any interruption or termination of service as an Employee or Consultant. Continuous Status as an Employee or Consultant shall not be considered interrupted in the case of: (i) any sick leave, military leave, or any other leave of absence approved by the Company; provided, however, that for purposes of Incentive Stock Options, any such leave is for a period of not more than ninety days or reemployment upon the expiration of such leave is guaranteed by contract or statute, provided, further, that on the ninety-first day of such leave (where re-employment is not guaranteed by contract or statute) the Grantee's Incentive Stock Option shall automatically convert to a Nonqualified Stock Option; or (ii) transfers between locations of the Company or between the Company, its Parent, its Subsidiaries or its successor.

2.11. **Director** shall mean a member of the Board.

2.12. **Disability** shall mean total and permanent disability as defined in Section 22(e)(3) of the Code.

2.13. **Employee** shall mean any person, including Officers and Directors, employed by the Company or any Parent or Subsidiary. Neither the payment of a director's fee by the Company nor service as a Director or Consultant shall be sufficient to constitute "employment" by the Company.

2.14. **Exchange Act** shall mean the Securities Exchange Act of 1934, as amended.

2.15. **Fair Market Value** shall mean, as of any date, the value of a Share determined as follows:

2.15.1. If the Common Stock is listed on any established stock exchange or a national market system, including without limitation the Nasdaq National Market or the Nasdaq SmallCap Market of the Nasdaq Stock Market, Fair Market Value shall be the closing sales price for a Share (or the closing bid, if no sales were reported) as quoted on such exchange or system on the date of determination, as reported in *The Wall Street Journal* or such other source as the Administrator deems reliable; provided, if the date of determination does not fall on a day on which the Common Stock has traded on such securities exchange or market system, the date on which the Fair

Market Value shall be established shall be the last day on which the Common Stock was so traded prior to the date of determination, or such other appropriate day as shall be determined by the Administrator, in its sole discretion;

2.15.2. If the Common Stock is regularly quoted by a recognized securities dealer but selling prices are not reported, Fair Market Value shall be the mean between the high bid and low asked prices for a Share on the date of determination, as reported in *The Wall Street Journal* or such other source as the Administrator deems reliable; provided, if the date of determination does not fall on a day on which the Common Stock has been so quoted, the date on which the Fair Market Value shall be established shall be the last day on which the Common Stock was so quoted prior to the date of determination, or such other appropriate day as shall be determined by the Administrator, in its sole discretion;

2.15.3. In the absence of an established market for the Common Stock, the Fair Market Value of a Share shall be determined in good faith by the Administrator.

2.16. **“Grantee”** shall mean an Employee or Consultant who has been granted an Award hereunder, or the permitted successor or legal representative of such Employee or Consultant.

2.17. **“Incentive Stock Option”** shall mean an Option intended to qualify as an incentive stock option within the meaning of Section 422 of the Code.

2.18. **“Nonqualified Stock Option”** shall mean an Option not intended to qualify as an incentive stock option within the meaning of Section 422 of the Code.

2.19. **“Notice of Grant”** shall mean a written notice evidencing certain terms and conditions of an individual Award. The Notice of Grant is part of the Award Agreement.

2.20. **“Officer”** shall mean a person who is an officer of the Company within the meaning of Section 16 of the Exchange Act and the rules and regulations promulgated thereunder.

2.21. **“Option”** shall mean an Incentive Stock Option or a Nonqualified Stock Option granted pursuant to the Plan.

2.22. **“Optioned Stock”** shall mean the Shares subject to an Option or Stock Appreciation Right.

2.23. **“Parent”** shall mean a “parent corporation,” whether now or hereafter existing, as defined in Section 424(e) of the Code.

2.24. **“Performance Criteria”** shall mean a formula or standard determined at the discretion of the Administrator with respect to a Performance Period utilizing one or more of the following factors, whether in absolute terms or relative to the performance of one or more similarly situated companies or a published index: (i) operating income, operating cash flow and operating expense; (ii) earnings before interest, taxes, depreciation and amortization; (iii) earnings; (iv) cash flow; (v) market share; (vi) sales; (vii) revenue; (viii) profits before interest and taxes; (ix) expenses; (x) cost of goods sold; (xi) profit/loss or profit margin; (xii) working capital; (xiii) return on capital, equity or assets; (xiv) earnings per share; (xv) economic value added; (xvi) stock price; (xvii) price/earnings ratio; (xviii) debt or debt-to-equity; (xix) accounts receivable; (xx) writeoffs; (xxi) cash; (xxii) assets; (xxiii) liquidity; (xxiv) operations; (xxv) intellectual property (e.g., patents); (xxvi) product development; (xxvii) regulatory activity; (xxviii) manufacturing, production or inventory; (xxix) mergers and acquisitions or divestitures; (xxx) financings; (xxxi) total shareholder return; and/or (xxxii) any other performance factor selected by the Administrator. Performance Criteria may be established on a Company-wide basis or with respect to one or more business units, divisions, or Subsidiaries. When establishing Performance Criteria for a Performance Period, the Administrator may exclude any or all “extraordinary items” as determined under U.S. generally accepted accounting principles including, without limitation, the charges or costs associated with restructurings of the Company or any Subsidiary, discontinued operations, other unusual or non-recurring items, and the cumulative effects of accounting changes. The Administrator may also adjust the Performance Criteria for any Performance Period as it deems equitable in recognition of unusual or non-recurring events affecting the Company, changes in applicable tax laws or accounting principles, or such other factors as the Administrator may determine.

2.25. **“Performance Period”** shall mean the period selected by the Administrator during which performance is measured for the purpose of determining the extent to which an Award subject to Performance Criteria has been earned.

2.26. **“Plan”** shall mean this Amended and Restated 2006 Stock Incentive Plan.

2.27. **“Rule 16b-3”** shall mean Rule 16b-3 of the Exchange Act or any successor to Rule 16b-3, as in effect when discretion is being exercised with respect to the Plan.

2.28. **“Sale” or “Sold”** shall include, with respect to the sale of Shares under the Plan, the sale of Shares for any form of consideration specified in Section 8.2, as well as a grant of Shares for consideration in the form of past or future services. For purposes of clarity, a “Sale” of Shares or Shares “Sold” shall include, without limitation, awards of stock bonuses, restricted stock, stock units, performance stock, performance units or similar rights to acquire Shares, whether upon the passage of time, the occurrence of one or more events, the satisfaction of Performance Criteria or other conditions, or any combination thereof.

2.29. **“Share”** shall mean a share of the Common Stock, as adjusted in accordance with Section 11 of the Plan.

2.30. **“Stock Appreciation Right” or “SAR”** shall mean a right to receive from the Company, with respect to each Share as to which the SAR is exercised, payment in an amount equal to the excess of the Share's Fair Market Value on the exercise date over its Fair Market Value on the date the SAR was granted. Such payment will be made solely in Shares valued at Fair Market Value on the exercise date.

2.31. **“Subsidiary”** shall mean a “subsidiary corporation,” whether now or hereafter existing, as defined in Section 424(f) of the Code.

3. Stock Subject to the Plan.

3.1. Subject to the provisions of Section 3.2 below and the provisions of Section 11 of the Plan, the maximum aggregate number of Shares which may be subject to Awards under the Plan is 22,683,333 shares. (All share limits in the Plan are presented after giving effect to the Company's 1-for-3 stock split in June 2008.) The Shares may be authorized, but unissued, or reacquired Common Stock. Shares issued in respect of any “full-value award” granted under the Plan shall be counted against the foregoing share limit for the Plan as 1.33 shares for every one share issued in connection with such award. (For example, if a stock bonus of 100 shares of Common Stock is granted under the Plan, 133 shares shall be charged against the share limit in connection with that award.) For this purpose, a “full-value award” means any Award under the Plan that is not an Option or SAR.

3.2. If an Option or SAR should expire, or become unexercisable for any reason, or is otherwise terminated or forfeited, without having been exercised in full, the Optioned Stock which was subject thereto shall, unless the Plan shall have been terminated, become available for future Option or SAR grants and/or Sales under the Plan. If any Shares issued pursuant to a Sale or exercise of an Option or SAR shall be reacquired, canceled or forfeited for any reason, such Shares shall become available for future Option or SAR grants and/or Sales under the Plan, unless the Plan shall have been terminated. If any reacquired, canceled or forfeited Shares were originally issued upon exercise of an Incentive Stock Option, then once so reacquired, canceled or forfeited, such Shares shall not be considered to have been issued for purposes of applying the limitation set forth in Section 3.3 below. Notwithstanding the foregoing, the following shares of Stock may not again be made available for issuance as awards under the Plan: (i) shares of Stock not issued or delivered as a result of the net settlement of an outstanding Option or SAR, (ii) shares of Stock used to pay the exercise price or withholding taxes related to an outstanding award, or (iii) shares of Stock repurchased on the open market with the proceeds of the exercise price of an Option.

3.3. Notwithstanding any other provision of this Section 3, but subject to the adjustment provisions of Section 11.1 of the Plan, the maximum number of Shares that may be issued upon the exercise of Incentive Stock Options shall be 22,683,333.

4. Administration of the Plan.

4.1. Procedure.

4.1.1. **Multiple Administrative Committees.** If permitted by Rule 16b-3, the Plan may be administered by different Committees with respect to Directors, Officers who are not Directors, and Employees who are neither Directors nor Officers.

4.1.2. **Administration With Respect to Directors and Officers Subject to Section 16(b).** With respect to Award grants to Employees who are also Officers or Directors subject to Section 16(b) of the Exchange Act, the Plan shall be administered by (A) the Board, if the Board may administer the Plan in compliance with the rules governing a plan intended to qualify as a discretionary plan under Rule 16b-3, or (B) a Committee designated by the Board to administer the Plan, which Committee shall be constituted to comply with the rules, if any, governing a plan intended to qualify as a discretionary plan under Rule 16b-3. Once appointed, such Committee shall continue to serve in its designated capacity until otherwise directed by the Board. From time to time the Board may increase the size of the Committee and appoint additional members, remove members (with or without cause) and substitute new members, fill vacancies (however caused), and remove all members of the Committee and thereafter directly administer the Plan, all to the extent permitted by the rules, if any, governing a plan intended to qualify as a discretionary plan under Rule 16b-3. With respect to persons subject to Section 16 of the Exchange Act, transactions under the Plan are intended to comply with all applicable conditions of Rule 16b-3. To the extent any provision of the Plan or action by the Administrator fails to so comply, it shall be deemed null and void, to the extent permitted by law and deemed advisable by the Administrator.

4.1.3. Administration With Respect to Other Persons. With respect to Award grants to Employees or Consultants who are neither Directors nor Officers of the Company, the Plan shall be administered by the Board or a Committee designated by the Board, which Committee shall be constituted to satisfy the legal requirements relating to the administration of stock option plans under applicable corporate and securities laws and the Code. Once appointed, such Committee shall serve in its designated capacity until otherwise directed by the Board. The Board may increase the size of the Committee and appoint additional members, remove members (with or without cause) and substitute new members, fill vacancies (however caused), and remove all members of the Committee and thereafter directly administer the Plan, all to the extent permitted by the legal requirements relating to the administration of stock option plans under state corporate and securities laws and the Code.

4.2. Powers of the Administrator. Subject to the provisions of the Plan, and in the case of a Committee, subject to the specific duties delegated by the Board to such Committee, the Administrator shall have the authority, in its discretion:

- 4.2.1. to grant Awards or SARs;
- 4.2.2. to authorize Sales of Shares hereunder;
- 4.2.3. to determine, upon review of relevant information, the Fair Market Value of a Share;
- 4.2.4. to determine the exercise/purchase price per Share of Options or SARs to be granted or Shares to be Sold, which exercise/purchase price shall be determined in accordance with Section 8.1 of the Plan;
- 4.2.5. to determine the Employees or Consultants to whom, and the time or times at which, Options or SARs shall be granted and the number of Shares to be represented by each Option or SAR;
- 4.2.6. to determine the Employees or Consultants to whom, and the time or times at which, Shares shall be Sold and the number of Shares to be Sold;
- 4.2.7. to administer and interpret the Plan;
- 4.2.8. to prescribe, amend and rescind rules and regulations relating to the Plan;
- 4.2.9. to determine the terms and provisions of each Option or SAR granted (which need not be identical) and, with the consent of the holder thereof, modify or amend each Option or SAR;
- 4.2.10. to determine the terms and provisions of each Sale of Shares (which need not be identical) and, with the consent of the purchaser thereof, modify or amend each Sale;
- 4.2.11. to accelerate (with the consent of the Grantee) the exercise date of any Option;
- 4.2.12. to accelerate (with the consent of the Grantee or purchaser of Shares) the vesting restrictions applicable to Shares Sold or Options or SARs granted under the Plan;
- 4.2.13. to authorize any person to execute on behalf of the Company any instrument required to effectuate the grant of an Option, SAR or Sale of Shares previously granted or authorized by the Administrator;
- 4.2.14. to determine the transfer or vesting restrictions, repurchase rights or other restrictions applicable to Shares issued under the Plan;
- 4.2.15. to establish, on a case-by-case basis, different terms and conditions pertaining to exercise or vesting rights upon termination of employment, but only at the time of an Option or SAR grant or Sale of Shares;
- 4.2.16. to approve forms for use under the Plan; and
- 4.2.17. to make all other determinations deemed necessary or advisable for the administration of the Plan.

Notwithstanding any other provision herein, except in connection with a corporate transaction involving the Company (including, without limitation, any stock dividend, stock split, extraordinary cash dividend, recapitalization, reorganization, merger, consolidation, split-up, spin-off, combination, or exchange of shares), the terms of outstanding awards may not be amended to reduce the exercise price of outstanding Options or SARs or cancel outstanding Options or SARs in exchange for cash, other awards or Options or SARs with an exercise price that is less than the exercise price of the original Options or SARs without shareholder approval.

4.3. Effect of Administrator's Decision. All decisions, determinations and interpretations of the Administrator shall be final and binding on all Grantees and any other holders of any Shares Sold under the Plan.

5. Eligibility.

5.1. **Persons Eligible.** Awards may be granted only to Employees and Consultants. Incentive Stock Options may be granted only to Employees. An Employee or Consultant who has been granted an Award may, if he or she is otherwise eligible, be granted additional Awards.

5.2. **ISO Limitation.** To the extent that the aggregate Fair Market Value of Shares subject to a Grantee's Incentive Stock Options granted by the Company, any Parent or Subsidiary which become exercisable for the first time during any calendar year (under all plans of the Company or any Parent or Subsidiary) exceeds \$100,000, such excess Options shall be treated as Nonqualified Stock Options. For purposes of this Section 5.2, Incentive Stock Options shall be taken into account in the order in which they were granted, and the Fair Market Value of the Shares shall be determined as of the time of grant.

5.3. **Section 5.2 Limitations.** Section 5.2 of the Plan shall apply only to an Option evidenced by an Award Agreement which sets forth the intention of the Company and the Grantee that such Option shall qualify as an Incentive Stock Option. Section 5.2 of the Plan shall not apply to any Option evidenced by an Award Agreement which sets forth the intention of the Company and the Grantee that such Option shall be a Nonqualified Stock Option.

5.4. **No Right to Continued Employment.** The Plan shall not confer upon any Grantee any right with respect to continuation of employment or consulting relationship with the Company, nor shall it interfere in any way with his or her right or the Company's right to terminate their employment or consulting relationship at any time, with or without cause.

5.5. **Other Limitations.** The following limitations shall apply to grants of Options or SARs to Employees:

5.5.1. No Employee shall be granted, in any fiscal year of the Company, Options or SARs to acquire more than 250,000 Shares.

5.5.2. In connection with his or her initial employment, an Employee may be granted Options or SARs for up to an additional 250,000 Shares which shall not count against the limit set forth in subsection 5.5.1 above.

5.5.3. The foregoing limitations shall be adjusted proportionately in connection with any change in the Company's capitalization as described in Section 11.

6. **Term of Plan.** The Plan shall become effective upon the earlier to occur of its adoption by the Board or its approval by the shareholders of the Company as described in Section 17 of the Plan. It shall continue in effect for a term of ten (10) years, unless sooner terminated under Section 13 of the Plan. However, if the Company's shareholders approve an increase in the number of Shares available for issuance under section 3.1, such increase shall be deemed the adoption of a new plan with respect to the increased number of Shares, which may be issued for a term of ten (10) years following the date of such increase.

7. **Term of Options and SARs.** The term of each Option and SAR shall be stated in the Notice of Grant; provided, however, that in no event shall the term of any Option or SAR exceed six (6) years from the date of grant. However, in the case of an Incentive Stock Option granted to a Grantee who, on the date the Incentive Stock Option is granted, owns stock representing more than ten percent (10%) of the voting power of all classes of stock of the Company or any Parent or Subsidiary, the term of the Incentive Stock Option shall be five (5) years from the date of grant thereof or such shorter term as may be provided in the Notice of Grant.

8. Exercise/Purchase Price and Consideration.

8.1. **Exercise/Purchase Price.** The per Share exercise/purchase price for the Shares to be issued pursuant to exercise of an Option or SAR or a Sale of Shares shall be such price as is determined by the Administrator, but shall be subject to the following:

8.1.1. In the case of an Incentive Stock Option

(1) granted to an Employee who, at the time of the grant of such Incentive Stock Option, owns more than ten percent (10%) of the voting power of all classes of stock of the Company or any Parent or Subsidiary, the per Share exercise price shall be at least one hundred ten percent (110%) of the Fair Market Value on the date of the grant.

(2) granted to any other Employee, the per Share exercise price shall be at least one hundred percent (100%) of the Fair Market Value on the date of grant.

8.1.2. In the case of a Nonqualified Stock Option, SAR or Sale, the per Share exercise/purchase price shall be at least one hundred percent (100%) of the Fair Market Value on the date of grant or Sale, as the case may be.

8.2. **Consideration.** The consideration to be paid for the Shares to be issued upon exercise of an Option or pursuant to a Sale, including the method of payment, shall be determined by the Administrator. In the case of an Incentive Stock Option, the Administrator shall determine the acceptable form of consideration at the time of grant. Such consideration may consist of:

8.2.1. cash;

8.2.2. check;

8.2.3. promissory note;

8.2.4. transfer to the Company of Shares which

(1) in the case of Shares acquired upon exercise of an Option, have been owned by the Grantee for more than six months on the date of transfer, and

(2) have a Fair Market Value on the date of transfer equal to the aggregate exercise price of the Shares to be acquired;

8.2.5. if and so long as the Common Stock is registered under Section 12(b) or 12(g) of the Exchange Act, delivery of a properly executed exercise notice together with irrevocable instructions to a broker to promptly deliver to the Company the amount of sale or loan proceeds required to pay the exercise price;

8.2.6. such other consideration and method of payment for the issuance of Shares to the extent permitted by legal requirements relating to the administration of stock option plans and issuances of capital stock under applicable corporate and securities laws and the Code; or

8.2.7. any combination of the foregoing methods of payment.

If the Fair Market Value of the number of whole Shares transferred or the number of whole Shares surrendered is less than the total exercise price of the Option, the shortfall must be made up in cash or by check. Notwithstanding the foregoing provisions of this Section 8.2, the consideration for Shares to be issued pursuant to a Sale may not include, in whole or in part, the consideration set forth in subsection 8.2.5 above.

9. Exercise of Option or SAR.

9.1. **Procedure for Exercise; Rights as a Shareholder.** Any Option or SAR granted hereunder shall be exercisable at such times and under such conditions as determined by the Administrator, including Performance Criteria with respect to the Company and/or the Grantee, and as shall be permissible under the terms of the Plan.

An Option or SAR may not be exercised for a fraction of a Share. If the exercise of a SAR would result in the issuance of a fractional Share, the Shares to be issued shall be rounded to the nearest whole Share.

An Option or SAR shall be deemed to be exercised when written notice of such exercise has been given to the Company in accordance with the terms of the Option or SAR by the Grantee and full payment for the Shares with respect to which the Option is exercised has been received by the Company. Full payment may, as authorized by the Administrator, consist of any consideration and method of payment allowable under the Award Agreement and Section 8.2 of the Plan. Each Grantee who exercises an Option or SAR shall, upon notification of the amount due (if any) and prior to or concurrent with delivery of the certificate representing the Shares, pay to the Company amounts necessary to satisfy applicable federal, state and local tax withholding requirements. A Grantee must also provide a duly executed copy of any stock transfer agreement then in effect and determined to be applicable by the Administrator. Until the issuance (as evidenced by the appropriate entry on the books of the Company or of a duly authorized transfer agent of the Company) of the stock certificate evidencing such Shares, no right to vote or receive dividends or any other rights as a shareholder shall exist with respect to the Optioned Stock represented by such stock certificate, notwithstanding the exercise of the Option or SAR. No adjustment will be made for a dividend or other right for which the record date is prior to the date the stock certificate is issued, except as provided in Section 11 of the Plan. Subject to section 3, exercise of an Option or settlement of a SAR shall decrease the number of Shares thereafter available, both for purposes of the Plan and for issuance under the Option or SAR by the number of Shares issued upon such exercise.

9.2. **Termination of Employment or Consulting Relationship.** In the event that a Grantee's Continuous Status as an Employee or Consultant terminates (other than upon the Grantee's death or Disability), the Grantee may exercise his or her Option or SAR, but only within such period of time as is determined by the Administrator, and only to the extent that the Grantee was entitled to exercise it at the date of termination (but in no event later than the

expiration of the term of such Option or SAR as set forth in the Notice of Grant). In the case of an Incentive Stock Option, the Administrator shall determine such period of time (in no event to exceed three (3) months from the date of termination) when the Option is granted. If, at the date of termination, the Grantee is not entitled to exercise his or her entire Option or SAR, the unexercisable portion of the Option or SAR shall, unless otherwise expressly provided by the Administrator, terminate on the date of such termination and the Shares covered by such portion shall revert to the Plan. If, after termination, the Grantee does not exercise the remaining portion of his or her Option or SAR within the time specified by the Administrator, such portion of the Option or SAR shall terminate, and the Shares covered by such portion shall revert to the Plan.

9.3. Disability of Grantee. In the event that a Grantee's Continuous Status as an Employee or Consultant terminates as a result of the Grantee's Disability, the Grantee may exercise his or her Option or SAR at any time within twelve (12) months from the date of such termination, but only to the extent that the Grantee was entitled to exercise it at the date of such termination (but in no event later than the expiration of the term of such Option or SAR as set forth in the Notice of Grant). If, at the date of termination, the Grantee is not entitled to exercise his or her entire Option or SAR, the unexercisable portion of the Option or SAR shall, unless otherwise expressly provided by the Administrator, terminate on the date of such termination and the Shares covered by such portion shall revert to the Plan. If, after termination, the Grantee does not exercise the remaining portion of his or her Option or SAR within the time specified herein, such portion of the Option or SAR shall terminate, and the Shares covered by such portion shall revert to the Plan.

9.4. Death of Grantee. In the event of the death of a Grantee, the Option or SAR may be exercised at any time within twelve (12) months following the date of death (but in no event later than the expiration of the term of such Option or SAR as set forth in the Notice of Grant), by the Grantee's estate or by a person who acquired the right to exercise the Option or SAR by bequest or inheritance, but only to the extent that the Grantee was entitled to exercise the Option or SAR at the date of death. If, at the time of death, the Grantee was not entitled to exercise his or her entire Option or SAR, the unexercisable portion of the Option or SAR shall, unless otherwise expressly provided by the Administrator, terminate on the date of such termination and the Shares covered by such portion shall revert to the Plan. If, after death, the Grantee's estate or a person who acquired the right to exercise the Option or SAR by bequest or inheritance does not exercise the remaining portion of the Option or SAR within the time specified herein, such portion of the Option or SAR shall terminate, and the Shares covered by such portion shall revert to the Plan.

9.5. Rule 16b-3. Options or SARs, as well as Sales of Shares, granted to persons subject to Section 16(b) of the Exchange Act must comply with Rule 16b-3 and shall contain such additional conditions or restrictions as may be required thereunder to qualify for the maximum exemption from Section 16 of the Exchange Act with respect to Plan transactions.

10. Nontransferability of Awards. Except as otherwise specifically provided in the Award Agreement, an Award may not be sold, pledged, assigned, hypothecated, transferred or disposed of in any manner other than by will, or by the laws of descent and distribution, and may be exercised during the lifetime of the Grantee only by the Grantee or, if incapacitated, by his or her legal guardian or legal representative.

11. Adjustments Upon Changes in Capitalization or Merger.

11.1. Changes in Capitalization. Subject to any required action by the shareholders of the Company, the number of shares of Common Stock covered by each outstanding Award and the number of shares of Common Stock which have been authorized for issuance under the Plan but as to which no Awards have yet been granted or which have been returned to the Plan upon cancellation or expiration of an Award, as well as the price per share of Common Stock covered by each such outstanding Award, shall be proportionately adjusted for any increase or decrease in the number of issued shares of Common Stock resulting from a stock split, reverse stock split, stock dividend, combination or reclassification of the Common Stock, or any other increase or decrease in the number of issued shares of Common Stock effected without receipt of consideration by the Company; provided, however, that conversion of any convertible securities of the Company shall not be deemed to have been "effected without receipt of consideration." Such adjustment shall be made by the Administrator, whose determination in that respect shall be final, binding and conclusive. Except as expressly provided herein, no issuance by the Company of shares of stock of any class, or securities convertible into shares of stock of any class, shall affect, and no adjustment by reason thereof shall be made with respect to, the number or price of Shares subject to an Award.

11.2. Dissolution or Liquidation. In the event of the proposed dissolution or liquidation of the Company, each outstanding Award will terminate immediately prior to the consummation of such proposed action, unless otherwise provided by the Administrator. The Administrator may, in the exercise of its sole discretion in such instances, declare that any Award shall terminate as of a date fixed by the Board and, in the case of Options and SARs, give each Grantee the right to exercise Grantee's Option or SAR as to all or any part of the Optioned Stock subject to the Option or SAR, including Shares as to which the Option or SAR would not otherwise be exercisable.

11.3. Merger or Asset Sale. Except as otherwise provided in an Award Agreement, in the event of a proposed sale of all or substantially all of the assets of the Company, or the merger of the Company with or into another corporation, each outstanding Award shall be assumed or an equivalent award shall be substituted by such successor corporation or a Parent or Subsidiary of such successor corporation, unless the Administrator determines, in the exercise of its sole discretion and in lieu of such assumption or substitution, that, in the case of Options and SARs, each Grantee shall have the right to exercise the Grantee's Options or SARs as to all or any part of the Optioned Stock subject to the Option or SAR, including Shares as to which the Option or SAR would not otherwise be exercisable. If the Administrator determines that an Option or SAR shall be exercisable in lieu of assumption or substitution in the event of a merger or sale of assets, the Administrator shall notify the Grantee that the Option or SAR shall be so exercisable for a period of thirty (30) days from the date of such notice or such shorter period as the Administrator may specify in the notice, and the Option or SAR will terminate upon the expiration of such period. For the purposes of this paragraph, the Option or SAR shall be considered assumed or substituted if, following the merger or sale of assets, the Option or SAR confers the right to purchase, for each Share of Optioned Stock subject to the Option or SAR immediately prior to the merger or sale of assets, the consideration (whether stock, cash, or other securities or property) received in the merger or sale of assets by holders of Common Stock for each Share held on the effective date of the transaction (and if holders were offered a choice of consideration, the type of consideration chosen by the holders of a majority of the outstanding Shares); provided, however, that if such consideration received in the merger or sale of assets was not solely common stock of the successor corporation or its Parent, the Administrator may, with the consent of the successor corporation, provide for the consideration to be received upon the exercise of the Option or SAR, for each Share of Optioned Stock subject to the Option or SAR, to be solely common stock of the successor corporation or its Parent substantially equal in Fair Market Value to the per share consideration received by holders of Common Stock in the merger or sale of assets. The determination of such substantial equality of value of consideration shall be made by the Administrator and its determination shall be conclusive and binding.

12. Time of Granting Awards. The date of grant of an Award shall, for all purposes, be the date on which the Administrator makes the determination granting such Award (or such later date as the Administrator may establish at the time of granting the Award). Notice of the determination shall be given to each Grantee within a reasonable time after the date of such grant.

13. Amendment and Termination of the Plan.

13.1. Amendment and Termination. The Board may amend or terminate the Plan from time to time in such respects as the Board may deem advisable.

13.2. Shareholder Approval. The Company shall obtain shareholder approval of any Plan amendment to the extent necessary and desirable to comply with Rule 16b-3 or with Section 422 of the Code (or any successor rule or statute or other applicable law, rule or regulation, including the requirements of any exchange or quotation system on which the Common Stock is listed or quoted). Such shareholder approval, if required, shall be obtained in such a manner and to such a degree as is required by the applicable law, rule or regulation.

13.3. Effect of Amendment or Termination. Any such amendment or termination of the Plan shall not affect Awards already granted, and such Awards shall remain in full force and effect as if this Plan had not been amended or terminated, unless mutually agreed otherwise between the Grantee and the Administrator, which agreement must be in writing and signed by the Grantee and the Administrator.

14. Conditions Upon Issuance of Shares. Shares shall not be issued pursuant to the exercise of an Option, SAR or a Sale unless the exercise of such Option, SAR or consummation of the Sale and the issuance and delivery of such Shares pursuant thereto shall comply with all relevant provisions of law, including, without limitation, the Securities Act of 1933, as amended, applicable state securities laws, the Exchange Act, the rules and regulations promulgated thereunder, and the requirements of any stock exchange (including Nasdaq) upon which the Shares may then be listed, and shall be further subject to the approval of counsel for the Company with respect to such compliance.

15. Reservation of Shares. The Company, during the term of this Plan, will at all times reserve and keep available such number of Shares as shall be sufficient to satisfy the requirements of the Plan.

16. Liability of Company.

16.1. Inability to Obtain Authority. Inability of the Company to obtain authority from any regulatory body having jurisdiction, which authority is deemed by the Company's counsel to be necessary to the lawful issuance and sale of any Shares hereunder, shall relieve the Company of any liability in respect of the failure to issue or sell such Shares as to which such requisite authority shall not have been obtained.

As a condition to the exercise of an Option or SAR or a Sale, the Company may require the person exercising such Option or SAR or to whom Shares are being Sold to represent and warrant at the time of any such exercise or Sale that the Shares are being purchased only for investment and without any present intention to sell or distribute such Shares if, in the opinion of counsel for the Company, such a representation is required by any of the aforementioned relevant provisions of law.

16.2. Grants Exceeding Allotted Shares. If the grant of an Award causes the aggregate number of Shares previously issued under the Plan and subject to then-outstanding Awards under the Plan to exceed, as of the date of grant, the number of Shares which may be issued under the Plan without additional shareholder approval, such Award shall be void with respect to such excess Shares, unless shareholder approval of an amendment sufficiently increasing the number of Shares subject to the Plan is timely obtained in accordance with Section 13 of the Plan.

17. Shareholder Approval. Continuance of the Plan shall be subject to approval by the shareholders of the Company within twelve (12) months before or after the date the Plan is adopted. Such shareholder approval shall be obtained in the manner and to the degree required under applicable federal and state law.

18. Tax Withholding. Upon any exercise, vesting, or payment of any Award, or upon the disposition of shares of Common Stock acquired pursuant to the exercise of an Incentive Stock Option prior to satisfaction of the holding period requirements of Section 422 of the Code, or upon any other tax withholding event with respect to any award, the Company or one of its Subsidiaries shall have the right at its option to:

(a) require the Grantee (or the Grantee's personal representative or beneficiary, as the case may be) to pay or provide for payment of at least the minimum amount of any taxes which the Company or one of its Subsidiaries may be required to withhold with respect to such Award event or payment; or

(b) deduct from any amount otherwise payable in cash (whether related to the Award or otherwise) to the Grantee (or the Grantee's personal representative or beneficiary, as the case may be) the minimum amount of any taxes which the Company or one of its Subsidiaries may be required to withhold with respect to such Award event or payment, except to the extent additional withholding does not result in adverse accounting treatment to the Company.

In any case where a tax is required to be withheld in connection with the delivery of shares of Common Stock under the Plan, the Administrator may in its sole discretion (subject to Section 14) require or grant (either at the time of the Award or thereafter) to the Grantee the right to elect, pursuant to such rules and subject to such conditions as the Administrator may establish, that the Company reduce the number of shares to be delivered by (or otherwise reacquire) the appropriate number of shares, valued in a consistent manner at their Fair Market Value or at the sales price in accordance with authorized procedures for cashless exercises, necessary to satisfy the minimum applicable withholding obligation on exercise, vesting or payment. In no event shall the shares withheld exceed the minimum whole number of shares required for tax withholding under applicable law.

19. Plan Not Funded. Awards payable under the Plan shall be payable in shares or from the general assets of the Company, and no special or separate reserve, fund or deposit shall be made to assure payment of such awards. No Grantee, beneficiary or other person shall have any right, title or interest in any fund or in any specific asset (including shares of Common Stock, except as expressly otherwise provided) of the Company or one of its Subsidiaries by reason of any Award hereunder. Neither the provisions of the Plan (or of any related documents), nor the creation or adoption of the Plan, nor any action taken pursuant to the provisions of the Plan shall create, or be construed to create, a trust of any kind or a fiduciary relationship between the Company or one of its Subsidiaries and any Grantee, beneficiary or other person. To the extent that a Grantee, beneficiary or other person acquires a right to receive payment pursuant to any Award hereunder, such right shall be no greater than the right of any unsecured general creditor of the Company.

20. Privileges of Stock Ownership. Except as otherwise expressly authorized by the Administrator, a Grantee shall not be entitled to any privilege of stock ownership as to any shares of Common Stock not actually delivered to and held of record by the participant. Except as expressly required by Section 11.1 or otherwise expressly provided by the Administrator, no adjustment will be made for dividends or other rights as a shareholder for which a record date is prior to such date of delivery.

21. Governing Law; Severability; Headings. The Plan, the Awards, all documents evidencing awards and all other related documents shall be governed by, and construed in accordance with the laws of the State of Oregon. If a court of competent jurisdiction holds any provision invalid and unenforceable, the remaining provisions of the Plan shall continue in effect. Captions and headings are given to the sections and subsections of the Plan solely as a convenience to facilitate reference. Such headings shall not be deemed in any way material or relevant to the construction or interpretation of the Plan or any provision thereof.

22. No Corporate Action Restriction. The existence of the Plan, the Award Agreements and the Awards granted hereunder shall not limit, affect or restrict in any way the right or power of the Board or the shareholders of the Company to make or authorize: (a) any adjustment, recapitalization, reorganization or other change in the capital structure or business of the Company or any Subsidiary, (b) any merger, amalgamation, consolidation or change in the ownership of the Company or any Subsidiary, (c) any issue of bonds, debentures, capital, preferred or prior preference stock ahead of or affecting the capital stock (or the rights thereof) of the Company or any Subsidiary, (d) any dissolution or liquidation of the Company or any Subsidiary, (e) any sale or transfer of all or any part of the assets or business of the Company or any Subsidiary, or (f) any other corporate act or proceeding by the Company or any Subsidiary. No participant, beneficiary or any other person shall have any claim under any award or award agreement against any member of the Board or the Administrator, or the Company or any employees, officers or agents of the Company or any Subsidiary, as a result of any such action.

23. Stock Retention Requirement for Executive Officers. The Award Agreement providing for an Award under the Plan to a participant who is the principal executive officer, principal financial officer or chief operating officer, if any, of the Company shall provide that the participant shall continue to hold the Shares issued in connection with the Award (net of Shares withheld or disposed of to pay applicable income and employment taxes due by the participant) for a period of twelve (12) months following the later of the date of issuance of the Shares to the participant or, in the case of Shares issued as restricted stock, the date of vesting of such Shares. This holding period requirement shall cease to apply (i) following the participant's termination of employment with the Company, (ii) at such time as the participant has met such share ownership guidelines as may be adopted by the Board and as are applicable to the participant, or (iii) the occurrence of an event described in Section 11.3 (relating to a Merger or Asset Sale) or similar event involving the sale of the Company.

Capital Increase Agreement
For
Pixelworks Semiconductor Technology (Shanghai) Co., Ltd.

Date: December 21, 2022

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Capital Increase Agreement

This Capital Increase Agreement (hereinafter referred to as “**this Agreement**”) is executed on December 21, 2022, among the following parties in Pudong New District, Shanghai:

- 1. Beijing E-town Changhou Display Chip Venture Capital Center (Limited Partnership)**, a limited liability partnership enterprise duly incorporated and validly existing in accordance with Chinese laws (“**Capital Contributor I**”)
Address: Room D1205 of CATIC Plaza, Beijing BDA Ronghua Road No.15.
Unified Social Credit Code: 91110302MA01FR644U
- 2. Yangzhou Qizheng Equity Investment Partnership (Limited Partnership)**, a limited liability partnership enterprise duly incorporated and validly existing in accordance with Chinese laws (“**Capital Contributor II**”)
Address: Room 2407, Building A, Greenland Center, Jinye Road, Yanta District, Xi’an, Shaanxi
Unified Social Credit Code: 91321011MA27FRF323
- 3. Jing Xin Ying (Shanghai) Management Consulting Partnership (Limited Partnership)**, a limited liability partnership enterprise duly incorporated and validly existing in accordance with Chinese laws (“**Capital Contributor III**” or “**ESOP**”)
Address: Building C, No. 888, Huanhu West 2nd Road, Lin-gang Special Area of China (Shanghai) Pilot Free Trade Zone
Unified Social Credit Code: 91310000MABT5WANXG
- 4. Pixelworks Semiconductor Technology Company, LLC**, an American limited liability company, registration number 237548-98 (the “**Founding Shareholder**”)
Address: 16760 SW Upper Boones Ferry Road , Suite 101 , Portland, Oregon,97229 , USA.
- 5. Shanghai MTM Equity Investment Fund Partnership (L.P.)**, a limited liability partnership enterprise duly incorporated and validly existing in accordance with Chinese laws (“**MTM**”)
Address: 3303-3306, S2, BFC, No.600 Zhongshan Road(E-2), Huangpu District, Shanghai
Unified Social Credit Code: 91310000MA1FL4N12P
- 6. Hainan Qixin Investment Partnership (Limited Partnership)**, a limited liability partnership enterprise duly incorporated and validly existing in accordance with Chinese laws (“**Hainan Qixin**”)
Address: Room A502-27, 5/F, Datong Innovation and Entrepreneurship Maker Space, No. 1, Datong Yiheng Road, Datong Street, Longhua District, Haikou, Hainan Province
United Social Credit Code: 91460107MA7KTMA77P
- 7. Qingdao MTM Venture Capital Partnership (L.P.)**, a limited liability partnership enterprise duly incorporated and validly existing in accordance with Chinese laws (“**MTM Venture Capital**”)
Address: 1006, East Wing, Fenghui Times Building, Taipingqiao Street, Xicheng District, Beijing
Unified Social Credit Code: 91370281MA94CA9U2Q

8. **Hangzhou Canaan Creative Information Technology Limited**, a limited liability company duly incorporated and validly existing in accordance with Chinese laws (“**Canaan**”)
Address: Room 603-2, 6F, China Resources Building A Shangcheng District, Hangzhou, China
Unified Social Credit Code: 913301040648566680
9. **VeriSilicon Microelectronics (Shanghai) Co., Ltd**, a joint-stock company duly incorporated and validly existing in accordance with Chinese laws (“**VeriSilicon**”)
Address: 20F, Zhangjiang Building, 560 Songtao Road, Pudong New area, Shanghai , China
Unified Social Credit Code: 91310115703490552J
10. **Ting Xin Lan (Shanghai) Management Consulting Partnership (Limited Partnership)**, a partnership enterprise duly incorporated and validly existing in accordance with Chinese laws (“**Ting Xin Lan**”)
Address: Building C, No. 888, Huanhu West 2nd Road, Lin-gang Special Area of China (Shanghai) Pilot Free Trade Zone
Unified Social Credit Code: 91310000MA1H3TK15G
11. **Xuan Xin Miao (Shanghai) Management Consulting Partnership (Limited Partnership)**, a partnership enterprise duly incorporated and validly existing in accordance with Chinese laws (“**Xuan Xin Miao**”)
Address: Building C, No. 888, Huanhu West 2nd Road, Lin-gang Special Area of China (Shanghai) Pilot Free Trade Zone
Unified Social Credit Code: 91310000MA1H3ULA80
12. **Yi Xin Ran (Shanghai) Management Consulting Partnership (Limited Partnership)**, a partnership enterprise duly incorporated and validly existing in accordance with Chinese laws (“**Yi Xin Ran**”)
Address: Building C, No. 888, Huanhu West 2nd Road, Lin-gang Special Area of China (Shanghai) Pilot Free Trade Zone
Unified Social Credit Code: 91310000MA1H3U352P
13. **Chunhe Hong Kong Limited**, a Hong Kong corporation , company number 3054988 (“**Chunhe HK**”)
Address: Rooms 1101-04 38 Gloucester Road Hong Kong
14. **Suzhou Saixiang Equity Investment Partnership (Limited Partnership)**, a partnership enterprise duly incorporated and validly existing in accordance with Chinese laws (“**Suzhou Saixiang Investment**”)
Address: Room 501, Building 9, Wisdom Valley Area, Taihu Software Industrial Zone, No. 1421 Wuzhong Avenue, Yuexi Street, Wuzhong Economic Development Zone, Suzhou
Unified Social Credit Code: 91320506MA25JN0B1M
15. **Pixelworks Semiconductor Technology (Shanghai) Co., Ltd.**, a joint stock company duly incorporated and validly existing in accordance with Chinese laws (“**Company**” or “**Target Company**”)
Address: 17 Floor No.1 Sandhill Plaza 2290 Zuchongzhi Road, Pudong New District, Shanghai, China
Unified Social Credit Code: 913100007696958760

Target Company and its direct and indirect subsidiaries shall be respectively or collectively referred to as “**Target Group**” in this Agreement. The contracting parties of this Agreement shall be respectively referred to as a “**Party**” or collectively “**Parties**” in this Agreement.

WHEREAS:

1. The Target Company is a limited liability company registered on December 22, 2004 and converted to be a joint stock company on October 10, 2022. The registered capital is RMB 360 million. The Target Company mainly engages in the design, manufacture and sale of visual display processing semiconductors and custom application specific integrated circuits (“ASIC”) solutions for video applications, advanced media processing, and the efficient delivery and streaming of video in the target markets of smartphones, tablets, digital projection systems, high-quality video infrastructure equipment, and over-the-air (OTA) streaming devices (“**Main Business**”).
2. The preconditions for signing this Agreement in the Investment Framework Agreement signed by Capital Contributor I (or a party designated by Capital Contributor I), Capital Contributor II (or a party designated by Capital Contributor II) and the Target Company on November 9, 2022 and November 2, 2022 respectively have been consummated.
3. The Capital Contributor I agrees to invest in the Target Company with a pre-money valuation of RMB 3.5 billion, intends to subscribe for part of the newly issued shares of the Target Company with an investment of RMB 50 million; The Capital Contributor II agrees to invest in the Target Company with a pre-money valuation of RMB 3.5 billion, intends to subscribe for part of the newly issued shares of the Target Company with an investment of RMB 50 million; The Capital Contributor III agrees to invest in the Target Company with a pre-money valuation of RMB 1.75 billion, intends to subscribe for part of the newly issued shares of the Target Company with an investment of RMB 9.801 million.
4. The Capital Contributors desire to subscribe for certain registered capital newly issued by the Target Company according to the terms and conditions of this Agreement.

NOW THEREFORE, the Parties enter into and perform this Agreement based on equality, voluntariness and consensus:

1. DEFINITION

The terms in bold defined in this Agreement shall have the meaning as defined in this Agreement. In addition, the below terms shall have the following meanings when used in this Agreement:

- 1.1 **Transaction Documents** shall mean the transaction documents to be executed by relevant Parties in accordance with the laws and the terms of this Agreement for the purpose of this Capital Increase (as defined below), including but not limited to this Agreement, decisions/resolutions, the articles of association of the Target Company as well as the application documents for the industrial and commercial registration.
- 1.2 **China** shall mean the People’s Republic of China, and for the purpose of this Agreement shall not include Hong Kong Special Administrative Region, Macau Special Administrative Region and Taiwan Province of the PRC.
- 1.3 **Laws** shall mean, for any person or entity, any laws, regulations, rules, orders, notices, judgments, rulings, awards, decisions and other forms of documents applicable to such person or entity that are regulatory or

legally enforceable issued by any Government Authority or regulatory authority.

- 1.4 Government Authority** shall mean the legislative, administrative, judicial, regulatory departments, agencies or committees of China or any other country or region.
- 1.5 Governmental Approval** shall mean the approval, permit, consent, authorization issued by the Government Authority or qualification granted by the Government Authority, or registration and filings to be made with the Government Authority.
- 1.6 Intellectual Property Rights** shall mean (a) patents, know-how, rights to all of the improvement of the foregoing, rights to apply for patents and extensions, as well as the rights granted by the Chinese Laws or international treaties and conventions; (b) all the trademarks, service marks, logos, trade names and business names, including all the translation, adaptation, derivatives, and the combinations of such items, and including all the goodwill related to such items and all the applications, registrations and extensions of all such items; (c) all the copyright works, copyright and all the related applications, registrations and extensions; (d) all the trade secrets and confidential business information (including database, know-how, formulas, manufacture and production process, technology, technical data, designs, drawings, guidelines, lists of clients and suppliers, pricing and cost information, as well as business and marketing plans and proposals); (e) all the computer programs and software (including data and source and object code and related documents); (f) all the other property rights in connection with the foregoing.
- 1.7 Material Adverse Effect** shall mean an effect on the business, assets (including intangible assets), liabilities (whether contingent or otherwise), status (in terms of finance, Laws or otherwise), prospects or operational performance of the Target Group, including but not limited to the core Intellectual Property Rights of the Target Group being announced void by effective judicial documents, the Target Group being sued for the infringement of others' Intellectual Property Rights and losing as ruled by effective judicial documents, which, individually or in combination with other effects, (a) causes direct economic losses to the Target Group exceeding RMB 10,000,000 in one time or (b) will prevent the Target Company from making the Qualified Listing.
- 1.8 Qualified Listing** shall mean an IPO (initial public offering) and listing by the Target Company on the Shanghai Stock Exchange, Shenzhen Stock Exchange or other securities exchange markets.
- 1.9 Related Party** shall mean (a) for any person (including a legal person, a non-corporate entity or a natural person), any other legal person, a non-corporate entity or a natural person that is directly or indirectly controlled by such person, or directly or indirectly controls such person or is under common control with such person; and, for the avoidance of doubt (b) for a natural person, the spouse, children, siblings, parents, the parents of the spouse, and the trustee of any trust whose beneficiary or the sole trustee is such natural person or his/her immediate family member, or any entity or company controlled by the foregoing persons shall be deemed to be a Related Party. The foregoing “**control**” or “**controlled**” shall mean direct or indirect power of management and decision of a subject to make a

legally binding instruction or to compel other parties to make such instruction by virtue of holding voting rights, contracts or otherwise.

- 1.10** **Material Contracts** shall mean all existing and effective, and the contract amount is not less than RMB 2,000,000 agreements, contracts, leases, licenses, instruments, commitments (oral or written), indebtedness, liabilities and other obligations to which the Target Company is a party or by which it is bound that are material to the conduct and operations of its business and properties.
- 1.11** **Working Day** shall mean any day other than Saturday, Sunday or legal holidays in China.
- 1.12** **Core Staff** shall mean the key employees identified by the Target Company and listed in the Appendix as, as of the date of this Agreement, being important to the operation of the Main Business.
- 1.13** **Existing Shareholders** shall mean the shareholders of the Target Company recorded in the company registry prior to signing this Agreement.
- 1.14** **Capital Contributor** : Capital Contributor I, Capital Contributor II, Capital Contributor III will be separately referred to as “**Capital Contributor**” and collectively referred to as “**Capital Contributors**” herein ; Capital Contributor III also be referred to as employee stock ownership platform (“**ESOP**”).

2. CAPITAL INCREASE

- 2.1** Shareholding structure prior to the Capital Increase. All parties confirm that, as of the date of signing this agreement, the equity structure of the Target Company is shown in the following table (for the avoidance of doubt, the shareholding ratio in this Agreement and other transaction documents is calculated based on the amount of shares held by each shareholder. In case of any discrepancy between the amount of shares held by each shareholder and the shareholding ratio, the amount of shares held by each shareholder shall prevail):

Shareholder Name	Amount of shares held by each shareholder (Unit: Share)	Shareholding Percentage (%)
PIXELWORKS SEMICONDUCTOR TECHNOLOGY COMPANY, LLC (US)	291,125,303	80.8681
Shanghai MTM Equity Investment Fund Partnership (L.P.)	16,929,577	4.7027
Hainan Qixin Investment Partnership (Limited Partnership)	9,281,249	2.5781
Qingdao MTM Venture Capital Partnership (L.P.)	7,524,289	2.0901
Xuan Xin Miao (Shanghai) Management Consulting Partnership (Limited Partnership)	7,336,275	2.0379
Yi Xin Ran (Shanghai) Management Consulting Partnership (Limited Partnership)	6,586,139	1.8294
Beijing E-town Changhou Display Chip Venture Capital Center (Limited Partnership)	5,643,289	1.5676
Chunhe Hong Kong Limited	4,560,769	1.2669
Hangzhou Canaan Creative Information Technology Limited	3,762,000	1.0450
VeriSilicon Microelectronics (Shanghai) Co., Ltd	3,762,000	1.0450
Ting Xin Lan (Shanghai) Management Consulting Partnership (Limited Partnership)	2,926,609	0.8129
Suzhou Saixiang Equity Investment Partnership (Limited Partnership)	562,501	0.1563
Total	360,000,000	100

2.2 Capital Increase. Capital Contributor I shall pay RMB 50 million to subscribe for the shares issued by the Target Company in the amount of 5,142,857, then, Capital Contributor I will totally hold 2.8972% of the equities of the Target Company; Capital Contributor II shall pay RMB50 million to subscribe for the shares issued by the Target Company in the amount of 5,142,857, then, Capital Contributor II will hold 1.3814% of the equities of the Target Company; Capital Contributor III shall pay RMB 9.801 million to subscribe for the shares issued by the Target Company in the amount of 2,016,206, then, Capital Contributor III will hold 0.5415% of the equities of the Target Company. The above are collectively referred to as this capital increase (“**Capital Increase**”). The amount that the Capital Contributors pay to subscribe for the Capital Increase shall be referred to as “**Subscription Price**”. The portion of the Subscription Price that exceeds the increased registered capital of the Target Company shall be reserved as capital premium of the Target Company.

Subscription Price shall be used for the technical research and development, production and sales related to the existing and future chip products of the Target Company, and to supplement the working capital required for the daily operation of the Target Company.

2.3 Shareholding structure after the Capital Increase. As for the Capital Increase, the Existing Shareholders hereby expressly waive their pre-emptive rights and all other rights under the Laws or contractual arrangement (if applicable). The shareholding structure after completion of the Capital Increase is set forth below:

Shareholder Name	Amount of shares held by each shareholder (Unit: Share)	Shareholding Percentage (%)
PIXELWORKS SEMICONDUCTOR TECHNOLOGY COMPANY, LLC (US)	291,125,303	78.1960
Shanghai MTM Equity Investment Fund Partnership (L.P.)	16,929,577	4.5473
Beijing E-town Changhou Display Chip Venture Capital Center (Limited Partnership)	10,786,146	2.8972
Hainan Qixin Investment Partnership (Limited Partnership)	9,281,249	2.4929
Qingdao MTM Venture Capital Partnership (L.P.)	7,524,289	2.0210
Xuan Xin Miao (Shanghai) Management Consulting Partnership (Limited Partnership)	7,336,275	1.9705
Yi Xin Ran (Shanghai) Management Consulting Partnership (Limited Partnership)	6,586,139	1.7690
Yangzhou Qizheng Equity Investment Partnership (Limited Partnership)	5,142,857	1.3814
Chunhe Hong Kong Limited	4,560,769	1.2250
Hangzhou Canaan Creative Information Technology Limited	3,762,000	1.0105
VeriSilicon Microelectronics (Shanghai) Co., Ltd	3,762,000	1.0105
Ting Xin Lan (Shanghai) Management Consulting Partnership (Limited Partnership)	2,926,609	0.7861
Jing Xin Ying (Shanghai) Management Consulting Partnership (Limited Partnership)	2,016,206	0.5415
Suzhou Saixiang Equity Investment Partnership (Limited Partnership)	562,501	0.1511
Total	372,301,920	100

2.4 Closing. After all the pre-closing conditions under Article 2.7 under this Agreement are fully met or waived, every Capital Contributor shall pay all the Subscription Price to the designated bank account by the Target Company respectively (“**Closing**”). The payment obligations of the Capital Contributors under this Agreement are separate and non-joint. The Target Company shall, on the second working day after each Capital Contributor performs its settlement obligations, deliver to each Capital Contributor the paid in capital contribution certificate and the register of

shareholders confirming that each Capital Contributor has completed its paid in capital contribution obligations, and affix the official seal of the Target Company.

Within five (5) working days after the Closing, the Target Company shall file the change of registration and filing with local administration (SAMR) and commission of commerce for this Capital Increase (including the registered capital, shareholder, equity ratio and and the amendment of the articles of association in SAMR and the corresponding filing with the commission of commerce). The Target Company shall, within five (5) working days after completing the change of the registration and receiving the updated business license, deliver a copy of the updated business license stamped with the official seal of the Target Company to the Capital Contributors.

2.5 Account to receive payment. The account information for the Target Company to receive the Subscription Price from the Capital Contributors under this Agreement shall be informed by the Target Company at least five (5) working days before the Closing.

2.6 Good faith cooperation. The Target Group and the Founding Shareholder undertake that from the execution of this Agreement till the Closing, they shall collaborate with the Capital Contributors in good faith to facilitate the completion of the Capital Increase, and:

- (1) *To operate normal business:* the Target Group shall maintain its business in its normal course of business in a manner consistent with applicable laws, and ordinary and prudent course of business and make a reasonable effort: (1) to maintain the integrity of the business organization, (2) to maintain the relationship with third parties (including suppliers, customers, etc.), (3) to maintain the labor relationship with the Core Staff, (4) to maintain the current conditions of all the assets and property owned or used by the Target Group (except for normal operation and loss), and (5) to maintain and update the registered Intellectual Property;
- (2) *To provide reasonable materials:* during normal working hours, the Target Company shall provide materials concerning the Target Group reasonably requested by Capital Contributors and its representatives, including but not limited to provision of the Target Group's accounts, contracts, technical information, personnel information, management information and other documents to the attorneys, accountants and other representatives appointed by the Capital Contributors.
- (3) *To maintain timely communication:* the Target Company shall inform the Capital Contributors in writing immediately but in no event later than three (3) working days after the occurrence of any of the following events and discuss with the Capital Contributors the impact on the Target Group of such event to facilitate the stabilized operation of the Target Group:
 - (A) the Target Group believes a change in the capital, finance, assets, liabilities, business, prospects or operational aspects is likely or is reasonably expected to result in a Material Adverse Effect;

- (B) Any matters that may cause the Target Group or Founding Shareholder to materially breach any representations, statements and warranties or other provisions under this Agreement.
- (C) the Target Group enters into an agreement involving the supply, sale and research and development of products that contains terms that are beyond the scope of normal negotiation based on common business judgment and are extremely unfair without reasonable commercial cause for interpretation;
- (D) the failure of any Governmental Approval for every entity of the Target Group (if applicable).

2.7

Prerequisite for Closing. After this agreement is executed and the following conditions are fully met or Capital Contributor has waived in writing (no joint exemption is required and the effect is limited to the exempt party), each party shall make the Closing of capital increase in accordance with the provisions of this agreement:

- (1) The Target Company has submitted to the Capital Contributors the following:
 - (A) the resolution of the shareholders' meeting signed by all Existing Shareholders of the Target Company and the board of directors' resolution signed by the existing board of directors of the Target Company regarding the Capital Increase () (including approval of the amendment of the articles of association of the Target Company for this Capital Increase).
 - (B) Pixelworks, Inc. (“**PXLW**”), the owner of the Founding Shareholder, has passed board resolution approving the Capital Increase.
 - (C) and all Governmental Approvals to be obtained by the Target Company or other permits, authorizations or consents from third parties and that should be obtained regarding the Capital Increase, with the implementations of announcements and legal procedures (Except for the industrial and commercial changes that need to be handled as a result of this capital increase and filing or approval from State Administration for Market Regulation (SAMR), the Commission Commerce, Administration of Foreign Exchange and/or the Banks).
- (2) The Existing Shareholders expressly waive the preemptive right and all other similar rights entitled according to the law or the contracts (such waivers can be made including in the foregoing resolution of the shareholders' meeting);
- (3) The Capital Contributors have completed due diligence on the Target Group in terms of law, finance, management, technology, Intellectual Property rights and licenses, and expressed satisfaction with the results;
- (4) The representations and warranties of Target Company and the Existing Shareholders under this Agreement were true, integrated and correct at the time they were made and remain true, integrated and

correct to the date of payment of the capital increase by the Capital Contributors.

- (5) There are no changes which will have Material Adverse Effect.
- (6) There are no claims against the Target Group or Founding Shareholder, or claims that have arisen or are known to be likely to arise with respect to the Target Group or Founding Shareholder, and which are intended to limit the transactions under this Agreement, or to materially alter the terms or conditions of this Agreement, or which may render the consummation of the transactions under this Agreement unattainable or unlawful to proceed, or which may have a Material Adverse Effect on the Target Group.
- (7) No Government Authorities have made, issued, promulgated, enforced or passed any law or governmental orders that would render the transactions under this Agreement unlawful or restrict or prohibit the transactions under this Agreement.

- 2.8** Closing day. No later than the fifth working day after all the Closing preconditions listed in Article 2.7 of this Agreement are met or be waived.
- 2.9** Document Format. The Target Company make covenants that all documents submitted by the Target Group for the completion of pre-closing conditions to the Capital Contributors must be provided with originals stamped with the cross-page seal by the Target Company if they are agreements.
- 2.10** Commitments after the closing. The Target Company and the Founding Shareholder agree to complete the following after the Closing : No Governmental Authorities have made, issued, promulgated, enforced or passed any law or governmental orders that would render transactions under this Agreement unlawful or restrict or prohibit the transactions under this Agreement.

3. SPECIAL RIGHTS FOR THE CAPITAL CONTRIBUTORS

- 3.1** Right to know financial information. After the closing date, during the period when Capital Contributors hold the equity of the Target Company, the Target Company shall provide the Capital Contributors with the financial information required by the Capital Contributors within a reasonable range.
- 3.2** Right to request for return of the change of Target Company. After the completion of this Closing, in the event of a change in control of Target Company that closes prior to Target Company filing an application for a Qualified Listing (the "Listing Application"), each Capital Contributor would be entitled to a minimum return of 10% on the amount paid for the shares it purchased through this transaction, payable in cash by the Founding Shareholder from the proceeds of the change in control following the closing of that transaction. If the return on the change in control is 10% or more, this right would not apply.
- 3.3** Article 3.1, Article 3.2 hereof and other special rights of the shareholders under this Agreement and its related documents (if any) shall terminate automatically as from the filing date of the Target Company's Listing Application. No notice or consent of either party is required for such

termination. Such termination is irrevocable and irrecoverable, and there is no conditional termination, nor is there any provision for restoring the effectiveness or such similar arrangement.

4. REPRESENTATIONS, WARRANTIES AND UNDERTAKINGS

4.1 Representations and warranties of each Party. Each Party of this Agreement shall undertake to other Parties severally and not jointly that, as of the date of this Agreement:

- (1) Such Party is an entity duly incorporated, validly existing and in good standing under the applicable laws of the jurisdiction of such entity;
- (2) Under applicable pertinent Laws, such Party possesses all the power, authorization and approval necessary to enter into this Agreement and to perform every obligation under this Agreement, including all the internal resolutions and authorization, and such Party has obtained (or does not need to obtain) all the external approvals, registration, assessment, filings, consent and notification from relevant government authorities, regulatory authorities, financial institutions, or other types of third parties required by the Laws or contracts, including but not limited to state-owned assets, financial regulatory, foreign investment approvals and so forth;
- (3) The representative of such Party signing this Agreement is duly authorized to sign this Agreement and this Agreement shall constitute a legal, effective, binding and enforceable obligation of such Party under the terms of this Agreement upon execution of this Agreement;
- (4) As of the date of this Agreement, all the Existing Shareholders have fully paid their subscribed registered capital and made full payment of the price to subscribe such registered capital.

4.2 Representations and warranties of the Target Group. In addition to the representations and warranties set forth in Article 4.1 of this Agreement, the Target Group represent and warrant to Capital Contributors that (except for the exceptions set forth in relevant representations and warranties, and facts that do not cause a Material Adverse Effect), as of the date of this Agreement:

- (1) The Target Group is a company duly incorporated and validly existing under the laws of its place of incorporation and possesses all the Governmental Approvals necessary to carry out the current business (only limited to those applied in the name of the Target Group) which have full effect. In the meantime, the Target Group has not violated such Governmental Approvals in all material aspects and has the full corporate rights and authorization necessary to carry out its ongoing Main Business.
- (2) For this Capital Increase, the Target Group has obtained all applicable government approvals, approvals and consents (including the registration jurisdictions of the entities within the group), and abides by the articles of association and relevant laws and regulations of their respective registration jurisdictions.

- (3) All the information or data provided to the Capital Contributors for the determination of the Capital Increase is true, correct and accurate and is not misleading in all the substantial and material aspects and does not have any material omission.
- (4) The Target Group does not have any irregular adjustment of sale and expense policies to inflate sale and profits.
- (5) The Core Staff have no significant personal integrity issues.
- (6) The Target Company has not (a) seriously violated the provisions of the law, (b) seriously violated the approval of relevant government authorities, (c) violated the provisions of its articles of association, or (d) failed to perform or abide by any important obligation, agreement, commitment or condition in any contract to which it is a party or binding on it or any of its properties. The Target Company has not received any notice of such breach, violation or omission.
- (7) Unless the Existing Shareholders and the Capital Contributors reach an agreement, prior to completion of the registration of the Capital Increase with local administration, the Target Group shall not allocate undistributed profits. Such undistributed profits shall be shared by all the shareholders of the Target Company according to the shareholding percentage of the Target Company based on the capital then held and actually paid up after completion of the registration of the Capital Increase with local administration.
- (8) The Target Group has the legal ownership and/or rights to use any main non-fixed assets, fixed assets, Intellectual Property Rights or other intangible assets owned, held or used by the Target Group (“**Company Assets**”). The Target Group has all necessary Company Assets for Main Business and there are no mortgage, pledge, or other security rights on any such Company Assets. The following has not occurred to the Company Assets: (i) any trust or similar arrangement of any Company Assets, or (ii) seizure, detention, freezing or compulsory transfer measures taken by any judicial or administrative department, or (iii) any major conditions likely to affect the rights and interests of the Target Group on the Company Assets or major conditions that result in any third party to directly or indirectly obtain rights and interests of any Company Assets, except for events in the normal course of operation of the Target Group.
- (9) The patents, trademarks, service marks, trade names, copyrights, software rights, domain names, know-how, design rights and invention, licenses and other Intellectual Property Rights owned or used by the Target Group are in compliance with the provisions of the Chinese Laws or the applicable countries’ Laws. The Target Group has been diligent in maintaining the effect of the Intellectual Property Rights owned by the Target Group.
- (10) The provisions of this Agreement for this Capital Increase do not violate the articles of association or other forms of corporate documents of the Target Group or the Laws applicable to the Target Group. The provisions of this Agreement do not release any third party’s obligations or grant any rights to any third party (including any right of termination, priority or other options), except as otherwise set forth in this Agreement.

- (11) All of the Material Contracts are valid, subsisting, in full force and effect and binding upon the Target Company. The Target Company is not in default or breach under any of the Material Contracts. The Target Company has not received from any other party any written notice regarding a violation or breach of, or default under, or intention to early terminate, any Material Contract. Consummation of the transactions contemplated by this Agreement will not (and will not give any other party a right to) terminate or modify any rights of, or accelerate or augment any obligation of, any company of the Target Group under any Material Contract, or any warranty or other limitation of rights arising therefrom.
- (12) The Target Group does not have outstanding liabilities and legal obligations that may seriously affect the contemplated transaction under the terms and conditions of this Agreement.
- (13) The Target Group does not have any material or contingent liabilities that are not disclosed to the Capital Contributors, including but not limited to provision of any forms of warranty or guarantees by the Target Group to any entity and natural person.
- (14) The principal financial system, books, management, use of voucher and invoice as well as tax reporting and withholding and prepayment of the Target Group are in compliance with applicable financial and tax Laws and regulations. There is no public investigation or penalty due to tax arrears, delay in tax payment, tax evasion, tax fraud or other breach of tax Laws and regulations. The Target Company has the internal financial system which ensures that: (a) any transaction conducted is based on general or special authorization of management; (b) any transaction shall be recorded based on Chinese Generally Accepted Accounting Principles to prepare financial statements; (c) obtaining assets based on general or special authorization of management; (d) the Target Company shall reasonably compare the bookkeeping assets with the existing assets on a regular basis and make appropriate adjustments to the difference; and (e) the Target Company shall prepare and keep books of account, records and accounts, and the content of those can accurately and fairly reflect the transactions and disposal of the assets.
- (15) There are no significant liabilities, debts or unpaid fees or tax of the Target Company due to materially breach of the Chinese Law on labor and employment (including but not limited to labor contract, salary, working time, social insurance, housing fund contributions).
- (16) The Target Group has not been subject to a public investigation and penalty by any government environmental departments for environmental violations. There is no actual or expected liability, obligation or duty against the Target Group for its violation of environmental Laws or under environmental Laws that results in ongoing claims, legal actions or litigation or investigation.
- (17) The Target Group has not bribed a counterpart entity or individual for sale or purchase of goods by means of property or otherwise, or provided any property or other benefit to Government Authorities and government officials to influence the Government Authorities' decisions. The Target Group has not been subject to a public

investigation and penalty by any judicial departments for violation of anti-commercial bribery Laws and regulations.

- (18) The Target Company has signed labor contracts with all its employees; all the Core Staff has signed confidentiality agreements, Intellectual Property protection agreements. No Core Staff hold posts or shares in entities that compete with the Main Business of the Target Company.
- (19) There is no ongoing litigation, administrative penalty, administrative reconsideration, appeals and other legal procedures instituted by or against the Target Group or related to the Target Group. There is no undisclosed legal liability or obligation that the Target Group is subject to but has not fulfilled based on the judgments, awards or decisions rendered by the court, arbitration agency or other judicial and administrative departments.

From the date of signing of this agreement to the closing date, except for the implementation of the Capital Increase, the Target Company will not take any of the following actions:

- (A) To terminate operation of the current business or alter any part of the current business of the Target Company;
 - (B) Selling or disposing of all or most of the intangible assets or assets of the Target Company; through any incentive plan or granting any options for capital increase, capital reduction, equity changes (except for matters that meet the preconditions for delivery under this agreement), the Target Company attracts any investment other than this Capital Increase or obtain any investment commitment to change the form of the Target Company;
 - (C) To create or permit the generation or issuance of any debts or burden of rights that constitute guaranty, lien, mortgages or other encumbrances to all or any reputation, assets or rights of the Target Company, except as may be necessary to conduct the Main Business;
 - (D) To sale, transfer, license, mortgage, set any encumbrance or dispose any trademarks, patents, copyrights or other intellectual properties of the Target Company in other ways, except as may be necessary to conduct the Main Business;
 - (E) To approve the transfer of the Target Company except for fulfilling this Agreement; to transfer any direct or indirect interest of the Target Company except for the purpose of its daily operation.
- (20) Based on the reasonable judgment of the Target Group, the documents, statements and information likely to have a significant impact on the ability of the Capital Contributors to fully perform the obligations under this Agreement or the willingness of the Capital Contributors to conclude this Agreement has been fully disclosed to the Capital Contributors. All the documents, statements and information regarding the Capital Increase and the Main Business of the Target Company provided by the Target Company to the Capital Contributors or its attorneys, accountants and other representatives

are true, accurate, complete and not misleading in all material aspects.

4.3 Timely notice. The Target Company undertakes that, if they become aware of any circumstance that renders any representation and warranty under the above paragraph 4.2 converted into untrue, inaccurate or misleading in any material aspects, they shall immediately notify the Capital Contributors in writing.

4.4 Undertakings of the Target Group. The Target Group undertakes to the Capital Contributors that after Closing (except for circumstance unlikely to cause a Material Adverse Effect):

- (1) The Target Group shall make its best effort to obtain all the environmental approvals required under all the environmental protection Laws, regulations, ordinances and rules (including but not limited to the environmental impact assessment, environmental completion acceptance and all the pollutant discharge permit of any construction projects), and shall comply with such environmental permits and all the requirements of the environmental protection Laws, regulations, ordinances and rules.
- (2) The patents, trademarks, service marks, trade names, copyrights, software rights, domain names, know-how, design rights and invention, license and other Intellectual Property Rights owned or used by the Target Group in the future shall conform to the Chinese Laws or the applicable countries Laws.
- (3) Except for being waived by **Capital Contributors** and until the date of the Qualified Listing, within two (2) years after the end of holding equities in the Target Company, the Founding Shareholder shall not: (a) own or manage a controlling interest in any business that is competitive with the Main Business of the Target Company ("**Competitive Business**"); (b) Own, manage, control, and invest in competitive businesses ; (c) induce, persuade, or solicit any customers to terminate the service relationship with the Target Company; or (d) assist others to conduct any of the above events. The scope of the above Competitive Business shall be adjusted in accordance with the adjustment of the future Main Business of the Target Company. The foregoing restrictions do not apply after the Qualified Listing.
- (4) Target Company operates legally and compliantly after the closing date, and abides by taxation, finance, social security, labor, and other relevant applicable laws and regulations.

4.5 Representations and warranties of the Capital Contributors. Each of the Capital Contributors separately and not jointly undertakes to the Founding Shareholder and the Target Group which is not joint and several that:

- (1) The Capital Contributor has completed the equity investment fund registration (if necessary) before the Target Company applies for a Qualified Listing in the manner as required by applicable Chinese Laws or regulatory authorities. If the ultimate beneficial owner of the Capital Contributor fails to complete the equity investment fund registration (if necessary) to the result that the process of the Qualified Listing of the Target Company is affected, the Capital Contributor shall take all the remedial measures to promptly

complete the registration to eliminate the obstacle of the qualified Qualified Listing of the Target Group resulting therefrom.

- (2) The Capital Contributors or its partners, shareholders or all of its ultimate investors are not civil servants or other persons prohibited or restricted from investment under the Chinese Laws, regulations, ordinances or policies; The Capital Contributors or its partners, shareholders, or every level of its retrospective penetrating subjects comply with the Laws and regulations as well as the regulations of the securities exchange commission concerning the shareholders of a Pre-IPO enterprise.
- (3) The Capital Increase by the Capital Contributors into the Target Company complies with the Chinese relevant laws, regulations, ordinances and policies. The Capital Contributors are not affiliated with the staff of the agencies for the IPO of the Target Company and does not have any other contractual arrangement concerning the investment of the Target Company.
- (4) After the Capital Contributors invest in the Target Company, during the preparation of the IPO in the domestic securities market of the Target Company, the Target Company is entitled to carry out legal, financial and operational due diligence towards the Capital Contributors within the necessary scope according to the requirements of the relevant laws. The Capital Contributors shall provide a complete set of relevant valid materials within a reasonable period of time as requested by the Target Company. If, based on relevant Laws and regulations of the securities exchange commission, there is a significant obstacle or a Material Adverse Effect posed to the IPO of the Target Company due to the Capital Contributors' reasons (including but not limited to existence of contractual private equity funds, asset management plans or trust schemes among the Capital Contributors or their partners, shareholders, or every level of its retrospective penetrating subjects), the Capital Contributors shall eliminate such obstacle or negative impact within the time period reasonably proposed by the agencies in the IPO project of the Target Company. In the event that the Capital Contributor(s) fails to eliminate such obstacle or negative impact within the foregoing reasonable period, the Capital Contributor(s) undertakes to transfer the equities of the Target Company held by itself to a qualified third party meeting the IPO requirements of the Target Company within the time period reasonably proposed by the agencies in the IPO project of the Target Company.
- (5) The Capital Contributors shall strictly enforce any warranty and representation under Article 4.5. In the event of violation of any warranty and representation which results in any losses suffered by the Target Company, the Capital Contributors shall compensate and hold the Target Company harmless, and such compensation shall restore the Target Company to a state where relevant warranty or representation is not breached.

5. CONFIDENTIALITY AND EXCLUSIVITY

5.1 Scope of confidentiality. The terms and details relevant to this Agreement and its appendix (including all the provisions such as the existence of this

Agreement and any relevant Transaction Documents) are confidential information which each party of this Agreement shall not disclose to any third party, except as otherwise provided.

- 5.2 Confidentiality obligations. Each Party shall strictly keep confidential of any proprietary or private or confidential data and materials (i) concerning the Target Group and the Main Business, or (ii) belonging to other parties, or (iii) disclosed to it by other Parties at any time or disclosed to it for the negotiation of this Agreement or for the establishment or operation of the company and relevant information of this Agreement (“**Confidential Information**”), and shall not disclose such Confidential Information to any third parties or persons other than each Party of this Agreement, the Target Group, professional advisers and relevant Government Authorities . In particular, PXLW, as a U.S. listed company is, not subject to Article 5.2 if it is required to disclose to the public this agreement or the relevant information of this capital increase transaction under the U.S. federal or Oregon state laws and regulations within a reasonable and necessary range.
- 5.3 Permitted disclosure. Notwithstanding the foregoing, each Party is entitled to disclose the Capital Increase transaction and its Transaction Documents within a reasonable and necessary scope to its affiliates, shareholders, current and potential investor, senior management or employee, provided that the person or agency that becomes aware of the information has agreed to keep the Confidential Information confidential and the disclosing party assumes and undertake joint and several liability for the confidential obligation of the information receiving party.
- 5.4 Exceptions. The information disclosed in the following circumstances is not subject to the foregoing restrictions:
- (1) Disclosure or use required by the Chinese Laws or any regulatory authorities;
 - (2) Disclosure or use mandated by any judicial proceeding arising from this Agreement or any other agreements made under this Agreement or reasonable disclosure of relevant matters to tax authorities;
 - (3) Disclosure to professional advisers of each Party. However, each Party shall require such professional advisers to comply with this provision relating to such Confidential Information as if they were a party to this Agreement;
 - (4) The information has become public without any breach of confidentiality obligations;
 - (5) The information has been approved to be disclosed or used in writing by all the other Parties of this Agreement.

If the Confidential Information is disclosed for the reasons set forth in the above paragraphs (1) and (2), the disclosing party shall discuss with other parties for the disclosure and submission of relevant information in a reasonable period of time before the disclosure or submission of the information, and shall require the receiving party to keep confidential of the disclosed or submitted information under such circumstances to the extent possible.

6. FORCE MAJEURE

- 6.1 Force majeure. In the event of a pandemic, earthquake, war, any act or omission of the government, government injunction or an incident that cannot be foreseen, prevented, avoided, controlled by other Parties to this Agreement such that the Parties cannot perform this Agreement, the affected party may be exempted from its liabilities if it has exercised reasonable and prudent duty of care; if this Agreement cannot be performed/continue to be performed due to a force majeure event, the affected party shall take reasonable measures to eliminate and prevent further expansion of losses.

7. LIABILITY FOR BREACH OF THE AGREEMENT

- 7.1 Liability for breach of the Target Group. The Target Group agrees with regard to the following matters, the Target Group shall indemnify, defend, and hold the Capital Contributors harmless from, any economic damage, loss, claim, litigation, payment request, judgment, settlement, taxation, interest and expense (including but not limited to reasonable attorney's fees) (however, any loss of proceeds or expected proceeds of the Capital Increase and loss or expected losses of the Capital Increase is expressly excluded) suffered or incurred by the Capital Contributors, or brought by a third party against and suffered or incurred by the Capital Contributors or their Related Parties, directors, partners, shareholders, employees, agents and representatives ("**Indemnified Persons**") (The foregoing claims by a third party shall be confirmed by an effective judicial judgment, and the Target Group shall be provided with a written notice in advance with a reasonable period of time so that the Target Group has an opportunity to effectively participate in any such judicial proceeding to state the opinions, provide evidence and response. Further, any damages determined by mediations, settlements and other non-mandatory awards shall have been approved by the Target Group in writing before mediations and settlements):

The Target Group breaches any representation, warranty, undertaking, covenant or obligation under this Agreement (except for cases those are not considered as violations according to the relevant provisions).

If the Target Group materially breaches the relevant representations, warranties, covenants, undertakings or obligations under this Agreement, the Capital Contributors shall have the right to pursue the Target Group for breach of contract as stipulated in Article 7.1 of this Agreement.

- 7.2 Costs for protection of rights. Each Party agrees that, in the event that a non-breaching party pursues a breach of contract against the breaching party due to breach of this Agreement by the breaching party, such non-breaching party shall be entitled to require the breaching party to compensate the costs incurred by the non-breaching party for protection of rights to pursue breaching liabilities, including but not limited to reasonable attorney's fees, notary fees, appraisal fees, and assessment fees and so forth.

8. EFFECTIVENESS, SUPPLEMENT, AMENDMENT AND TERMINATION OF THE AGREEMENT

8.1 Effectiveness, supplement and amendment. This Agreement shall take effect upon signing (in case of a natural person) and stamping (where it is not a natural person) of the Parties of this Agreement. The appendix of this Agreement shall be an integral part of this Agreement and shall supplement this Agreement with equal legal effect. Where the appendix of this Agreement is in conflict with the text of this Agreement, the text of this Agreement shall prevail and shall be amended accordingly. This Agreement may be amended or changed after the Parties to this Agreement reach consensus. Any amendment or change shall be made in writing and shall be signed (in case of a natural person) and stamped (where it is not a natural person) of the Parties of this Agreement.

8.2 Termination. This Agreement shall be terminated in the following manner (for the avoidance of doubt, each Party agrees that, regardless of the provisions of the Laws or contract, this Agreement shall not be terminated for any other reasons):

- (1) The Parties to this Agreement shall mutually terminate in a written agreement and determine the effective date of termination;
- (2) In the event that the Founding Shareholder and/or the Target Group is in serious breach of the representations, warranties, covenants, undertakings and obligations under this Agreement which results in a Material Adverse Effect and renders the purpose of entering into this Agreement by the Capital Contributor impossible, and if the Founding Shareholder and/or the Target Group fails to take effective remedial measures within thirty (30) Working Days from the receipt of the remedial notice from the Capital Contributor, the Capital Contributor is entitled to notify all the other Parties in writing to terminate this Agreement and shall specify the effective date of termination in such written notice (such date shall not be earlier than ten (10) Working Days from the date when such notice is sent);
- (3) This Agreement is terminated by the parties with a termination right in accordance with the conditions and procedures set forth in Article 8.2.

8.3 Effect of termination. In the event that this Agreement is terminated in accordance with the foregoing Article 8.2(1), except as otherwise stipulated by all the Parties at that time, each Party of this Agreement shall return the consideration under this Agreement received from the other Parties based on the principles of fairness, reasonableness, and honesty and restore to a state at the point of execution of this Agreement to the extent possible.

In the event that this Agreement is terminated according to Article 8.2(2) under this Agreement, the Founding Shareholder shall pay the compensation. The compensation shall be the actual loss that can be proved by the Capital Contributor.

9. APPLICABLE LAW AND DISPUTE RESOLUTION

9.1 Applicable Law. The conclusion, validity, interpretation, performance and dispute resolution of this Agreement shall be governed by and construed in accordance with the Chinese Laws. However, if the published Chinese Laws do not address specific matters related to this Agreement, reference shall be made to the common international business practice to the extent permitted by the Chinese Laws.

- 9.2** Arbitration clause. All disputes arising from or in connection with the performance of this Agreement shall be settled through friendly consultation. If any dispute cannot be resolved within fifteen (15) days, any party may submit such dispute to the Shanghai International Economic and Trade Arbitration Commission for arbitration in accordance with the arbitration rules of the Commission then effective. The arbitral tribunal consists of three (3) arbitrators appointed in accordance with the arbitration rules. The applicant shall appoint one arbitrator and the respondent shall appoint one arbitrator. The third arbitrator shall be appointed by the aforesaid two arbitrators or designated by the Shanghai International Economic and Trade Arbitration Commission. The arbitration language is Chinese. The arbitral award is final and binding on all the Parties.
- 9.3** Continuance of performance. During the dispute resolution, each Party shall continue to enjoy other respective rights under this Agreement and continue to perform relevant obligations under this Agreement.

10. MISCELLANEOUS

- 10.1** Adjustment of law. After this Agreement takes effect, if new Laws, regulations, or ordinances are promulgated or the current Laws, regulations, or ordinances are amended or interpreted such that the economic interest of any Party or any plan set forth in this Agreement is affected by the Material Adverse Effect, each Party shall enter into negotiation immediately and make the best effort to maintain the economic interest that each Party is entitled to under this Agreement, or shall continue to make adjustment necessary to enforce the affected plans, such adjustment shall not be less than the interest each Party is entitled to or the plan to be executed before such Laws, regulations and ordinances are promulgated, amended or interpreted.
- 10.2** Transfer of this Agreement. Any Party shall not transfer the rights and/or obligations under this Agreement without other Parties' prior written consent. This Agreement shall be binding on each Party of this Agreement, its respective successors and permitted assigns and the benefit shall inure to all such Parties.
- 10.3** Severally but not jointly. Each Capital Contributor shall have separate rights and obligations with respect to this Agreement, and the obligations and liabilities of each Capital Contributor under this Agreement shall be separate and not joint and several, and each Capital Contributor shall not be deemed to form a joint venture or other affiliated relationship by reason of the execution and performance of this Agreement. Any waiver by any of the Capital Contributor of its rights or the release or termination of this Agreement shall be effective only to the extent of such party's rights and obligations and shall not constitute a waiver by the other Capital Contributors of their rights or a release or termination of this Agreement.
- 10.4** Severability. If one or more provisions of this Agreement are declared to be invalid, non-binding or unenforceable, the remaining provisions of this Agreement shall remain in full force and shall be interpreted as closely as possible to the original language of such invalid, non-binding or unenforceable provisions.
- 10.5** Costs and expenses. Costs, expenses and taxes incurred to the Capital Contributors, the Founding Shareholder, the Target Group and other

parties for the Capital Increase shall be borne by each of them respectively.

- 10.6** Title. The headings and titles in this Agreement are provided for convenience only and shall not affect the meaning and interpretation of any terms of this Agreement.
- 10.7** Notice. All the notices or other communication under this Agreement shall be in writing and delivered to the address, telephone number, or e-mail below of the following Parties, or the address, telephone number, or e-mail with prior written notice seven (7) days in advance to relevant Parties.

The Founding Shareholder: PIXELWORKS SEMICONDUCTOR TECHNOLOGY COMPANY, LLC
Address: 16760 SW Upper Boones Ferry Road, Suite 101, Portland, Oregon, 97229, USA.
Contact person: [*]
E-mail: [*]

Target Company: Pixelworks Semiconductor Technology (Shanghai) Co., Ltd.
Address: 17 Floor No.1 Sandhill Plaza 2290 Zuchongzhi Road, Pudong New District, Shanghai, China
Contact person: [*]
Telephone: [*]
E-mail: [*]

Capital Contributor I : Beijing E-town Changhou Display Chip Venture Capital Center (Limited Partnership)
Address: Room D1205 of CATIC Plaza, Beijing BDA Ronghua Road No.15
Contact person: [*]
Telephone: [*]
E-mail: [*]

Capital Contributor II : Yangzhou Qizheng Equity Investment Partnership (Limited Partnership)
Address: Room 2407, Building A, Greenland Center, Jinye Road, Yanta District, Xi'an, Shaanxi
Contact person: [*]
Telephone: [*]
E-mail: [*]

Capital Contributor III : Jing Xin Ying (Shanghai) Management Consulting Partnership (Limited Partnership)
Address: Building C, No. 888, Huanhu West 2nd Road, Lin-gang Special Area of China (Shanghai) Pilot Free Trade Zone
Contact person: [*]
E-mail: [*]

- 10.8** Entire Agreement. This Agreement is the ultimate expression of the agreement of all the Parties and is the complete and exclusive representation of the agreement and understanding of the contemplated transaction of all the Parties in this Agreement. This Agreement supersedes any prior negotiation, agreement and understanding (whether written or oral) regarding the Capital Increase among the Parties. In the event that the provisions concerning the Capital Increase in the

Transaction Documents submitted to the registration authorities in the process of the Capital Increase (including but not limited to all types of application documents with respect to the Capital Increase such as the Articles of amendment of the Target Company and the 'resolution of the shareholders' meeting of the Target Company, whether such documents have been attached to this Agreement) are different from the provisions of this Agreement, each Party acknowledges to follow the provisions of this Agreement.

10.9 Counterpart. This Agreement is made in **【18】** copies, and Each Party of Capital Contributors and Existing Shareholders holds 1 copy and the Target Group holds the remaining copies. This Agreement shall be made in both Chinese and English. In the case of any discrepancy between the versions of these two languages, the Chinese version shall prevail.

[REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK. SIGNATURE PAGE TO FOLLOW]

Appendix Name list of Core Staffs

[*]

Investors	Investment (RMB)	Share Percentage
Yangzhou Qizheng Equity Investment Partnership (Limited Partnership)	50,000,000	1.381%
Beijing Yi Tang Chang Hou Display Chip Venture Capital Center (Limited Partnership)	50,000,000	1.381%
*Jing Xin Ying (Shanghai) Management Consulting Partnership (Limited Partnership)	9,800,000	0.541%

**Employee "ESOP" Fund*

Subsidiaries of Pixelworks, Inc.

Equator Technologies, Inc. — a Delaware corporation

Pixelworks Semiconductor Technology (Shanghai) Co. Ltd. — a China company

Pixelworks Japan Inc. — a Japan company

Pixelworks Semiconductor Technology (Taiwan) Inc. — a Taiwan company

Pixelworks Semiconductor Technology (Shanghai) Co. Ltd. Shenzhen Branch Office No. 1 – a China company

Pixelworks Hong Kong Limited (Hong Kong) – a Hong Kong company

Pixelworks Semiconductor Technology California LLC (California) – a California company

ViXS Systems Inc. dba Pixelworks Canada (Canada) – a Canadian company

Mucheng Huai Management Consulting (Shanghai) Co., Ltd – A China company

Pixelworks Taiwan LLC - an Oregon company

Pixelworks Semiconductor Technology Company, LLC - an Oregon company

Consent of Independent Registered Public Accounting Firm

We hereby consent to the incorporation by reference in the Registration Statements on Form S-8 (Nos. 333-256606, 333-239466, 333-233210, 333-227352, 333-219418, 333-212650, 333-205856, 333-197644, 333-190037, 333-182701, 333-168175, 333-161125, 333-152945, 333-136553 and 333-265686) and Form S-3 (No. 333-249934) of Pixelworks, Inc. and subsidiaries of our report dated March 8, 2023 relating to the consolidated financial statements appearing in this Form 10-K for the year ended December 31, 2022.

/s/ Armanino LLP

San Ramon, California
March 8, 2023

CERTIFICATION

I, Todd A. DeBonis, certify that:

1. I have reviewed this annual report on Form 10-K of Pixelworks, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 8, 2023

By: /s/ Todd A. DeBonis
Todd A. DeBonis
President and Chief Executive Officer
(Principal Executive Officer)

CERTIFICATION

I, Haley F. Aman, certify that:

1. I have reviewed this annual report on Form 10-K of Pixelworks, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 8, 2023

By: /s/ Haley F. Aman

Haley F. Aman
Chief Financial Officer (Principal Financial Officer)

