

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

FORM 10-Q

(Mark One)

QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the quarterly period ended September 30, 2017
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)

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

**224 Airport Parkway, Suite 400
San Jose, California**
(Address of principal executive offices)

95110
(Zip Code)

(408) 200-9200
(Registrant's telephone number, including area code)

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 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 and posted on its corporate Web site, if any, 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 and post such files). Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the 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	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/> (Do not check if a smaller reporting company)	Smaller reporting company	<input checked="" type="checkbox"/>
Emerging growth company	<input type="checkbox"/>		

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 is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes No

Number of shares of Common Stock, par value \$0.001 per share, outstanding as of November 10, 2017: 34,251,900.

PIXELWORKS, INC.
FORM 10-Q
FOR THE QUARTERLY PERIOD ENDED SEPTEMBER 30, 2017
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PART I – FINANCIAL INFORMATION

Item 1. Financial Statements.

PIXELWORKS, INC.
CONDENSED CONSOLIDATED BALANCE SHEETS
(In thousands)
(Unaudited)

	September 30, 2017	December 31, 2016
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 26,329	\$ 19,622
Accounts receivable, net	5,084	3,118
Inventories	5,058	2,803
Prepaid expenses and other current assets	2,191	736
Total current assets	38,662	26,279
Property and equipment, net	6,271	3,793
Other assets, net	1,111	785
Acquired intangible assets, net	6,414	—
Goodwill	18,021	—
Total assets	\$ 70,479	\$ 30,857
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	\$ 2,611	\$ 1,734
Accrued liabilities and current portion of long-term liabilities	16,199	7,860
Current portion of income taxes payable	763	140
Total current liabilities	19,573	9,734
Long-term liabilities, net of current portion	2,227	194
Convertible debt	5,761	—
Income taxes payable, net of current portion	2,223	1,880
Total liabilities	29,784	11,808
Commitments and contingencies (Note 13)		
Shareholders' equity:		
Preferred stock	—	—
Common stock	416,607	394,296
Accumulated other comprehensive income	10	10
Accumulated deficit	(375,922)	(375,257)
Total shareholders' equity	40,695	19,049
Total liabilities and shareholders' equity	\$ 70,479	\$ 30,857

See accompanying notes to condensed consolidated financial statements.

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

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
Revenue, net (1)	\$ 18,758	\$ 13,656	\$ 62,189	\$ 37,403
Cost of revenue (2)	9,747	7,099	29,585	20,839
Gross profit	9,011	6,557	32,604	16,564
Operating expenses:				
Research and development (3)	5,325	4,442	14,732	14,621
Selling, general and administrative (4)	6,583	3,072	15,382	10,117
Restructuring	1,481	3	1,481	2,608
Total operating expenses	13,389	7,517	31,595	27,346
Income (loss) from operations	(4,378)	(960)	1,009	(10,782)
Interest expense and other, net (5)	(528)	(99)	(728)	(305)
Income (loss) before income taxes	(4,906)	(1,059)	281	(11,087)
Provision (benefit) for income taxes	(200)	183	902	357
Net loss	\$ (4,706)	\$ (1,242)	\$ (621)	\$ (11,444)
Net loss per share - basic and diluted	\$ (0.14)	\$ (0.04)	\$ (0.02)	\$ (0.41)
Weighted average shares outstanding - basic and diluted	32,552	28,313	30,545	28,139
(1) Includes deferred revenue fair value adjustment	\$ 25	\$ —	\$ 25	\$ —
(2) Includes:				
Inventory step-up and backlog amortization	1,016	—	1,016	—
Amortization of acquired intangible assets	199	—	199	—
Stock-based compensation	57	49	179	139
Restructuring	—	27	—	1,777
(3) Includes stock-based compensation	445	401	1,121	1,222
(4) Includes:				
Acquisition-related costs	1,611	—	2,505	—
Stock-based compensation	855	334	1,796	495
Amortization of acquired intangible assets	67	—	67	—
(5) Includes:				
Fair value adjustment on convertible debt conversion option	122	—	122	—
Discount accretion on convertible debt fair value	72	—	72	—

See accompanying notes to condensed consolidated financial statements.

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

	Nine Months Ended September 30,	
	2017	2016
Cash flows from operating activities:		
Net loss	\$ (621)	\$ (11,444)
Adjustments to reconcile net loss to net cash provided by (used in) operating activities:		
Stock-based compensation	3,096	1,856
Depreciation and amortization	2,714	2,638
Inventory step-up and backlog amortization	1,016	—
Amortization of acquired intangible assets	266	—
Reversal of uncertain tax positions	(191)	(170)
Fair value adjustment on convertible debt conversion option	122	—
Discount accretion on convertible debt fair value	72	—
Write off of certain assets to restructuring	—	1,744
Other	106	47
Changes in operating assets and liabilities, net of acquisition:		
Accounts receivable, net	(998)	2,093
Inventories	342	(101)
Prepaid expenses and other current and long-term assets, net	76	(40)
Accounts payable	(926)	(973)
Accrued current and long-term liabilities	4,597	(297)
Income taxes payable	1,158	85
Net cash provided by (used in) operating activities	<u>10,829</u>	<u>(4,562)</u>
Cash flows from investing activities:		
Purchases of property and equipment	(2,300)	(1,783)
Cash received in connection with acquisition of business	1,901	—
Net cash used in investing activities	<u>(399)</u>	<u>(1,783)</u>
Cash flows from financing activities:		
Payments on line of credit related to acquisition	(4,046)	(3,000)
Proceeds from issuance of common stock under employee equity incentive plans	2,196	403
Payments on convertible debt	(953)	—
Payments on asset financings	(920)	(1,069)
Net cash used in financing activities	<u>(3,723)</u>	<u>(3,666)</u>
Net increase (decrease) in cash and cash equivalents	6,707	(10,011)
Cash and cash equivalents, beginning of period	19,622	26,591
Cash and cash equivalents, end of period	<u>\$ 26,329</u>	<u>\$ 16,580</u>
Supplemental disclosure of cash flow information:		
Cash paid during the period for interest	\$ 370	\$ 107
Cash paid for income taxes, net of refunds received	284	411
Non-cash investing and financing activities:		
Value of shares issued in acquisition	\$ 16,975	\$ —
Acquisitions of property and equipment and other assets under extended payment terms	\$ 3,558	\$ —

See accompanying notes to condensed consolidated financial statements.

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

NOTE 1: BASIS OF PRESENTATION

Nature of Business

Pixelworks designs, develops and markets visual display processing semiconductors, intellectual property cores, software and custom ASIC solutions for high-quality energy efficient video applications. In addition, we offer a suite of solutions for advanced media processing as well as the efficient delivery and streaming of video.

We enable worldwide manufacturers to offer leading-edge consumer electronics and professional display products, as well as video delivery and streaming solutions for content service providers. Our core visual display processing technology intelligently processes digital images and video from a variety of sources and optimizes the content for a superior viewing experience. Pixelworks' video coding technology reduces storage requirements, significantly reduces bandwidth constraint issues and converts content between multiple formats to enable seamless delivery of video, including over-the-air (OTA) streaming, while also maintaining end-to-end content security.

The rapid growth in video-capable consumer devices, especially mobile, has increased the demand for visual display processing and video delivery technology in recent years. Our technologies can be applied to a wide range of devices from large-screen projectors to low-power mobile tablets, smartphones, high-quality video infrastructure equipment and streaming devices. Our products are architected and optimized for power, cost, bandwidth, and overall system performance, according to the requirements of the specific application. Our primary target markets include digital projection systems, tablets, smartphones, and OTA streaming devices.

As of September 30, 2017, we had an intellectual property portfolio of 535 patents related to the visual display of digital image data. 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").

Condensed Consolidated Financial Statements

The financial information included herein for the three and nine month periods ended September 30, 2017 and 2016 is prepared in accordance with U.S. generally accepted accounting principles ("U.S. GAAP") and is unaudited. Such information reflects all adjustments, consisting of normal recurring adjustments, that are, in the opinion of management, necessary for a fair presentation of the Company's condensed consolidated financial statements for these interim periods. The financial information as of December 31, 2016 is derived from our audited consolidated financial statements and notes thereto for the fiscal year ended December 31, 2016, included in Item 8 of our Annual Report on Form 10-K, filed with the Securities and Exchange Commission on March 8, 2017, and should be read in conjunction with such consolidated financial statements.

The results of operations for the three and nine month periods ended September 30, 2017 are not necessarily indicative of the results expected for future periods or for the entire fiscal year ending December 31, 2017.

Comprehensive Income (Loss)

We report comprehensive income (loss) and its components following guidance set forth by the Financial Accounting Standards Board (the "FASB"), Accounting Standards Codification section 220-10, *Comprehensive Income*, which establishes standards for the reporting and display of comprehensive income or loss and its components in the financial statements. During the three and nine month periods ended September 30, 2017 and 2016, aside from our net loss, there were no other items of comprehensive income or loss and therefore we have not included a statement of comprehensive income (loss) in our interim condensed consolidated financial statements.

Recent Accounting Pronouncements

In January 2017, the FASB issued Accounting Standards Update No. 2017-01, *Business Combinations (Topic 805): Clarifying the Definition of a Business* ("ASU 2017-01"). ASU 2017-01 clarifies the definition of a business and provides further guidance for evaluating whether a transaction will be accounted for as an acquisition of an asset or a business. ASU 2017-01 will become effective for us on January 1, 2018, with early adoption permitted. We do not expect the adoption of this update to have a material impact on our financial position, results of operations, or cash flows.

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In January 2017, the FASB issued Accounting Standards Update No. 2017-04, *Intangibles-Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment* ("ASU 2017-04"). ASU 2017-04 simplifies the subsequent measurement of goodwill by eliminating the second step from the quantitative goodwill impairment test. We will continue to have the option to perform a qualitative assessment to determine if a quantitative goodwill impairment test is necessary. ASU 2017-04 will become effective for us on January 1, 2020, with early adoption permitted. The impact of this standard on the calculation of future goodwill impairment tests will depend on the facts and circumstance existing at such time. We do not expect the adoption of this update to have a material impact on our financial position, results of operations, or cash flows.

In March 2016, the FASB issued Accounting Standards Update No. 2016-09, *Compensation - Stock Compensation (Topic 718): Improvements to Employee Shared-Based Payment Accounting* ("ASU 2016-09"). ASU 2016-09 simplifies how several aspects of share-based payments are accounted for and presented in the financial statements, for example, an accounting policy election may be made to account for forfeitures as they occur, rather than based on an estimate of future forfeitures. In addition, under previous guidance, excess tax benefits and deficiencies from stock-based compensation arrangements were recorded in equity when the awards vested or were settled. ASU 2016-09 requires prospective recognition of excess tax benefits and deficiencies in the income statement. We adopted ASU 2016-09 on January 1, 2017, which included a policy election to account for forfeitures as they occur, and resulted in a cumulative-effect adjustment to retained earnings of \$44 as of January 1, 2017. In addition, upon adoption the balance of the unrecognized excess tax benefits were recognized and the impact was recorded to retained earnings, including any change to the valuation allowance as a result of the adoption. Due to the full valuation allowance on the U.S. net deferred tax assets, this change did not impact our financial position, results of operations or cash flows.

In February 2016, the FASB issued Accounting Standards Update No. 2016-02, *Leases (Topic 842)* ("ASU 2016-02"). ASU 2016-02 requires a dual approach for lessee accounting under which a lessee would account for leases as finance leases or operating leases. Both finance leases and operating leases will result in the lessee recognizing a right-of-use (ROU) asset and a corresponding lease liability. For finance leases, the lessee would recognize interest expense and amortization of the ROU asset and for operating leases the lessee would recognize a straight-line total lease expense. ASU 2016-02 will become effective for us on January 1, 2019. While we are currently assessing the impact ASU 2016-02 will have on our financial statements, we expect the primary impact to our financial position upon adoption will be the recognition, on a discounted basis, of our minimum commitments under noncancelable operating leases on our consolidated balance sheets resulting in the recording of ROU assets and lease obligations.

In July 2015, the FASB issued Accounting Standards Update No. 2015-11, *Simplifying the Measurement of Inventory* ("ASU 2015-11"), which changes the measurement principle for inventory from the lower of cost or market to the lower of cost and net realizable value. ASU 2015-11 defines net realizable value as estimated selling prices in the ordinary course of business, less reasonably predictable costs of completion, disposal, and transportation. We adopted ASU 2015-11 on January 1, 2017 and it did not have a material impact our financial position, results of operations, or cash flows.

In May 2014, the FASB issued Accounting Standards Update No. 2014-09, *Revenue from Contracts with Customers* ("ASU 2014-09"), which requires that an entity recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. ASU 2014-09 will replace most existing revenue recognition guidance in U.S. GAAP when it becomes effective. ASU 2014-09 allows for either full retrospective or modified retrospective adoption and will become effective for us on January 1, 2018. We have developed an implementation plan to adopt this new guidance. As part of this plan, we are currently assessing the impact of the new guidance on our results of operations. Based on our procedures performed to date, we believe that the timing of revenue recognition for certain of our chip sales may be recognized over time as compared to current recognition which is at a point in time. This may require the Company to recognize revenue earlier than we are recognizing revenue under the current revenue recognition guidance and the impact will depend on the nature and amount of outstanding orders in process at the date of adoption. We currently believe this is the only item that will have a material impact on our financial statements, however, we will continue to evaluate the impact from ASU 2014-09 during the remainder of 2017. We intend to adopt ASU 2014-09 on January 1, 2018 and we have tentatively selected the modified retrospective transition method.

Use of Estimates

The preparation of condensed consolidated financial statements in conformity with 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, valuation of convertible debt, valuation of share-based payments, income taxes, litigation and other contingencies. The actual results experienced could differ materially from our estimates.

NOTE 2: ACQUISITION

On August 2, 2017, we acquired 100% of the outstanding shares of ViXS Systems, Inc. ("ViXS"), a Canadian corporation (the "Acquisition"). We issued 0.04836 of a share of our common stock in exchange for each share of ViXS common stock outstanding and for certain ViXS restricted stock units which were vested simultaneously with closing.

ViXS designs and develops advanced video processing semiconductor solutions. The acquisition of ViXS added families of video processor components for consumer applications and cloud, video delivery and infrastructure markets, along with a companion family of networking components to our solutions. These factors contributed to establishing the purchase price and supported the premium paid over the fair value of the tangible and intangible assets acquired.

The aggregate purchase price for ViXS was \$16,975 and consisted of \$16,316 related to the issuance of 3,586,021 shares of our common stock plus \$659 related to: (i) the issuance of 202,043 unvested restricted stock units, in exchange for ViXS' unvested restricted stock units, plus (ii) the issuance of 122,242 shares to a holder of ViXS restricted stock units which were vested simultaneously with closing. The purchase price calculations were based on the closing price of our common stock on the day the transaction closed.

The ViXS chief executive officer (the "CEO") was terminated in connection with the closing of the transaction. As a result, we recognized expense of \$1,382, which consisted of \$1,067 related to a severance agreement, payable over 24 months, and \$315 related to accelerated vesting of the CEO's ViXS restricted stock units which were exchanged for Pixelworks common stock at closing. Such amount is included within selling, general and administrative within our consolidated statement of operations for the three months ended September 30, 2017.

The purchase price was preliminarily allocated to the assets and liabilities based on fair values as follows:

Purchase price		\$	16,975
Less net liabilities assumed:			
Assets acquired:			
Cash and cash equivalents	1,901		
Accounts receivable	968		
Inventories	3,561		
Property and equipment	964		
Other assets	1,562		
Identifiable intangible assets	6,730		
Liabilities assumed:			
Accounts payable	(1,736)		
Accrued liabilities and other current liabilities	(2,832)		
Revolving bank loan	(4,046)		
Convertible debt	(6,485)		
Other noncurrent liabilities	(1,633)	(1,046)	
Goodwill		\$	18,021

The allocation of purchase price consideration to assets and liabilities is not yet finalized. The preliminary allocation of the purchase price was based upon preliminary estimates and assumptions that are subject to change within the measurement period (up to one year from the acquisition date). Below are the significant valuations that were performed associated with the acquisition which were based upon preliminary estimates:

- We performed a valuation of the convertible debt. We assigned \$4,762 of the purchase price to convertible debt, consisting of the contractual amount of \$6,068 offset by a debt discount of \$1,306, and \$1,723 to the embedded conversion feature. No other features of the debt were assigned value at the acquisition date.
- We performed a valuation of acquired intangible assets. We have preliminarily assigned \$5,050 of the purchase price to acquired developed technology with estimated lives of 5 years or less, \$1,270 to customer relationships with estimated lives of 3 years or less, and \$410 to backlog and trademark with estimated lives of 2 years or less. ViXS had no in-process research and development.
- We recorded an inventory step-up of \$2,415 to record inventory at fair value. We will recognize this within cost of goods sold as the inventory is sold which we expect to be over a period of approximately 12 months.

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We preliminarily recorded gross deferred tax assets of \$62,992, subject to a valuation allowance of \$62,972 to recognize book basis and tax basis differences of various balance sheet assets and liabilities and corporate tax attributes acquired.

The goodwill resulting from this transaction was assigned to Pixelworks, Inc., our sole reporting unit and is not deductible for tax purposes.

The results of ViXS' operations are included in our consolidated statement of operations beginning on the date of acquisition. ViXS revenue of \$1,985 and net loss of \$(4,004), which included \$1,481 in restructuring charges, (see Note 6: "Restructurings") and \$1,501 of non-cash amortization of acquisition and debt related items are included in our consolidated statement of operations for the three months ended September 30, 2017.

The following table reflects the unaudited pro forma results of Pixelworks and ViXS as if the merger had taken place as of January 1, 2016:

	Three Months Ended		Nine Months Ended	
	September 30,		September 30,	
	2017	2016	2017	2016
Revenue, net	\$ 19,926	\$ 21,770	\$ 72,315	\$ 58,833
Net income (loss)	\$ (4,052)	\$ (3,768)	\$ 258	\$ (22,873)
Net income (loss) per share:				
Basic	\$ (0.12)	\$ (0.12)	\$ 0.01	\$ (0.72)
Diluted	\$ (0.12)	\$ (0.12)	\$ 0.01	\$ (0.72)
Weighted average shares outstanding:				
Basic	33,788	32,021	33,429	31,847
Diluted	33,788	32,021	35,516	31,847

The unaudited pro forma net income (loss) presented above includes adjustments for amortization of acquired intangible assets and other assets, and stock-based compensation as these items are expected to have a continuing effect on the consolidated results of operations of the combined company. The unaudited pro forma net income (loss) presented above does not reflect amortization of the \$2,415 mark-up of acquired inventory to fair value, or acquisition-related costs of \$1,806 and \$3,055 for the three and nine months ended September 30, 2017, respectively, as they are not reflective of the ongoing operations of the combined entities. Net income reported for the nine months ended September 30, 2017 includes a \$4,785 gain ViXS recognized on the sale of a product line during the period.

The pro-forma information does not necessarily reflect the actual results that would have occurred, nor is it necessarily indicative of future results of operations of the combined companies.

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

Accounts receivable are recorded at invoiced amount and do not bear interest when recorded or accrue interest when past due. Accounts receivable are stated net of an allowance for doubtful accounts, which is maintained for estimated losses that may result from the inability of our customers to make required payments.

Accounts receivable consists of the following:

	September 30,	December 31,
	2017	2016
Accounts receivable, gross	\$ 5,124	\$ 3,150
Less: allowance for doubtful accounts	(40)	(32)
Accounts receivable, net	\$ 5,084	\$ 3,118

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

	Nine Months Ended September 30,	
	2017	2016
Balance at beginning of period	\$ 32	\$ 60
Additions charged (reductions credited)	8	(21)
Balance at end of period	<u>\$ 40</u>	<u>\$ 39</u>

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 market (net realizable value). Inventory acquired as part of the acquisition of ViXS is recorded at fair value.

Inventories consist of the following:

	September 30, 2017	December 31, 2016
Finished goods	\$ 2,903	\$ 1,707
Work-in-process	2,155	1,096
Inventories	<u>\$ 5,058</u>	<u>\$ 2,803</u>

Property and Equipment, Net

Property and equipment consists of the following:

	September 30, 2017	December 31, 2016
Gross carrying amount	\$ 27,898	\$ 24,416
Less: accumulated depreciation and amortization	(21,627)	(20,623)
Property and equipment, net	<u>\$ 6,271</u>	<u>\$ 3,793</u>

Acquired Intangible Assets, Net

In connection with the Acquisition, we recorded certain identifiable intangible assets. See Note 2: "Acquisition" for additional information. Acquired intangible assets resulting from this transaction were assigned to Pixelworks, Inc., our sole reporting unit, and consist of the following:

	September 30, 2017	December 31, 2016
Developed technology	\$ 5,050	\$ —
Customer relationships	1,270	—
Backlog and tradename	410	—
	6,730	—
Less: accumulated amortization	(316)	—
Acquired intangible assets, net	<u>\$ 6,414</u>	<u>\$ —</u>

Intangible assets are amortized over the following estimated useful lives: developed technology and customer relationships, 3 to 5 years; and tradename and backlog, 6 to 18 months.

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Amortization expense for intangible assets was \$316 for the three months ended September 30, 2017, with \$249 included in cost of revenue and \$67 included in selling, general and administrative on the consolidated statement of operations. As of September 30, 2017, future estimated amortization expense is as follows:

Three months ending December 31:

2017	\$	610
Years ending December 31:		
2018		1,596
2019		1,505
2020		1,496
2021		1,117
2022		90
	\$	<u>6,414</u>

Acquired intangible assets will be reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. Conditions that would trigger an impairment assessment include, but are not limited to, past, current, or expected cash flow or operating losses associated with the asset and an expectation that the asset will be significantly utilized before the end of its useful life. There were no such triggering events requiring an impairment assessment of other intangible assets during the three months ended September 30, 2017.

Goodwill

Goodwill resulted from our acquisition of ViXS on August 2, 2017, whereby we recorded goodwill of \$18,021. See Note 2: "Acquisition" for information concerning the acquisition.

Goodwill is not amortized; however, we will review goodwill for impairment annually and whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. Conditions that would trigger an impairment assessment include, but are not limited to, a significant adverse change in our business climate and a current period operating or cash flow loss combined with a history of operating or cash flow losses or a projection or forecast that demonstrates continued losses and adverse changes in legal factors, regulation or business environment. There were no such triggering events requiring a goodwill impairment assessment during the three months ended September 30, 2017. We expect to perform our annual impairment assessment for goodwill on November 30 of each year.

Accrued Liabilities and Current Portion of Long-Term Liabilities

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

	September 30, 2017	December 31, 2016
Accrued payroll and related liabilities	\$ 4,149	\$ 2,169
Accrued commissions and royalties	2,618	2,427
Accrued interest payable	2,492	2,078
Current portion of accrued liabilities for asset financings	1,822	389
Accrued costs related to restructuring	795	60
Deferred revenue	458	—
Liability for warranty returns	34	28
Other	3,831	709
Accrued liabilities and current portion of long-term liabilities	<u>\$ 16,199</u>	<u>\$ 7,860</u>

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The following is the change in our liability for warranty returns:

	Nine Months Ended	
	September 30,	
	2017	2016
Liability for warranty returns:		
Balance at beginning of period	\$ 28	\$ 49
Provision (benefit)	15	(4)
Charge-offs	(9)	(20)
Balance at end of period	<u>\$ 34</u>	<u>\$ 25</u>

Short-Term Line of Credit

On December 21, 2010, we entered into a Loan and Security Agreement with Silicon Valley Bank (the "Bank"), which was amended on December 14, 2012, December 4, 2013, December 18, 2015, December 15, 2016 and July 21, 2017 (as amended, the "Revolving Loan Agreement"). The Revolving Loan Agreement provides a secured working capital-based revolving line of credit (the "Revolving Line") in an aggregate amount of up to the lesser of (i) \$10,000, or (ii) \$1,000 plus 80% of eligible domestic accounts receivable and certain foreign accounts receivable. The Revolving Line has a maturity date of December 29, 2017. In addition, the Revolving Loan Agreement provides for non-formula advances of up to \$10,000 which may be made solely during the last five business days of any fiscal month or quarter and which must be repaid by us on or before the fifth business day after the applicable fiscal month or quarter end. Due to their repayment terms, non-formula advances do not provide us with usable liquidity.

The Revolving Loan Agreement, as amended, contains customary affirmative and negative covenants as well as customary events of default. The occurrence of an event of default could result in the acceleration of our obligations under the Revolving Loan Agreement, as amended, and an increase to the applicable interest rate, and would permit the Bank to exercise remedies with respect to its security interest. As of September 30, 2017, we were in compliance with all of the terms of the Revolving Loan Agreement, as amended.

As of September 30, 2017 and December 31, 2016, we had no outstanding borrowings under the Revolving Line.

On July 21, 2017 and in connection with our acquisition of ViXS (see Note 2: "Acquisition"), we entered into Amendment No. 5 to the Revolving Loan Agreement with the Bank which provides the Bank's consent to the Acquisition under the Revolving Loan Agreement and stipulates that any credit extensions are at the Bank's sole discretion and provides the Company with relief from our compliance with certain affirmative and negative covenants while no credit extensions are outstanding.

NOTE 4: CONVERTIBLE DEBT

As part of the Acquisition, we assumed secured convertible debt, which consists of the following as of September 30, 2017:

10% convertible notes, principal amount	\$	5,149
Unamortized debt discount		(1,234)
Conversion feature, at fair value		1,846
	<u>\$</u>	<u>5,761</u>

As a result of the change in control of ViXS, the convertible debt holders had a right to put the debt to the Company. A majority of the holders agreed to waive their right to accelerate and to accept 0.04836 share of our common stock for each share of ViXS common stock the holder would have been entitled to receive upon the exercise of the conversion option. During the three months ended September 30, 2017, we repaid \$953 to those holders that did not agree to waive their rights.

Key terms of the convertible debt include:

- *Currency* - The convertible debt is denominated in Canadian dollars, with principal and interest payments made in Canadian dollars. As a result, we record foreign currency transaction gains or losses in our statement of operations related to the convertible debt.
- *Interest* - Stated rate of 10% per year, payable semi-annually. If the five day volume weighted average market price of our common stock exceeds the U.S. dollar equivalent of CAD \$16.54 for 15 consecutive trading days, the interest rate will reset to a fixed rate of 1.0%. The five day volume weighted average market price for our common stock did not exceed such threshold during the three months ended September 30, 2017.

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- *Maturity* - \$2,484 of the principal amount of convertible notes is due September 2019 and \$2,665 is due January 2020.
- *Conversion Option* - Convertible at any time at the option of the holders into our common stock at a conversion price of CAD \$7.24 per share for the convertible notes due September 2019 (of which the principal outstanding amount in Canadian dollars is CAD \$3,040) and CAD \$7.13 per share for the convertible notes due January 2020 (of which the principle outstanding amount in Canadian dollars is CAD \$3,324), or 892,751 shares.
- *Redemption* - Through December 31, 2017, we may redeem the convertible debt for 110% of the principal amount plus accrued and unpaid interest. Thereafter, we may redeem the convertible debt for 100% of the principal amount plus accrued and unpaid interest.
- *Default* - There are certain events that require us to redeem the outstanding convertible debt for 100% of the principal plus accrued and unpaid interest. Such events include, but are not limited to, the failure to pay principal or interest in accordance with the terms of the agreement, the sale of intellectual property without the consent of the holders, and a change in control.

For the three months ended September 30, 2017, interest expense consisted of \$101 related to the contractual rate of interest and \$81 related to accretion of the discount. During the three months ended September 30, 2017, we recorded net foreign currency losses of approximately \$25 in other expense, \$(9) of which was related to accretion of the discount.

Conversion Feature

Because our functional currency is the U.S. dollar and the convertible debt, including the conversion option, is denominated in Canadian dollars, it is not indexed to our stock. As a result, the conversion option of the convertible debt is separately identified and recognized at fair value as a derivative liability. For the three months ended September 30, 2017, \$122 is included in other expense in our consolidated statement of operations for the increase in the fair value of the conversion feature.

Interest Deceleration Feature

The interest deceleration feature also qualifies as a derivative that requires separate accounting from the convertible debt. However, based on the terms of the convertible debt, we concluded that the interest deceleration will never occur because it would always be advantageous for us to call the convertible debt before the common stock reaches the price that triggers the reset. Accordingly, this derivative was assigned \$0 value as of September 30, 2017.

NOTE 5: 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 condensed consolidated balance sheets as of September 30, 2017 and December 31, 2016:

	Level 1	Level 2	Level 3	Total
As of September 30, 2017:				
Assets:				
Money market funds	\$ 23,626	\$ —	\$ —	\$ 23,626
Liabilities:				
Convertible debt - including conversion feature	\$ —	\$ 5,450	\$ —	\$ 5,450
Conversion feature - convertible debt	—	1,846	—	1,846
As of December 31, 2016:				
Assets:				
Money market funds	\$ 17,960	\$ —	\$ —	\$ 17,960

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We primarily use the market approach to determine the fair value of our financial assets. 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.

The fair value of the convertible debt conversion feature was calculated using the Tsiveriotis and Fernandes Convertible Debt Model. Three primary assumptions used in the calculations were: volatility of 70%, credit spread of 14.5% and risk free rate of 1.5%. The embedded conversion feature is measured at fair value on a recurring basis and included with convertible debt on our condensed consolidated balance sheet. Convertible debt was recorded at fair value in our condensed consolidated balance sheet on the date of the Acquisition, however fair value adjustments are not required after the Acquisition date.

NOTE 6: RESTRUCTURINGS

In September 2017, in connection with the Acquisition, we executed a restructuring plan to secure significant synergies between ViXS and Pixelworks. The plan included an approximately 15% reduction in workforce, primarily in the area of development, however, it also impacted administration and sales.

In April 2016, we executed a restructuring plan to streamline our operations and product offerings and to align our expenses with current revenue levels. The plan included an approximately 24% reduction in workforce, primarily in the area of development, however, it also impacted operations, sales and marketing. The plan also included abandonment of certain assets resulting in impairment charges to write off the assets associated with markets we are no longer pursuing.

Total restructuring expense included in our statement of operations for the nine month periods ended September 30, 2017 and 2016 is comprised of the following:

	Nine Months Ended September 30,	
	2017	2016
Cost of revenue — restructuring:		
Tooling and inventory write offs	—	1,679
Employee severance and benefits	—	98
	—	1,777
Operating expenses — restructuring:		
Employee severance and benefits	\$ 1,481	\$ 2,513
Licensed technology and other assets write offs	—	65
Other	—	30
	1,481	2,608
Total restructuring expense	\$ 1,481	\$ 4,385

The following is a rollforward of the accrued liabilities related to restructuring for the nine month period ended September 30, 2017:

	Balance as of December 31, 2016	Expensed	Payments	Balance as of September 30, 2017
Employee severance and benefits	\$ 60	\$ 1,481	\$ (746)	\$ 795
Accrued costs related to restructuring	\$ 60	\$ 1,481	\$ (746)	\$ 795

NOTE 7: RESEARCH AND DEVELOPMENT

During the first quarter of 2017, 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 to be sold exclusively to the customer. 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, \$4,000 was payable by the customer within 60 days of the date of the agreement and two additional payments of \$2,000 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 an offset to research and development expense of \$1,311 and \$4,000 during the three and nine months ended September 30, 2017, respectively.

NOTE 8: INTEREST EXPENSE AND OTHER, NET

Interest expense and other, consists of the following:

	Three Months Ended		Nine Months Ended	
	September 30,		September 30,	
	2017	2016	2017	2016
Interest expense ¹	\$ (385)	\$ (107)	\$ (631)	\$ (337)
Fair value adjustment on convertible debt conversion option	(122)	—	(122)	—
Discount accretion on convertible debt fair value	(72)	—	(72)	—
Interest income	51	8	97	32
Total interest expense and other, net	\$ (528)	\$ (99)	\$ (728)	\$ (305)

¹ Increase in the 2017 periods compared to the 2016 periods due to contractual interest on convertible debt, as well as imputed interest on short and long-term liabilities acquired as a part of the Acquisition.

NOTE 9: INCOME TAXES

The provision for income taxes during the 2017 and 2016 periods is primarily comprised of current and deferred tax expense in profitable cost-plus foreign jurisdictions, accruals for tax contingencies in foreign jurisdictions and benefits for the reversal of previously recorded foreign tax contingencies due to the expiration of the applicable statutes of limitation. We recorded a benefit for the reversal of previously recorded foreign tax contingencies of \$191 and \$170 during the first nine months of 2017 and 2016, respectively.

As we do not believe that it is more likely than not that we will realize a benefit from our U.S. net deferred tax assets, including our U.S. net operating losses, we continue to provide a full valuation allowance against essentially all of those assets, therefore, we do not incur significant U.S. income tax expense or benefit. We have not recorded a valuation allowance against our other foreign net deferred tax assets as we believe that it is more likely than not that we will realize a benefit from those assets.

As of September 30, 2017 and December 31, 2016, the amount of our uncertain tax positions was a liability of \$1,468 and \$1,419, respectively, and a reduction to deferred tax assets of \$570 and \$560, respectively. A number of years may elapse before an uncertain tax position is resolved by settlement or statute of limitation. 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 \$18 within the next twelve months due to the expiration of statutes of limitation in foreign jurisdictions. We recognize interest and penalties related to uncertain tax positions in income tax expense in our consolidated statements of operations.

We adopted ASU 2016-09 on January 1, 2017. We have excess tax benefits for which a benefit could not be previously recognized of \$485. Upon adoption, this balance was recognized and the impact was recorded to retained earnings, including any change to the valuation allowance as a result of the adoption. Due to the full valuation allowance on the U.S. net deferred tax assets, this change did not impact our financial position, results of operations or cash flows.

NOTE 10: EARNINGS PER SHARE

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

	Three Months Ended		Nine Months Ended	
	September 30,		September 30,	
	2017	2016	2017	2016
Net loss	\$ (4,706)	\$ (1,242)	\$ (621)	\$ (11,444)
Weighted average shares outstanding - basic and diluted	32,552	28,313	30,545	28,139
Net loss per share - basic and diluted	\$ (0.14)	\$ (0.04)	\$ (0.02)	\$ (0.41)

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

	Three Months Ended		Nine Months Ended	
	September 30,		September 30,	
	2017	2016	2017	2016
Employee equity incentive plans	4,035	4,952	3,853	4,643
Convertible debt	625	—	211	—

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. Potentially dilutive common shares from the convertible debt are determined by applying the if-converted method to the assumed conversion of the outstanding convertible debt.

NOTE 11: SEGMENT INFORMATION

We have identified a single operating segment: the design and development of integrated circuits for use in electronic display devices. The majority of our assets are located in the United States.

Geographic Information

Revenue by geographic region, is as follows:

	Three Months Ended		Nine Months Ended	
	September 30,		September 30,	
	2017	2016	2017	2016
Japan	\$ 17,303	\$ 11,255	\$ 50,664	\$ 31,207
China	631	394	1,227	891
United States	454	20	575	74
Taiwan	218	1,268	6,315	3,537
Europe	118	175	2,059	475
Korea	34	273	821	688
Other	—	271	528	531
	<u>\$ 18,758</u>	<u>\$ 13,656</u>	<u>\$ 62,189</u>	<u>\$ 37,403</u>

Significant Customers

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

	Three Months Ended		Nine Months Ended	
	September 30,		September 30,	
	2017	2016	2017	2016
Distributors:				
All distributors	40%	35%	46%	42%
Distributor A	25%	17%	27%	24%
End customers: ¹				
Top five end customers	88%	83%	79%	82%
End customer A	60%	62%	48%	54%
End customer B	8%	2%	10%	7%

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

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

	September 30, 2017	December 31, 2016
Account X	70%	54%

NOTE 12: 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.

NOTE 13: COMMITMENTS AND CONTINGENCIES

Indemnifications

Certain of our agreements include indemnification provisions for claims from third-parties relating to our intellectual property. 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 September 30, 2017, we have not incurred any material liabilities arising from these indemnification obligations. In the future, however, such obligations could materially impact our results of operations.

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

Forward-looking Statements

This Quarterly Report on Form 10-Q contains "forward-looking statements" that are based on current expectations, estimates, beliefs, assumptions and projections about our business. Words such as "may," "will," "appears," "predicts," "continue," "expects," "anticipates," "intends," "plans," "believes," "seeks," "estimates" and the negative or other variations of such words and similar expressions are intended to identify such forward-looking statements. These forward-looking statements include, but are not limited to, statements regarding: our ability to successfully integrate the business of ViXS with our existing business; the potential impact of the acquisition of ViXS on our financial condition and operating results, including any unanticipated costs related thereto, the calculation of the estimated purchase price and the allocation thereof, and the impact of the final valuation on various financial metrics; the terms of our convertible debt; our expectations with respect to our restructuring plan, including expected changes and timing thereof; the anticipated features, benefits and market opportunities for our products; our technologies and intellectual property; our international operations; our strategy, including with respect to our intellectual property portfolio, research and development efforts and acquisition and investment opportunities; our gross profit margin, any future restructuring programs; our liquidity, capital resources and the sufficiency of our working capital and need for, or ability to secure, additional financing and the potential impact thereof; our research and development costs and related offsets and reimbursements related to our co-development agreement; our contractual obligations, exchange rate and interest rate risks and off balance sheet arrangements; our income taxes, including our ability to realize the benefit of net deferred tax assets and our uncertain tax position liability; accounting policies and use of estimates and potential impact of changes thereto; our revenue, including our expectations as to the impact of implementing our end-of-life for certain products, and the potential impact on our business of certain risks, including the concentration of our suppliers, risks of technological change, concentration of credit risk, changes in the markets in which we operate, our international operations, including in Asia and our exchange rate risks, our indemnification obligations and litigation risks. These statements are not guarantees of future performance and involve certain risks and uncertainties that are difficult to predict and which may cause actual outcomes and results to differ materially from what is expressed or forecasted in such forward-looking statements. A detailed discussion of risks and uncertainties that could cause actual results and events to differ materially from such forward-looking statements is included in Part II, Item 1A of this Quarterly Report on Form 10-Q. 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 Quarterly Report on Form 10-Q. If we do update or correct one or more forward-looking statements, you should not conclude that we will make additional updates or corrections with respect thereto or with respect to other forward-looking statements. Except where the context otherwise requires, in this Quarterly Report on Form 10-Q, the "Company," "Pixelworks," "we," "us" and "our" refer to Pixelworks, Inc., an Oregon corporation, and its wholly-owned subsidiaries.

Overview

Pixelworks designs, develops and markets visual display processing semiconductors, intellectual property cores, software and custom ASIC solutions for high-quality energy efficient video applications. In addition, we offer a suite of solutions for advanced media processing as well as the efficient delivery and streaming of video.

We enable worldwide manufacturers to offer leading-edge consumer electronics and professional display products, as well as video delivery and streaming solutions for content service providers. Our core visual display processing technology intelligently processes digital images and video from a variety of sources and optimizes the content for a superior viewing experience. Pixelworks' video coding technology reduces storage requirements, significantly reduces bandwidth constraint issues and converts content between multiple formats to enable seamless delivery of video, including over-the-air (OTA) streaming, while also maintaining end-to-end content security.

The rapid growth in video-capable consumer devices, especially mobile, has increased the demand for visual display processing and video delivery technology in recent years. Our technologies can be applied to a wide range of devices from large-screen projectors to low-power mobile tablets, smartphones, high-quality video infrastructure equipment and streaming devices. Our products are architected and optimized for power, cost, bandwidth, and overall system performance, according to the requirements of the specific application. Our primary target markets include digital projection systems, tablets, smartphones, and OTA streaming devices.

As of September 30, 2017, we had an intellectual property portfolio of 535 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.

Recent Developments

On August 2, 2017, we completed the acquisition of ViXS Systems, Inc. ("ViXS"), pursuant to an Arrangement Agreement (the "Agreement") dated as of May 18, 2017 between Pixelworks and ViXS (the "Acquisition"). Pursuant to the Agreement, at the closing of the Acquisition, we issued 3,708,263 shares of our common stock to the former holders of the capital stock of ViXS, and ViXS became a wholly owned subsidiary of Pixelworks. We also issued 202,043 restricted stock units to the former holders of ViXS' unvested restricted stock units.

The foregoing description of the Agreement does not purport to be complete and is qualified in its entirety by reference to the full text of the Agreement, a copy of which was originally filed as an exhibit to our Current Report on Form 8-K filed on May 23, 2017.

Results of Operations

Revenue, net

Net revenue for the three month and nine month periods ended September 30, 2017 and 2016, was as follows (dollars in thousands):

	Three Months Ended			Nine Months Ended		
	September 30,			September 30,		
	2017	2016	% Change	2017	2016	% Change
Revenue, net	\$ 18,758	\$ 13,656	37%	\$ 62,189	\$ 37,403	66%

Net revenue increased \$5.1 million, or 37%, in the third quarter of 2017 compared to the third quarter of 2016 and increased \$24.8 million, or 66%, in the first nine months of 2017 compared to the first nine months of 2016. Revenue recorded in the 2017 and 2016 periods primarily related to sales of integrated circuit products.

Revenue in the third quarter of 2017 included approximately \$2.0 million of revenue contribution from the acquisition of ViXS primarily in the video delivery market. Revenue associated with the TV and panel markets was zero in the third quarter of 2017. As previously disclosed, we expected revenue associated with the TV and panel markets to become zero in the second half of 2017 following the fulfillment of end-of-life orders during the first half of 2017.

The increase in revenue in the first nine months of 2017 compared to the first nine months of 2016 was primarily due to an increase in units sold into the digital projector and the TV and panel markets. These increases were primarily the result of implementing an end-of-life for our legacy products. Revenue attributable to end-of-life products in the nine months ended September 30, 2017 was \$14.3 million.

Also contributing to the increase in the 2017 periods compared to the 2016 periods was an increase in products sold into the digital projector market, which was primarily due to lower sales in the 2016 periods, which in turn was due to customers' efforts to adjust inventory levels within the digital projector market as well as supply disruptions in Japan.

[Table of Contents](#)**Cost of revenue and gross profit**

Cost of revenue and gross profit for the three and nine month periods ended September 30, 2017 and 2016, was as follows (dollars in thousands):

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2017	% of revenue	2016	% of revenue	2017	% of revenue	2016	% of revenue
Direct product costs and related overhead ¹	\$ 8,479	45 %	\$ 7,001	51%	\$ 28,122	45%	\$ 18,889	51%
Inventory step-up and backlog amortization	1,016	5	—	0	1,016	2	—	0
Amortization of acquired developed technology	199	1	—	0	199	0	—	0
Stock-based compensation	57	0	49	0	179	0	139	0
Inventory charges ²	(4)	0	22	0	69	0	34	0
Restructuring	—	0	27	0	—	0	1,777	5
Total cost of revenue	<u>\$ 9,747</u>	52 %	<u>\$ 7,099</u>	52%	<u>\$ 29,585</u>	48%	<u>\$ 20,839</u>	56%
Gross profit	<u>\$ 9,011</u>	48 %	<u>\$ 6,557</u>	48%	<u>\$ 32,604</u>	52%	<u>\$ 16,564</u>	44%

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

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

Gross profit margin was 48% in the third quarter of 2017 compared to 48% in the third quarter of 2016 and 52% in the first nine months of 2017 compared to 44% in the first nine months of 2016.

Direct product costs and related overhead was 45% of revenue in the third quarter of 2017 compared to 51% of revenue in the third quarter of 2016. The decrease in direct product costs and related overhead as a percentage of revenue was primarily due to the contribution of ViXS revenue, primarily in the video delivery market, during the third quarter of 2017. The products sold into the video delivery market have lower direct product costs as a percentage of revenue, compared to our existing product offerings.

Direct product costs and related overhead was 45% of revenue in the first nine months of 2017 compared to 51% of revenue in the first nine months of 2016. The decrease in direct product costs as a percentage of revenue was primarily due to shipments in the 2017 periods related to an end-of-life for our legacy products. Many of these legacy products have lower direct product costs as a percentage of revenue, compared to our other products.

Contributing to a decrease in direct product costs and related overhead as a percentage of revenue in the 2017 periods compared to the 2016 periods was better absorption. As revenue increases our overhead costs stay relatively constant which favorably impacts gross profit margin.

We expect the remaining inventory step-up of \$1.5 million to amortize to cost of goods sold over approximately the next 12 months.

Pixelworks' gross profit margin is subject to variability based on changes in revenue levels, recognition of licensing revenue and licensing costs, product mix, average selling prices, startup costs, restructuring charges, amortization related to acquired developed technology, inventory step-up and backlog, 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 expenses 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 first quarter of 2017, 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 to be sold exclusively to the customer. 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, \$4.0 million was payable by the customer within 60 days of the date of the agreement and two additional payments of \$2.0 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 \$1.3 million and \$4.0 million during the three and nine months ended September 30, 2017, respectively.

Research and development expense for the three and nine month periods ended September 30, 2017 and 2016, was as follows (dollars in thousands):

	Three Months Ended			Nine Months Ended		
	September 30,			September 30,		
	2017	2016	% Change	2017	2016	% Change
Research and development	\$ 5,325	\$ 4,442	20%	\$ 14,732	\$ 14,621	1%

Research and development expense increased \$0.9 million, or 20% in the third quarter of 2017 compared to the third quarter of 2016. The increase was primarily due to an increase in compensation expense due to an increase in headcount as a result of our acquisition of ViXS (the "Acquisition") and an increased management bonus accrual.

Research and development expense increased \$0.1 million, or 1%, in the first nine months of 2017 compared to the first nine months of 2016. The increase was primarily due to a net increase in compensation expense due to an increase in headcount in the third quarter of 2017 as a result of the Acquisition and an increased management bonus accrual, partially offset by a decrease in headcount in the second quarter of 2016, due to the restructuring plan that was executed in April 2016. The increase in compensation expense was partially offset by the benefit related to the co-development agreement which was recognized in the first nine months of 2017. This benefit was largely offset by an increase in non-recurring engineering expense which was largely related to the co-development agreement.

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Selling, general and administrative

Selling, general and administrative expense includes compensation and related costs for personnel, sales commissions, facilities and information technology expense allocations, 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 for the three and nine month periods ended September 30, 2017 and 2016, was as follows (dollars in thousands):

	Three Months Ended			Nine Months Ended		
	September 30,			September 30,		
	2017	2016	% Change	2017	2016	% Change
Selling, general and administrative	\$ 6,583	\$ 3,072	114%	\$ 15,382	\$ 10,117	52%

Selling, general and administrative expense increased \$3.5 million, or 114% in the third quarter of 2017 compared to the third quarter of 2016. The increase was primarily due to an increase in compensation expense due to an increase in headcount as a result of the Acquisition and an increased management bonus accrual. Also contributing to the increase were severance related expenses for the termination of the ViXS Chief Executive Officer and an increase in legal and accounting fees associated with the Acquisition.

Selling, general and administrative expense increased \$5.3 million, or 52% in the first nine months of 2017 compared to the first nine months of 2016. The increase was primarily due to an increase in compensation expense due to an increase in headcount as a result of the Acquisition and an increased management bonus accrual. The increase was also due to severance related expenses for the termination of the ViXS Chief Executive Officer and an increase in legal and accounting fees associated with the Acquisition. The first nine months of 2016 included largely offsetting expenses for severance and a reversal of stock-based compensation expense, associated with the February 1, 2016 resignation of our former Chief Executive Officer, Bruce Walicek.

Restructurings

In September 2017, in connection with our acquisition of ViXS Systems, Inc., we executed a restructuring plan ("the 2017 plan") to secure significant synergies between ViXS and Pixelworks. The 2017 plan included an approximately 15% reduction in workforce, primarily in the area of development, however, it also impacted administration and sales.

In April 2016, we executed a restructuring plan ("the 2016 plan") to streamline Pixelworks' operations and product offerings and to align our expenses with current revenue levels. The 2016 plan included an approximately 24% reduction in workforce, primarily in the area of development, however, it also impacted operations, sales and marketing. The 2016 plan also included abandonment of certain assets resulting in impairment charges to write off the assets associated with markets we are no longer pursuing.

Restructuring expense for the three and nine month periods ended September 30, 2017 and 2016, was as follows (dollars in thousands):

	Three Months Ended		Nine Months Ended	
	September 30,		September 30,	
	2017	2016	2017	2016
Employee severance and benefits	\$ 1,481	\$ 30	\$ 1,481	\$ 2,611
Write off of assets	—	—	—	1,744
Other	—	—	—	30
Total restructuring expense	\$ 1,481	\$ 30	\$ 1,481	\$ 4,385
Included in cost of revenue	\$ —	\$ 27	\$ —	\$ 1,777
Included in operating expenses	1,481	3	1,481	2,608

During the third quarter and the first nine months of 2017, we incurred expenses of \$1.5 million related to the 2017 plan, which consisted of costs associated with employee severance and benefits. As we continue to implement the 2017 plan, we expect to incur additional restructuring charges of \$0.5 million over the remainder of 2017. Through September 30, 2017, the cumulative amount incurred related to the 2017 plan is \$1.5 million, none of which is included in cost of revenue.

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During the third quarter of 2016, we incurred expenses of \$0.1 million related to the 2016 plan, which consisted of costs associated with employee severance and benefits. During the first nine months of 2016, we incurred expenses of \$4.4 million related to the 2016 plan, which primarily consisted of costs associated with employee severance and benefits of \$2.6 million and the abandonment of certain assets of \$1.7 million. The 2016 plan was completed at the end of 2016 and we did not incur any further restructuring charges related to the 2016 plan during the first nine months of 2017. Through September 30, 2017, the cumulative amount incurred related to the 2016 plan is \$4.4 million, of which \$1.8 million is included in cost of revenue.

Provision for income taxes

The provision for income taxes during the 2017 and 2016 periods is primarily comprised of current and deferred tax expense in profitable cost-plus foreign jurisdictions, accruals for tax contingencies in foreign jurisdictions and benefits for the reversal of previously recorded foreign tax contingencies due to the expiration of the applicable statutes of limitation. We recorded a benefit for the reversal of previously recorded foreign tax contingencies of \$0.2 million in each of the first nine months of 2017 and the first nine months of 2016.

Liquidity and Capital Resources

Cash and cash equivalents

Total cash and cash equivalents increased \$6.7 million to \$26.3 million at September 30, 2017 from \$19.6 million at December 31, 2016. The net increase during the first nine months of 2017 was the result of \$10.8 million provided by operating activities, \$2.2 million in proceeds from the issuances of common stock under our employee equity incentive plans and \$1.9 million net cash acquired in the Acquisition. These increases were partially offset by \$4.0 million used in payments on the line of credit associated with the Acquisition, \$2.3 million used for purchases of property and equipment, \$1.0 million used in payments on convertible debt and \$0.9 million in payments on other asset financings.

As of September 30, 2017, our cash and cash equivalents balance consisted of \$2.7 million in cash and \$23.6 million in cash equivalents held in U.S. dollar denominated money market funds. Although we did not hold short- or long-term investments as of September 30, 2017, our investment policy requires that our portfolio maintain 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, the short-term credit rating must be rated at least A-1 / P-1 / F-1 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 A2 by at least two NRSROs. Our investment policy is reviewed at least annually by our Audit Committee.

As of September 30, 2017, approximately \$2.7 million of our cash and cash equivalents balance was held by our foreign subsidiaries. We provide for U.S. taxes on the earnings of our foreign subsidiaries and will only recognize U.S. taxable income from repatriation to the extent of our unremitted earnings. Any income recognized from the repatriation will be offset by our net operating loss carryforwards. As of September 30, 2017, we could access all cash held by our foreign subsidiaries without incurring significant tax liability.

Accounts receivable, net

Accounts receivable, net increased to \$5.1 million as of September 30, 2017 from \$3.1 million as of December 31, 2016. The average number of days sales outstanding increased to 24 days as of September 30, 2017 from 18 days as of December 31, 2016. The increases in accounts receivable and days sales outstanding were partially due to normal fluctuations in the timing of sales and customer receipts within the third quarter of 2017, and the fourth quarter of 2016 and partially due to the additional revenue and accounts receivable acquired in connection with the Acquisition.

Inventories

Inventories increased to \$5.1 million as of September 30, 2017 from \$2.8 million as of December 31, 2016. Inventory turnover increased to 12.2 as of September 30, 2017 from 10.1 as of December 31, 2016. The increase in inventories was primarily due to the additional inventory acquired in connection with the Acquisition, including the acquired inventory step-up of \$2.4 million. We will recognize this within cost of goods sold as the inventory is sold which we expect to be over a period of approximately 12 months. The increase in inventory turnover was primarily due to increased cost of goods sold during the third quarter of 2017 compared to the fourth quarter of 2016. Inventory turnover is calculated based on annualized quarterly operating results and average inventory balances during the quarter.

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Capital resources

Short-term line of credit

On December 21, 2010, we entered into a Loan and Security Agreement with Silicon Valley Bank (the "Bank"), which was amended on December 14, 2012, December 4, 2013, December 18, 2015, December 15, 2016 and July 21, 2017 (as amended, the "Revolving Loan Agreement"). The Revolving Loan Agreement provides a secured working capital-based revolving line of credit (the "Revolving Line") in an aggregate amount of up to the lesser of (i) \$10.0 million, or (ii) \$1.0 million plus 80% of eligible domestic accounts receivable and certain foreign accounts receivable. The Revolving Line has a maturity date of December 29, 2017. In addition, the Revolving Loan Agreement provides for non-formula advances of up to \$10.0 million which may be made solely during the last five business days of any fiscal month or quarter and which must be repaid by us on or before the fifth business day after the applicable fiscal month or quarter end. Due to their repayment terms, non-formula advances do not provide us with usable liquidity.

The Revolving Loan Agreement, as amended, contains customary affirmative and negative covenants as well as customary events of default. The occurrence of an event of default could result in the acceleration of our obligations under the Revolving Loan Agreement, as amended, and an increase to the applicable interest rate, and would permit the Bank to exercise remedies with respect to its security interest. As of September 30, 2017, we were in compliance with all of the terms of the Revolving Loan Agreement, as amended.

As of September 30, 2017 and December 31, 2016, we had no outstanding borrowings under the Revolving Line.

On July 21, 2017 and in connection with our acquisition of ViXS, we entered into Amendment No. 5 to the Revolving Loan Agreement with the Bank which provides the Bank's consent to the acquisition under the Revolving Loan Agreement and stipulates that any credit extensions are at the Bank's sole discretion and provides Pixelworks relief from our compliance with certain affirmative and negative covenants while no credit extensions are outstanding.

Liquidity

As of September 30, 2017, our cash and cash equivalents balance of \$26.3 million was highly liquid. We anticipate that our existing working capital will be adequate to fund our operating, investing and financing needs for at least the next twelve months, including any costs incurred in connection with our acquisition of ViXS. We may pursue financing arrangements including the issuance of debt or equity securities or reduce expenditures, or both, to meet our 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 financial position, results of operations and cash flows.

From time to time, we evaluate acquisitions of businesses, products or technologies that complement our business. For example, on August 2, 2017 we closed our acquisition of ViXS and issued 3,708,263 of our shares of common stock as consideration. Any additional 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 II, "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.

Additionally, in connection with the Acquisition, we assumed convertible debt with an aggregate outstanding principal amount as of September 30, 2017 of approximately \$5.2 million dollars. The convertible debt has a 10% per year interest rate, subject to certain downward adjustments, and \$2,484 of the principal amount of convertible notes is due September 2019 and \$2,665 is due January 2020. The convertible debt is convertible at any time at the option of the holder and we have the option to redeem the convertible debt for 110% of the principal amount plus interest through December 31, 2017 or 100% of the principal amount plus interest thereafter. Additional information regarding the convertible debt can be found in "Note 4: Convertible Debt."

Contractual Payment Obligations

A summary of our contractual obligations as of September 30, 2017 is as follows:

Contractual Obligation	Payments Due By Period				
	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years
Estimated purchase commitments to contract manufacturers	\$ 7,285	\$ 7,285	\$ —	\$ —	\$ —
Convertible debt	5,149	—	5,149	—	—
Operating leases	5,534	2,502	2,623	409	—
Payments on accrued balances related to asset financings	3,332	1,948	1,384	—	—
Interest on convertible debt	1,163	515	648	—	—
Other purchase obligations and commitments	1,729	206	541	561	421
Total ¹	\$ 24,192	\$ 12,456	\$ 10,345	\$ 970	\$ 421

¹ We are unable to reliably estimate the timing of future payments related to uncertain tax positions and repatriation of foreign earnings; therefore, \$2.2 million of income taxes payable has been excluded from the table above.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements that have, or are reasonably likely to have, a material current or future effect on our financial condition, results of operations, liquidity, capital expenditures or capital resources.

Item 4. Controls and Procedures.**Evaluation of Disclosure Controls and Procedures**

Based on management's evaluation (with the participation of our Chief Executive Officer (our Principal Executive Officer) and Chief Financial Officer (our Principal Financial Officer)), as of the end of the period covered by this report, our Chief Executive Officer and Chief Financial Officer have concluded that our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended, (the "Exchange Act")) are effective to provide reasonable assurance that information required to be disclosed by us in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in Securities and Exchange Commission rules and forms and is accumulated and communicated to management, including our Principal Executive Officer and Principal Financial Officer, as appropriate to allow timely decisions regarding required disclosure. Management excluded from its assessment of the effectiveness of the Company's internal control over financial reporting ViXS Systems ("ViXS") internal control over financial reporting associated with total assets of \$24,902 and total revenues of \$1,985 included in the condensed consolidated financial statements of the Company as of September 30, 2017.

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 period covered by this report that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting. On August 2, 2017, the Company acquired ViXS. Because ViXS utilizes separate information and accounting systems, the Company has implemented changes to its internal controls over financial reporting to include the consolidation of ViXS, as well as acquisition-related accounting and disclosures. The acquisition of ViXS represents a material change in internal control over financial reporting since management's last assessment of the Company's internal control over financial reporting, which was completed as of December 31, 2016. Pixelworks's management is reviewing and evaluating its internal control procedures and the design of those control procedures related to the ViXS acquisition and evaluating when it will complete an evaluation and review of ViXS's internal controls over financial reporting.

Except as described above, there has been no change in our internal control over financial reporting that occurred during our fiscal quarter ended September 30, 2017, that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Inherent Limitations on Effectiveness of Controls

Our management, including the Chief Executive Officer and Chief Financial Officer, does not expect that our disclosure controls or our internal control over financial reporting will prevent or detect all error and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. The design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Further, because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, have been detected. The design of any system of controls is based in part on certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Projections of any evaluation of the effectiveness of controls to future periods are subject to risks. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with policies or procedures.

PART II – OTHER INFORMATION

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 in this Quarterly Report on Form 10-Q and our Annual Report on Form 10-K for the fiscal year ended December 31, 2016, including our consolidated financial statements and related notes, and our other filings made from time to time with the Securities and Exchange Commission ("SEC").

Company Specific Risks

Our product strategy, which is targeted at markets demanding superior video and digital image quality, 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. With this strategy, we continue to make further investments in the development of our image processor architecture for the digital projector market, with particular focus on adding increased performance and functionality. For the mobile device market, our strategy focuses on implementing our intellectual property ("IP") to improve the video performance of our customers' image processors through the use of our MotionEngine® advanced video co-processor integrated circuits. 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 for the digital projection market and mobile market.

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 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.

Although we recorded net income for the fiscal year ended December 31, 2010, we have otherwise incurred operating losses each fiscal year since 2004 and have an accumulated deficit of \$375.3 million as of December 31, 2016. Additionally, while we recorded net income for the three months ended March 31, 2017 and the six months ended June 30, 2017, we have operating losses for the nine months ended September 30, 2017. 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 can 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 27%, 24% and 31% of revenue for the nine month period ended September 30, 2017 and the years ended December 31, 2016 and 2015, 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 79%, 82% and 83% of revenue for the nine month period ended September 30, 2017 and the years ended December 31, 2016 and 2015, respectively. As of September 30, 2017 and as of December 31, 2016, we had one account that represented 10% or more of accounts receivable. All of the orders included in our backlog are cancelable. 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 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 do not have any long-term commitments with any of our customers. As a result, our customers may cancel, change or delay product purchase commitments with little or no notice to us and without penalty. This, in turn, 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 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.

We may not be able to borrow funds under our credit facility or secure future financing which could affect our ability to fund fluctuations in our working capital requirements.

In December 2010, we entered into a Loan and Security Agreement with Silicon Valley Bank, which was later amended on December 14, 2012, December 4, 2013, December 18, 2015, December 15, 2016 and July 21, 2017 (as amended, the "Revolving Loan Agreement"). The Revolving Loan Agreement provides a secured working capital-based revolving line of credit (the "Revolving Line") in an aggregate amount of up to the lesser of (i) \$10.0 million or (ii) \$1.0 million plus 80% of eligible domestic accounts receivable and certain foreign accounts receivable. The Revolving Line has a maturity date of December 29, 2017. We view this line of credit as a source of available liquidity to fund fluctuations in our working capital requirements, however all credit extensions are subject to the bank's sole discretion. If we experience an increase in order activity from our customers, our cash balance may decrease due to the need to purchase inventories to fulfill those orders. If this occurs, we may need to draw on this facility in order to maintain our liquidity.

This facility contains various conditions, covenants and representations with which we must be in compliance in order to borrow funds. We cannot assure you that we will be in compliance with these conditions, covenants and representations when we may need to borrow funds under this facility, nor can we assure you that the bank will consent to such borrowings, in which case we may need to seek alternative sources of funding, which may not be available quickly or which may be available only on less favorable terms. Our inability to raise the necessary funding in the event we need it could negatively affect our business. In addition, the amount available to us under this facility depends in part on our accounts receivable balance which could decrease due to a decrease in revenue.

This facility expires on December 29, 2017, after which time we may need to secure new financing to continue funding fluctuations in our working capital requirements. We cannot assure you that we will be able to secure new financing in a timely manner or at all, or secure financing on terms that are acceptable to us.

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. For example, on August 2, 2017 we completed the acquisition of ViXS and issued approximately 3.7 million shares of our common stock as consideration. Any additional 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 of our intellectual properties 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, 2016, we had federal and state net operating loss carryforwards of approximately \$226.0 million and \$11.5 million, respectively, which expire between 2017 and 2036. 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.

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, the People's Republic of China ("PRC"), Korea, or Taiwan. Sales outside the U.S. accounted for approximately 99% of revenue for the nine month period ended September 30, 2017 and 100% for the years ended December 31, 2016 and 2015. 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 the PRC or Taiwan. Furthermore, most of our employees are located in the PRC, 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:

- 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;
- difficulties in maintaining sales representatives outside of the U.S. that are knowledgeable about our industry and products;
- changes in the regulatory environment in the PRC, Japan, Taiwan and Korea that may significantly impact purchases of our products by our customers or our customers' sales of their own products;
- outbreaks of health epidemics in the PRC or other parts of Asia;
- 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.

We face additional risks associated with our operations in the PRC and our results of operations and financial position may be harmed by changes in the PRC's political, economic or social conditions.

We have, and expect to continue to have, significant operations in the PRC. The economy of the PRC differs from the economies of many countries 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 the PRC's economic policies will be consistent or effective and our results of operations and financial position may be harmed by changes in the PRC's political, economic or social conditions.

Additionally, our Chinese subsidiary is considered a foreign-invested enterprise and is subject to laws and regulations applicable to foreign investment in the PRC and, in particular, laws applicable to foreign-invested enterprises. For example, the PRC's government imposes control over the convertibility of RMB into foreign currencies, which can cause difficulties converting cash held in RMB to other currencies. While the overall effect of legislation over the past two decades has significantly enhanced the protections afforded to various foreign investments in the PRC, the PRC has not developed a fully integrated legal system, and recently enacted laws and regulations may not sufficiently cover all aspects of economic activities in the PRC. Because these laws and regulations are relatively new, and published court decisions are limited and nonbinding in nature, the interpretation and enforcement of these laws and regulations involve uncertainties. In addition, the PRC'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 the PRC may be protracted, resulting in substantial costs and diversion of resources and management attention. However, since PRC 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 our PRC subsidiary and could materially and adversely affect our business and results of operations.

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, Korea and the PRC. Additionally, with the acquisition of ViXS, we will be exposed to risks resulting from fluctuations in the Canadian Dollar. 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.

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.

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For example, in May 2014, the FASB issued new accounting standards for revenue recognition, and while we are still evaluating the impact the new guidance will have on our results of operations, based on our procedures performed to date, we believe that the timing of revenue recognition for certain of our chip sales may be recognized over time as compared to current recognition which is at a point in time. This may require the Company to recognize revenue earlier than we are recognizing revenue under the current revenue recognition guidance. Any material changes to accounting principles may materially adversely affect our reported financial results and may require that we change how we process, analyze and report financial information.

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 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 ViXS or any other 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 the acquisition, including in the case of acquisitions we may make outside of the United States, including ViXS, 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 the 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 the acquisition. Any failure to successfully integrate ViXS or any other 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. If we are unable to maintain an effective system of internal controls, our results of operations could be harmed and our shareholders could lose confidence in the accuracy and completeness of our financial reports which in turn could cause our stock price to decline.

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 we use any materials containing conflict minerals originating from the DRC and adjoining countries. 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. The implementation of these rules could also affect the sourcing, supply and pricing of materials used in our products. For example, there may only be a limited number of suppliers offering "conflict free" materials, 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 emergency recovery processes, 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.

Company Risks Related to the Semiconductor Industry and Our Markets

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. Because many of our products are more highly integrated than other semiconductors and incorporate mixed signal analog and digital signal processing, multi-chip modules and embedded memory technology, they are 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.

Additionally, customers could seek damages from us for their losses and shipments of defective products may harm our reputation with our customers. We have experienced field failures of our semiconductors 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., Hisilicon Technologies Co., Ltd., i-Chips Technologies Inc., Lattice Semiconductor Corporation, MediaTek Inc., Novatech Co., Ltd. Inc., NVIDIA Corporation, QUALCOMM Incorporated, Realtek Semiconductor Corp., Renesas Electronics America, Sigma Designs, Inc., Solomon Systech (International) Ltd., Spreadtrum Communications, Inc, STMicroelectronics N.V., Sunplus Technology Co., Ltd., Texas Instruments Incorporated, and other companies. Potential and current competitors may include diversified semiconductor manufacturers and the semiconductor divisions or affiliates of some of our customers, including: Broadcom Corporation, LG Electronics, Inc., Matsushita Electric Industrial Co., Ltd., MegaChips Corporation, Mitsubishi Digital Electronics America, Inc., NEC 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.

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.

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 test. 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 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 part (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. For example, a portion of our products use 0.11um technology for memory die, which is being phased out in favor of 63nm technology to increase yields and decrease cost. Because of this transition, our customers must re-qualify the affected parts.

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.

From time to time, shortages of components and materials that are critical to the manufacture of our products and our customers' products may occur. Such critical components and materials include semiconductor wafers and packages, double data rate memory die, display components, analog-to-digital converters, digital receivers, video decoders and voltage regulators. If material shortages occur, we may incur additional costs or be unable to ship our products to our customers in a timely fashion, both of which could harm our business and adversely affect our results of operations.

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 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 September 30, 2017, we held 535 patents and had 99 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.

Other 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;
- Failure to realize the anticipated benefits of the acquisition of ViXS, and unanticipated costs related thereto;
- 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, we issued approximately 3.7 million and 3.0 million shares of our common stock in underwritten registered public offerings in August 2015 and August 2013, respectively. New equity securities issued by us could have rights, preferences or privileges senior to those of our common stock.

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In addition, any such 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, and we have issued approximately 3.7 million shares of our common stock to the former holders of ViXS, such shares which were freely tradeable upon issuance. If one or more of these large shareholders were to sell large portions of their holdings in a relatively short time, or if the former holders of ViXS were to collectively sell large portions of the stock issued as consideration in the acquisition 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 \$1.32 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 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.

In addition to the minimum \$1.00 per share requirement, the NASDAQ Global Market has other listing requirements, including: (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; (ii) a minimum of \$50.0 million in market value of listed securities, \$15.0 million in market value of publicly held securities and at least 1.1 million publicly held shares; or (iii) a minimum of \$10.0 million in shareholders' equity. As of December 31, 2016, we were in compliance with these listing requirements based on the market value and holdings of our listed securities, and on the amount of shareholders' equity. However, as recently as June 30, 2013, our shareholders' equity was below \$10.0 million and as recently as June 30, 2017, our total asset value was less than \$50.0 million. In addition, as recently as during the first quarter of 2016, the aggregate market value of our listed securities was below \$50.0 million. 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 \$15.0 million, respectively. Accordingly, we cannot assure you that we will be able to continue to comply with the NASDAQ'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 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.

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.

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Item 6. Exhibits.

2.1	Arrangement Agreement between Pixelworks, Inc. and ViXS Systems Inc. dated May 18, 2017 (incorporated by reference to Exhibit 2.1 to the Company's Current Report on Form 8-K filed on May 23, 2017),+
2.2	Plan of Arrangement (Schedule A to the Arrangement Agreement), as approved by the Ontario Superior Court of Justice (Commercial List) (incorporated by reference to Exhibit 2.2 to the Company's Current Report on Form 8-K filed on August 8, 2017).
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 Quarterly Report on Form 10-Q filed on August 9, 2004).
3.2	Third Amendment to Sixth Amended and Restated Articles of Incorporation of Pixelworks, Inc. (incorporated by reference to Exhibit 3.1 to the Company's Quarterly Report on Form 10-Q filed on August 11, 2008).
3.3	Second Amended and Restated Bylaws of Pixelworks, Inc. (incorporated by reference to Exhibit 3.3 to the Company's Annual Report on Form 10-K filed on March 10, 2010).
4.1	Form of 10%, Subject to Adjustment, Amended and Restated Secured Convertible Debenture Due September 9, 2019.
4.2	Form of 10%, Subject to Adjustment, Amended and Restated Secured Convertible Debenture Due January 12, 2020.
10.1	Amendment No. 5 to Loan and Security Agreement between Pixelworks and Silicon Valley Bank, dated July 21, 2017. (Incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q filed on August 14, 2017).
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

* Exhibits 32.1 and 32.2 are being furnished and shall not be deemed to be "filed" for under the Securities Act of 1933, as amended (the "Securities Act") or 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 or the Exchange Act, whether made before or after the date hereof and irrespective of any general incorporation language contained in such filing, except to the extent specifically stated in such filing.

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

PIXELWORKS, INC.

Dated: November 14, 2017

/s/ Steven L. Moore

Steven L. Moore
*Vice President, Chief Financial Officer,
Secretary and Treasurer
(Duly Authorized Officer and Principal Accounting and Principal Financial Officer)*

THE SECURITIES REPRESENTED HEREBY, OR THE SECURITIES INTO WHICH SUCH SECURITIES MAY BE CONVERTED, HAVE NOT BEEN REGISTERED UNDER THE UNITED STATES SECURITIES ACT OF 1933 AS AMENDED (THE "U.S. SECURITIES ACT"), AND MAY BE OFFERED, SOLD OR OTHERWISE TRANSFERRED ONLY (A) TO THE CORPORATION, (B) OUTSIDE THE UNITED STATES IN COMPLIANCE WITH RULE 904 OF REGULATION S UNDER THE U.S. SECURITIES ACT, (C) IN COMPLIANCE WITH THE EXEMPTION FROM REGISTRATION UNDER THE U.S. SECURITIES ACT PROVIDED BY RULE 144 OR 144A THEREUNDER, IF AVAILABLE, AND IN COMPLIANCE WITH ANY APPLICABLE STATE SECURITIES LAWS, OR (D) WITH THE PRIOR WRITTEN CONSENT OF THE CORPORATION (WHICH MAY BE CONDITIONED ON DELIVERY OF A LEGAL OPINION IN FORM AND SUBSTANCE SATISFACTORY TO THE CORPORATION), PURSUANT TO ANOTHER EXEMPTION FROM REGISTRATION UNDER THE U.S. SECURITIES ACT AND ANY APPLICABLE STATE SECURITIES LAWS.

UNLESS PERMITTED UNDER SECURITIES LEGISLATION, THE HOLDER OF THIS SECURITY SHALL NOT TRADE THE SECURITIES BEFORE JANUARY 10, 2017.

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VIXS SYSTEMS INC.

Incorporated under the Canada Business Corporations Act

10.00%, Subject to Adjustment, Amended and Restated Secured Convertible Debenture

Due September 9, 2019

VIXS SYSTEMS INC. (the "Corporation") for value received hereby promises to pay to (the "Holder") or registered assigns on September 9, 2019, or such earlier or later date as the principal sum hereof may become due, subject to and in accordance with the terms, conditions and provisions of Schedule "A" attached hereto and forming a part hereof, on presentation and surrender of this Debenture, the principal sum of \$ (the "Principal Sum") in lawful money of Canada as provided in Schedule "A", at the offices of the Corporation at 1210 Sheppard Ave E, Suite 800, Toronto, Ontario M5K 1E3 (or such other place or time or in such other manner as is herein provided) and to accrue and pay interest on the Principal Sum outstanding hereunder at such time, or at such other times as set out in Schedule "A", at the rate of 10.00% per annum, subject to adjustment, from the date of issue until full and final payment and discharge hereof, or until conversion or redemption of this Debenture on the terms set out in Schedule "A". Interest accruing hereunder shall be calculated daily on the basis of a 365 day year and shall accrue semi-annually not in advance of the last day of each of the months of March and September until full and final payment and discharge hereof at maturity, or until conversion or redemption of this Debenture on the terms set out in Schedule "A". The first interest accrual date being September 30, 2017 and will represent accrued and unpaid interest from the date of issue to but excluding September 30, 2017. Any amount of interest not paid when due (including overdue and unpaid interest), and all interest calculated after maturity, default and judgment, shall bear interest per annum equal to the applicable Interest Rate (as defined below) in accordance with the terms, conditions and provisions in Schedule "A", be calculated daily, be compounded on the last Business Day of each month, and shall be paid on demand by the Holder. The theory of deemed reinvestment shall not apply to the calculation of interest or the payment of other amounts hereunder.

This Debenture is issued upon the terms and conditions, including redemption and conversion, as are set out in Schedule "A" hereto, and the terms, conditions and provisions contained in Schedule "A", including its appendices are incorporated herein and constitute a part hereof. Unless the context otherwise requires, capitalized expressions herein shall have the meaning ascribed to them in Schedule "A" hereto.

IN WITNESS WHEREOF, the Corporation has caused the initial Debenture dated as of September 9, 2016 to be amended and restated effective as of August 2, 2017 pursuant to the terms of this Amended and Restated Debenture.

VIXS SYSTEMS INC.

By:

Name: Steven L. Moore

Title: Chief Financial Officer

SCHEDULE "A"

The following conditions are applicable to the 10.00%, subject to adjustment, Amended and Restated Secured Convertible Debentures, due September 9, 2019, of ViXS Systems Inc.

ARTICLE 1 INTERPRETATION

Section 1.1 Definitions.

In this Debenture, unless there is something in the subject matter or context inconsistent therewith, the following expressions shall have the following meanings, namely:

"Act" means the *Securities Act* (Ontario), as such legislation may be amended, supplemented or replaced from time to time;

"Adjustment Period" means the period from and including the date hereof up to and including the Expiry Time;

"Affiliate" has the meaning ascribed to such term in National Instrument 45-106 - *Prospectus Exemptions*, as such instrument may be amended, supplemented or replaced from time to time;

"Applicable Canadian Securities Laws" means all applicable securities and related laws, rules, regulations, and the notices and policies of the Securities Commissions;

"Applicable Laws" means, in relation to any Person, property, transaction or event, all applicable provisions, whether now or hereafter in effect (or mandatory applicable provisions, if so specified) of federal, provincial, state or local laws, statutes, rules, regulations, official directives and orders of all Governmental Authorities (whether or not having the force of law) and all judgments, orders and decisions of all Governmental Authorities in which the Person in question is a party or by which it is bound or having application to the Person, property, transaction or event;

"Applicable Securities Laws" means Applicable Canadian Securities Laws together with Applicable U.S. Securities Laws;

"Applicable U.S. Securities Laws" means all applicable United States federal and state securities laws, rules, regulations, notices and policies;

"Business Day" means a day (other than a Saturday, Sunday or statutory holiday) on which banks are generally open for business in the City of Toronto, Ontario;

"Change of Control" means

- (a) a transaction whereby property constituting all or substantially all of the assets of the Corporation or the Purchaser are sold, in one or more related transactions, to any "person" or "company" (as such terms are defined in the Act) or to a combination of persons or companies; or
- (b) an event or series of events (whether a share purchase, amalgamation, merger, reorganization, arrangement, consolidation or other business combination or otherwise), other than solely involving the Corporation or the Purchaser and one or more of their respective Affiliates, by which any person or company is or becomes the "beneficial owner" (as defined in Section 1(5) of the Act) directly or indirectly of fifty-one percent (51%) or more of the combined voting power of the then outstanding securities of the Corporation or the Purchaser (for greater certainty, this shall not include a public offering or private placement out of treasury); or
- (c) a formal bid or tender offer for Common Shares being made (other than by the Purchaser or any Affiliate of the Purchaser or by an employee benefit plan established or maintained by the Purchaser or any Affiliate) as a result of which the offeror and its affiliates would, if successful, beneficially own, directly or indirectly, fifty-one percent (51%) or more of the Common Shares then outstanding;

"Closing Date" means September 9, 2016;

“Common Shares” means, subject to adjustment by application of Article 7, fully paid and non-assessable shares of common stock in the capital of the Purchaser as presently constituted;

“Conversion Date” means the date on which this Debenture, or any portion thereof, is surrendered by the Holder for conversion;

“Conversion Price” means \$7.24 per Common Share, or one (1) Common Share per \$7.24 of Principal Sum, subject to adjustment in accordance with the provisions of Article 7, in which case it shall mean the adjusted price in effect at such time after such adjustment;

“Conversion Right” means the right of the Holder to convert a portion or all of the Principal Sum into Common Shares at the Conversion Price pursuant to Article 5;

“Corporation” means ViXS Systems Inc.;

“Debenture” means this 10.00%, subject to adjustment, amended and restated secured convertible debenture and **“Debentures”** means all of the Debentures issued pursuant to the Private Placement;

“Default” means any event or circumstance which, with the giving of notice or lapse of time or otherwise, would constitute an Event of Default;

“Director” means a director of the Corporation for the time being and, unless otherwise specified herein, reference to action “by the directors” means action by the directors of the Corporation as a board or, whenever duly empowered, action by any committee of such board;

“Event of Default” means any event specified in Article 9, which has not been waived, cured or remedied;

“Expiry Time” means 4:30 p.m. (Toronto time) on the Maturity Date;

“Governmental Authority” means any (i) multinational, federal, provincial, state, municipal, local or other government, governmental or public department, central bank, court, commission, board, bureau, agency or instrumentality, domestic or foreign, (ii) any subdivision or authority of any of the foregoing, or (iii) any quasi-governmental or private body exercising any regulatory, expropriation or taxing authority under or for the account of any of the above;

“Holder” means the holder of this Debenture and **“Holders”** means the holders all of all Debentures issued pursuant to the Private Placement;

“including” means including, without limitation, and shall not be construed to limit any general statement which it follows to the specific or similar items or matters immediately following it, and **“includes”** shall be construed in a like manner;

“Indebtedness” means all present and future obligations, indebtedness, liabilities, covenants, agreements and undertakings of the Corporation howsoever arising, whether direct or indirect, secured or unsecured, absolute or contingent, matured or not, extended or renewed, wheresoever and howsoever incurred, including all future advances and re-advances, and whether the same is from time to time reduced and thereafter increased or entirely extinguished and thereafter incurred again and whether the Corporation be bound alone or with others and whether as principal or surety, including all interest, fees, expenses, indemnities and costs;

“Intercreditor Agreement” means the agreement to be entered into amongst all of the Holders;

“Interest Rate” means a rate of interest of ten per cent (10.00%) per annum calculated on the basis of a 365 day year, subject to adjustment pursuant to Section 2.2 and Section 2.3;

“Junior Indebtedness” has the meaning set forth in Section 3.1(1);

“Market Price” means the VWAP on NASDAQ, or another stock exchange where the majority of the trading volume and value of the Common Shares occurs, for the five trading days immediately preceding the relevant date. If the Common Shares are not then listed on any Canadian or U.S. stock exchange, in the over-the-counter market; provided that the volume weighted average price will be determined by dividing the aggregate sale price of all Common Shares sold during

the applicable period on the said exchange or market, as the case may be, by the total number of Common Shares so sold; and provided further that if the Common Shares are not then listed on any Canadian or U.S. stock exchange or traded in the over-the counter market, then the Market Price will be determined by such firm of independent chartered accountants as may be selected by the directors of the Corporation, acting reasonably;

“**Maturity Date**” has the meaning set forth in Section 6.2;

“**Obligations**” means all of the present and future obligations, liabilities, indebtedness, covenants and agreements, direct or indirect, absolute or contingent, matured or not, extended or renewed, of the Corporation to the Holder under this Debenture, including interest, interest on overdue and unpaid interest, fees, costs, expenses and indemnities and “**Obligation**” means any of them;

“**Payment Account**” means the account of the Holder as the Holder may from time to time advise the Corporation in writing;

“**Person**” means any individual, firm, partnership, company, corporation or other body corporate, government, governmental body, agency, instrumentality, unincorporated body of Persons or association and the heirs, executors, administrators or other legal representatives of an individual;

“**Purchaser**” means Pixelworks, Inc.;

“**Plan Trust**” means any RRSP, RRIF, deferred profit sharing plan, registered disability savings plan, registered education savings plan or TFSA;

“**Principal Sum**” has the meaning ascribed thereto on the front page of this Debenture or such greater or lesser amounts owing under this Debenture;

“**Prime Rate**” means, on any date, the annual rate of interest established by the Bank of Montreal as its reference rate for that day for commercial loans made by it in Canada in Canadian dollars;

“**Private Placement**” means the private placement of Debentures in the aggregate principal amount of \$3,650,000 issued on the Closing Date;

“**Redemption Amount**” means, in respect of any redemption of this Debenture pursuant to Article 6, the Principal Sum to be redeemed;

“**Redemption Date**” has the meaning set forth in Section 6.1;

“**Redemption Notice**” has the meaning set forth in Section 6.1;

“**Registration Date**” means the date on which the S-3 Registration Statement is declared effective;

“**Rights Period**” has the meaning set forth in Section 7.1(b);

“**Rights Offering**” has the meaning set forth in Section 7.1(b);

“**RRIF**” means a registered retirement income fund as it is defined in the Tax Act;

“**RRSP**” means a registered retirement savings plan as it is defined in the Tax Act;

“**S-3 Registration Statement**” means the registration statement filed by the Purchaser on Form S-3 under the U.S. Securities Act to register the shares of common stock in the capital of the Purchaser to be issued from time to time upon the conversion of the Debenture;

“**Secured Creditors Representative**” has the meaning given to such term in the General Security Agreement;

“**Securities Commissions**” means, collectively, the securities commissions or similar regulatory authorities in each of the Provinces of Canada;

“**Senior Indebtedness**” has the meaning set forth in Section 3.1(2);

“**Shareholder**” means a holder of record of one or more Common Shares;

“**Tax**” means all present and future taxes, rates, levies, imposts, assessments, dues, government fees, stamp taxes, deductions, charges or withholdings, and all indebtedness with respect thereto, and any interest, additions to tax and penalties imposed with respect thereto, excluding, with respect to the Holder, taxes imposed on its income or capital and franchise taxes imposed on it by any taxation authority;

“**Tax Act**” means the *Income Tax Act* (Canada) and the regulations promulgated thereunder, and amendments thereto proposed by or on behalf of the Minister of Finance prior to the date hereof;

“**TFSA**” means a tax-free savings account as it is defined in the Tax Act;

“**U.S. Securities Act**” means the United States *Securities Act of 1933*, as amended;

“**United States**” and “**U.S. Person**” have the meaning given to such terms under Regulation S of the U.S. Securities Act. For purposes of Regulation S, “**United States**” means the United States of America, its territories and possessions, any state of the United States and the District of Columbia. “**U.S. Person**” includes, but is not limited to, with certain exceptions, any partnership or corporation organized or incorporated under the laws of the United States;

“**VWAP**” means the volume weighted average trading price of the Common Shares, calculated by dividing the total value by the total volume of the Common Shares traded for the relevant period;

“**written order of the Corporation**”, “**written request of the Corporation**”, “**written consent of the Corporation**” and “**certificate of the Corporation**” mean, respectively, a written order, request, consent and certificate signed in the name of the Corporation by any one of its Chief Executive Officer or Chief Financial Officer, and may consist of one or more instruments so executed.

Section 1.2 Headings, Etc.

The division of this Debenture into Articles and Sections and the insertion of headings are for convenience of reference only and shall not affect the construction or interpretation of this Debenture.

Section 1.3 Day Not a Business Day.

In the event that any day on or before which any action is required to be taken hereunder is not a Business Day, then, except as otherwise provided herein, such action shall be required to be taken on a Business Day which is the next following day that is a Business Day.

Section 1.4 Currency.

All references to currency herein shall be to lawful money of Canada unless otherwise expressly specified.

Section 1.5 Consents or Approvals.

It shall be a condition hereof that any consent or approval of the Holder required hereby shall be obtained in writing prior to the event for which it is required.

Section 1.6 Expanded Meanings.

Unless the context otherwise necessarily requires, the following provisions shall govern the interpretation of this Debenture:

- (a) words used herein importing the singular number only shall include the plural and vice versa, and words importing the use of any gender shall include all genders;
 - (b) all references to Sections, Articles, Schedules and Appendices are to Sections, Articles, Schedules and Appendices to this Debenture;
 - (c) references herein to any agreement or instrument shall be deemed to be references to the agreement or instrument as varied, amended, modified, supplemented or replaced from time to time, and any specific references herein to any enactment, regulation, order, ruling or decision shall be deemed to be references to such enactment, regulation, order, ruling or decision as the same may be re-enacted, varied, amended, modified, supplemented or replaced from time to time; and
 - (d) “this Debenture”, “the Debenture”, “hereto”, “herein”, “whereby”, “hereunder”, “hereof” and similar expressions refer to this 10.00%, subject to adjustment, amended and restated secured convertible debenture due September
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9, 2019, to which this Schedule is attached and to the Schedules attached thereto, taken as a whole, and not to any particular Article, Section, subsection, paragraph, subdivision or other portion hereof and include any and every instrument supplemental or ancillary hereto and every debenture issued in replacement hereof.

Section 1.7 Interpretation of “Outstanding”.

This Debenture shall be deemed to be outstanding until the later of the date on which:

- (e) monies or securities for the payment of all amounts owing to the Holder hereunder shall have been paid and delivered to the Holder whether on, after or prior to the Maturity Date; and
- (f) the obligations of the Corporation hereunder shall have been duly performed as herein contemplated, or otherwise discharged to the satisfaction of the Holder.

Section 1.8 Appendices.

The following are the Appendices annexed to and incorporated in this Debenture by reference to their respective numbers as given below and which are deemed to be part hereof:

Appendix 1 - Conversion Notice

Appendix 2 - General Security Agreement

**ARTICLE 2
INTEREST**

Section 2.1 Interest on Principal Sum.

Subject to Section 2.2 and Section 2.3, the Principal Sum shall bear interest both before and after maturity, default and judgment from and including the Closing Date to the date of repayment in full at a rate equal to the Interest Rate calculated on a daily basis and on the basis of the actual number of days elapsed in a year of 365 days and accrue semi-annually not in advance on the last day of each of the months of March and September.

Section 2.2 Interest Rate Adjustment:

- (1) If, after the Registration Date, the Market Price of the Common Shares exceeds the US dollar equivalent (based on the exchange rate quoted by the Bank of Canada at the relevant time) of \$16.54, subject to adjustment in accordance with Article 7 hereof (the “**Adjustment Price**”) for fifteen consecutive trading days, then the Interest Rate will be reduced to one percent (1.0%) per annum fixed from the first day following this fifteen-day period.
- (2) Once the Interest Rate is reduced as described above, the Interest Rate applicable to the Debentures will remain at the lower rate regardless of what happens to the Market Price of the Common Shares after the applicable date of adjustment.

Section 2.3 Extension Period Interest Rate.

Notwithstanding Section 2.2, if the Maturity Date is extended pursuant to Section 6.2, the Interest Rate will be as follows:

- (a) If on September 9, 2019 the Principal Sum and any accrued and unpaid interest is not fully paid and delivered to the Holder, then the Interest Rate will equal to the Prime Rate on September 9, 2019 plus 8% per annum fixed from the first day following September 9, 2019;
- (b) If on September 9, 2020, the Principal Sum and any accrued and unpaid interest is not fully paid and delivered to the Holder, then the Interest Rate will equal to the Prime Rate on September 9, 2020 plus 8% per annum fixed from the first day following September 9, 2020; and
- (c) If on September 9, 2021, the Principal Sum and any accrued and unpaid interest is not fully paid and delivered to the Holder, then the Interest Rate will equal to the Prime Rate on September 9, 2021 plus 8% per annum fixed from the first day following September 9, 2021.

Section 2.4 Compounding

Notwithstanding anything in this Debenture, if on September 9, 2019 the Principal Sum and any accrued and unpaid interest is not fully paid and delivered to the Holder, then any amount of interest not paid thereat and all interest calculated thereafter shall be added to the Principal Sum, be calculated daily at the applicable Interest Rate, in accordance with Section 2.3, and be compounded on September 9.

Section 2.5 Payment of Interest.

Interest on this Debenture is payable on the last day of each of the months of March and September. The first interest payment date being September 30, 2017 and will represent accrued and unpaid interest from the present date to but excluding September 30, 2017.

Section 2.6 Payment of Overdue Interest.

The Corporation shall, on demand, pay to the Holder by depositing to the Payment Account, interest on all overdue payments in connection with this Debenture from the date any such payment becomes overdue and for so long as such amount remains

unpaid at a rate per annum which is equal to the applicable Interest Rate. Interest at the applicable Interest Rate on overdue amounts shall be calculated daily, compounded monthly on the last Business Day of the month, and shall be payable both before and after default, maturity, and judgment.

Section 2.7 Compliance with the *Interest Act* (Canada).

For the purposes of this Debenture, whenever any interest is calculated on the basis of a period of time other than a calendar year, the annual rate of interest to which each rate of interest determined pursuant to such calculation is equivalent for the purposes of the *Interest Act* (Canada) is such rate as so determined multiplied by the actual number of days in the calendar year in which the same is to be paid and divided by the number of days used in the basis of such determination.

Section 2.8 Withholding Tax.

The Corporation shall be entitled to deduct and withhold from any amount paid or credited (or deemed to be paid or credited) hereunder to any Holder as, on account or in lieu of payment of, or in satisfaction of interest such amounts as the Corporation is required to deduct and withhold with respect to such payment under the Tax Act. To the extent that amounts are so withheld, such withheld amounts shall be treated for all purposes hereof as having been paid to the Holder in respect of which such deduction and withholding was made provided such amounts are remitted to the appropriate taxation authority. To the extent that the amount so required to be deducted or withheld from any payment to a Holder exceeds the cash portion of the consideration otherwise payable to the Holder at such time, the Corporation is hereby authorized to sell or otherwise dispose of such portion of the consideration as is necessary in order to provide sufficient funds to the Corporation to enable it to comply with such deduction or withholding requirement and the Corporation shall notify the Holder thereof of the same and remit any unapplied balance of the net proceeds of such sale to the Holder.

Section 2.9 Interest Generally.

The theory of deemed reinvestment shall not apply to the calculation of interest or payment of fees or other amounts hereunder, notwithstanding anything contained in this Debenture, and all interest and fees payable by the Corporation to the Holder shall accrue from day to day and be computed as described herein.

Section 2.10 Time, Place and Currency of Payment.

Payments of principal (including the Principal Sum), accrued and unpaid interest, fees and all other amounts payable by the Corporation pursuant to this Debenture shall be paid at or before 5:00 p.m. (Toronto time) on the day such amount is due. If any such day is not a Business Day such amount shall be deemed for all purposes of this Debenture to be due on the next immediately following day that is a Business Day. All payments shall be made to the Payment Account.

Section 2.11 Judgment Currency.

If, for the purpose of calculating the amount of any judgment in any court, it is necessary to convert the currency of any obligation giving rise to the judgment (the “**First Currency**”) into another currency (the “**Other Currency**”), the rate of exchange used shall be that at which the party obtaining such judgment could purchase the First Currency with the Other Currency from the Holder determined at the close of business on the Business Day immediately preceding the day on which judgment is rendered. The obligation of the party making payment on account of any judgment shall, notwithstanding any judgment in such Other Currency, be discharged only to the extent that, on the Business Day following the receipt of any sum paid on account of the judgment in the Other Currency, the recipient could purchase the First Currency from the Holder at 12:00 o’clock noon (Toronto time) on such date. If the value in the Other Currency of the First Currency so purchased or capable of being purchased is less than the sum due to the payee in the First Currency before conversion into the Other Currency, the payor, as a separate and distinct obligation and notwithstanding such judgment or payment, shall indemnify the payee against any loss and, if the value in the Other Currency of the First Currency so purchased or capable of being purchased exceeds the sum originally due to the payee in the First Currency before the conversion into the Other Currency, the payee shall remit such excess to the payor.

**ARTICLE 3
SENIOR INDEBTEDNESS**

Section 3.1 Senior Debt.

1. For all purposes of this Debenture “**Junior Indebtedness**” means all Indebtedness for money borrowed by the Corporation, whether outstanding on the date of this Debenture or thereafter created or incurred, unless the Indebtedness is pursuant to the \$3,400,000 principal amount of secured convertible debentures of the Corporation issued on or about January 12, 2016 (the “**Existing Debentures**”).
 2. The indebtedness payable under this Debenture, including the Principal Sum and interest hereunder (such indebtedness being hereinafter referred to as “**Senior Indebtedness**”), shall be senior in right of payment, to the extent and in the manner set forth herein, to the payment in full of all Junior Indebtedness, and the Holder by its acceptance hereof agrees to and shall be bound by the provisions hereof.
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3. If and whenever at any time, or from time to time, an event of default has occurred and is continuing uncured under, or in connection with, any Junior Indebtedness or any agreement or instrument relating thereto, and written notice of such event of default has been given by or on behalf of one or more holders of such Junior Indebtedness to the Corporation, no payment on account of the Junior Indebtedness shall be made to such holders and such holders shall not be entitled to receive any payment or benefit whatever on account of the Junior Indebtedness, unless and until the Senior Indebtedness shall have been first paid in full or the holders of all Senior Indebtedness shall have consented to such payment on account of the Junior Indebtedness.
4. Nothing contained herein is intended to or shall impair, or affect the relative rights of the Holder and creditors of the Corporation other than the holders of Junior Indebtedness, nor shall anything herein or therein prevent such holders from exercising all remedies otherwise permitted by Applicable Laws upon default under such Junior Indebtedness, subject to the rights of the holders of Senior Indebtedness in respect of assets of the Corporation received upon the exercise of any such remedy.

ARTICLE 4 SECURITY

Section 4.1 Security.

As security for the due and punctual payment of all of the Obligations, the Corporation has delivered to and in favour of Holders an amended and restated general security agreement dated November 21, 2016 (“**General Security Agreement**”), attached hereto as Appendix 2.

Section 4.2 Release of Security.

Following due payment and performance in full in cash, or as otherwise as permitted by the Debenture, of all Obligations of the Corporation under this Debenture, the Holder will, at the request, cost and expense of the Corporation, release and discharge the Holder’s right and interest in the property subject to the security granted pursuant to the General Security Agreement.

ARTICLE 5 EXERCISE OF CONVERSION RIGHT

Section 5.1 Conversion Right.

1. Upon delivering a conversion notice to the Corporation substantially in the form provided in Appendix 1, and subject to the terms and conditions of this Article 5, the Holder shall have the right, at its option, at any time, and from time to time between the date that is ninety (90) days after the Closing Date and the Expiry Time, to convert the Principal Sum in whole or in multiples of \$50,000 (or the entire outstanding Principal Sum if less than \$50,000), at the option of the Holder into fully paid non-assessable Common Shares at the Conversion Price.
2. The Conversion Right shall entitle the Holder, and the Holder shall have authority to exercise its option at its sole discretion, to receive on the Conversion Date (i) Common Shares, and (ii) all accrued and unpaid interest on the Principal Sum and any other amount then payable by the Corporation to the Holder hereunder up to the Conversion Date.
3. The Holder may only exercise the Conversion Right by surrendering to the Corporation, prior to the Expiry Time, this Debenture with a duly completed conversion notice specifying the following:
 - a. the Principal Sum in respect of which the Conversion Right is being exercised;
 - b. to the extent known, the number of Common Shares which the Holder wishes to acquire (being not more than those which the Holder is entitled to acquire);
 - c. the Person or Persons in whose name or names such Common Shares are to be issued;
 - d. the address or addresses of such Persons;
 - e. the number of Common Shares to be issued to each such Person if more than one is so specified;
 - f. the address where the new Debenture, if any, representing the unconverted portion of the Principal Sum may be sent, if applicable; and
 - g. the Conversion Date for the Debenture being converted, being a date not less than three (3) days nor more than ten (10) days after the date that the conversion notice is deemed by Section 14.4 to have been effectively given and received.
4. Once notice of the exercise of the Conversion Right, in whole or in part, by the Holder is received, or deemed to be received by the Corporation pursuant to Section 14.4, the Holder may not revoke, cancel or otherwise withdraw the giving of notice to exercise its Conversion Right, except with the express written consent of the Corporation, given prior to the Conversion Date.

Section 5.2 Effect of Exercise of Conversion Right.

1. Upon the exercise of the Conversion Right pursuant to Section 5.1, subject to Section 5.3, the Common Shares subscribed for shall be deemed to have been issued and the Person or Persons to whom such Common Shares are to be issued shall be deemed to have become the holder or holders of record of such Common Shares on the Conversion Date unless (i) the transfer registers of the Purchaser shall be closed on such date (including by application of any Applicable Laws), or (ii) in connection with the Conversion Right such notice of conversion is withdrawn, revoked or cancelled in accordance with Section 5.1(4), and in the case of (i) the Common Shares subscribed for shall be deemed to have been issued and
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such Person or Persons deemed to have become the holder or holders of record of such Common Shares, on the date on which such transfer registers are reopened.

2. Within ten (10) Business Days following the Conversion Date, the Corporation shall cause to be (i) delivered, a share certificate or certificates for the appropriate number of Common Shares acquired, to, or (ii) registered in the name of, the Holder or the Person or Persons in whose name or names the Common Shares have been issued, as specified in the conversion notice referred to in Section 5.1.

Section 5.3 Partial Exercise of Conversion Right; Fractions.

1. Subject to Section 5.1(2) the Holder may elect to convert less than the whole Principal Sum, in which case the Holder upon the exercise of the Conversion Right shall be entitled to receive, without charge therefor, a new Debenture in respect of the balance of the Principal Sum which is not converted.
2. Notwithstanding anything herein contained, including any adjustment provided for in Article 7, the Corporation shall not be required, upon the exercise of the Conversion Right, or upon redemption, to issue fractions of Common Shares or to distribute certificates which evidence fractional Common Shares. In lieu of fractional Common Shares, the Corporation shall pay to the Holder within ten (10) Business Days after the Conversion Date, or upon redemption, an amount in lawful money of Canada equal to the Conversion Price of the Common Shares on such date multiplied by an amount equal to the fractional interest of Common Shares such Holder would otherwise be entitled to receive upon such exercise or upon conversion, provided that the Corporation shall not be required to make any payment, calculated as aforesaid, that is less than \$1.00.

Section 5.4 Cancellation and Distribution of Debenture.

Any portion of this Debenture converted under this Article 5 shall forthwith be cancelled by the Corporation and no Debenture shall be issued in substitution for the portion so cancelled as a result of conversion.

Section 5.5 Expiration of Conversion Right.

At the Expiry Time, the Conversion Right shall cease and terminate with respect to any amount of the Principal Sum which has not been converted, and is otherwise outstanding at such time, and for which the conversion notice described in Section 5.1 was not duly and properly given before such time, except to the extent that the Holder has not received certificates representing the Common Shares issued or been registered as the owner of such Common Shares, or has not received payment for any fractional Common Shares pursuant to Section 5.3(2), upon due exercise of the Conversion Right prior to the Expiry Time, in which instances the Holder's rights hereunder shall continue until it has received that to which it is entitled hereunder.

Section 5.6 Securities Law Restrictions.

Notwithstanding anything herein contained, Common Shares will only be issued pursuant to the Conversion Right, as applicable, in compliance with Applicable Securities Laws.

Section 5.7 Holder Not a Shareholder.

Nothing in this Debenture shall, in itself, confer or be construed as conferring upon the Holder any right or interest whatsoever as a Shareholder or as any other shareholder of the Corporation, including, but not limited to, the right to vote at, to receive notice of, or to attend, meetings of Shareholders or any other proceedings of the Corporation, or the right to receive dividends and other distributions.

Section 5.8 Charges for Exchange or Transfer.

The Corporation will from time to time promptly pay or make provision satisfactory to the Holder for the payment of any and all Taxes which may be imposed by Applicable Laws with respect to the issuance or delivery of the Common Shares to the Holder upon the exercise of the Conversion Right.

**ARTICLE 6
REDEMPTION and REPAYMENT BY THE CORPORATION**

Section 5.1 Redemption.

The Corporation, at its sole option, subject to providing no more than ninety (90) and no less than sixty (60) days' prior notice ("**Redemption Notice**"), may redeem the Debentures in whole or in multiples of \$500,000 and pro-rated over all outstanding Debentures of the Corporation issued pursuant to the Private Placement, at any time between:

- a. the Registration Date and December 31, 2017 at a redemption price equal to 110% of the Principal Sum of the Debentures plus accrued and unpaid interest; and
- b. January 1, 2018 until the Maturity Date at a redemption price equal to the Principal Sum of the Debentures plus accrued and unpaid interest.

Prior to the Registration Date, the Corporation shall not provide a Redemption Notice. Following receipt of a Redemption Notice and up to the day immediately prior to the date set for redemption (the "**Redemption Date**"), the Holder shall, subject to Section 5.5, maintain its right to convert, in whole or in part, the Debenture into Common Shares at the Conversion Price.

Section 6.2 Repayment at the Maturity Date.

This Debenture shall be repayable in full as to the Principal Sum, together with all accrued and unpaid interest then outstanding hereunder, as well as any and all other sums then payable by the Corporation to the Holder hereunder, on the earlier of September 9, 2019 and the date on which the Principal Sum and the accrued and unpaid interest is declared, or deemed to be, due and owing as a result of an Event of Default; provided, however, that, with the consent of the Holder and the Corporation, if on September 9, 2019 the Principal Sum and any accrued and unpaid interest is not fully paid and delivered to the Holder at such time, then the maturity date on this Debenture may be extended for up to three years (the "Maturity Date").

ARTICLE ADJUSTMENTS

Section 7.1 Adjustment of Conversion Price.

The Conversion Price and Adjustment Price, as the case may be, in effect at any date shall be subject to adjustment from time to time as follows:

- a. if and whenever at any time during the Adjustment Period, the Purchaser shall:
 - i. subdivide, redivide or change its outstanding Common Shares into a greater number of such shares; or
 - ii. reduce, combine or consolidate its outstanding Common Shares into a smaller number of such shares;
 - iii. issue Common Shares or securities exchangeable or convertible into Common Shares to the holders of all or substantially all of the outstanding Common Shares by way of a dividend or distribution;then the Conversion Price and Adjustment Price, as the case may be, in effect on the effective date of such subdivision, redivision, change, reduction, combination or consolidation, as the case may be, shall in the case of the events referred to in (i) and (iii) above, be decreased in proportion to the number of outstanding Common Shares resulting from such subdivision, redivision or change, or shall, in the case of the events referred to in (ii) above, be increased in proportion to the number of outstanding Common Shares resulting from such reduction, combination or consolidation; in each case by multiplying the Conversion Price and Adjustment Price, as the case may be, in effect on such effective date by a fraction of which the numerator shall be the total number of Common Shares outstanding immediately prior to such date and the denominator shall be the total number of Common Shares outstanding immediately after such date. Such adjustment shall be made successively whenever any event referred to in this Section 7.1(a) shall occur;
- b. if and whenever at any time during the Adjustment Period, the Purchaser shall fix a record date for the issuance of rights, options or warrants to all or substantially all the holders of its outstanding Common Shares entitling them, for a period expiring not more than 45 days after such record date (the "Rights Period"), to subscribe for or purchase Common Shares (or securities convertible or exchangeable into Common Shares) at a price per share (or having a conversion or exchange price per share) less than 95% of the Market Price for Common Shares ending on the third trading day prior to such record date (any such events being called a "Rights Offering"), then the Conversion Price and Adjustment Price, as the case may be, shall be adjusted immediately after the end of the Rights Period so that it shall equal the amount determined by multiplying the Conversion Price and Adjustment Price, as the case may be, in effect immediately prior to the end of the Rights Period by a fraction:
 - i. the numerator of which will be the aggregate of:
 1. the total number of Common Shares outstanding as of the record date for such Rights Offering, and
 2. a number determined by dividing (i) the product of the number of Common Shares subscribed for during the Rights Period upon the exercise of the rights, options or warrants under the Rights Offering and the price at which such Common Shares are offered for such issue or subscription, by (ii) the Market Price for Common Shares ending on the third trading day prior to such record date for the commencement of the Rights Offering, and
 - ii. the denominator of which will be the total number of Common Shares outstanding, or the number of Common Shares which would be outstanding if all the exchangeable or convertible securities were exchanged for or converted into Common Shares during the Rights Period, after giving effect to the Rights Offering and including the number of Common Shares actually issued or subscribed for during the Rights Period upon exercise of the rights, warrants or options under the Rights Offering;provided that any Common Shares owned by or held for the account of the Purchaser or any subsidiary shall be deemed not to be outstanding for the purpose of any such computation; such adjustment shall be made successively whenever such a record date is fixed; and to the extent that any such rights, options or warrants are not issued or exercised prior to the expiration thereof, the Conversion Price and Adjustment Price as the case may be, shall be readjusted to the Conversion Price and Adjustment Price, as the case may be, which would then be in effect if such record date had not been fixed or to the Conversion Price and Adjustment Price, as the case

may be, which would then be in effect based upon the number of Common Shares (or securities convertible into Common Shares) actually issued upon the exercise of such rights, options or warrants, as the case may be;

- c. if and whenever at any time during the Adjustment Period the Purchaser shall fix a record date for the making of a distribution to all or substantially all the holders of its outstanding Common Shares of (i) shares or other securities of any class, whether of the Purchaser or any other corporation (including stock dividends); (ii) rights, options or warrants (excluding those referred to in Section 7.1(b)); (iii) evidences of its indebtedness; (iv) assets (including cash) or property of the Purchaser; or (v) cash dividends or distributions, then, in each such case, the Conversion Price and Adjustment Price, as the case may be, shall be adjusted immediately after such record date so that it shall equal the price determined by multiplying the Market Price per Common Share in effect on such record date by a fraction, of which the numerator shall be the total number of Common Shares outstanding on such record date multiplied by the Market Price per Common Share on such record date, less the fair market value (as determined by the Directors, acting reasonably, subject to Section 7.4) of such shares, rights, options, warrants, evidences of indebtedness or assets so distributed, and of which the denominator shall be the total number of Common Shares outstanding on such record date multiplied by such Market Price per Common Share; provided that:
 - i. Common Shares owned by or held for the account of the Purchaser or any subsidiary shall be deemed not to be outstanding for the purpose of any such computation;
 - ii. such adjustment shall be made successively whenever such a record date is fixed;
 - iii. to the extent that such distribution is not so made, the Conversion Price and Adjustment Price, shall be readjusted to the Conversion Price and Adjustment Price, which would then be in effect if such record date had not been fixed or to the Conversion Price and Adjustment Price, which would then be in effect based upon such shares or rights, options or warrants or evidences of indebtedness or assets actually distributed, as the case may be;
- d. subject to Section 9.1(f) and Section 9.2, if and whenever at any time during the Adjustment Period, there is a reclassification of the Common Shares or a capital reorganization of the Purchaser other than as described in Section 7.1(a) or a Change of Control, the Holder shall, upon the exercise of the Conversion Right, be entitled to receive and shall accept, in lieu of the number of shares then sought to be acquired by it, the number of shares or other securities of the Purchaser or of the body corporate, trust, partnership or other entity resulting from such Change of Control, or to which a sale or conveyance of substantially all of the assets of the Purchaser may be made, as the case may be, that the Holder would have been entitled to receive on such reclassification, capital reorganization or Change of Control, if, on the record date or the effective date thereof, as the case may be, the Holder had been the registered holder of the number of Common Shares sought to be acquired by it and to which it was entitled to acquire upon the exercise of the Conversion Right and a contemporaneous and equal adjustment shall be made to the Conversion Price and the Adjustment Price;
- e. in any case in which Section 7.1(b) or Section 7.1(c) require that an adjustment be made to the Conversion Price and the Adjustment Price, no such adjustment shall be made if, the Holder receives the rights, options or warrants referred to in Section 7.1(b) or the share rights, options, warrants, evidences of indebtedness or assets referred to in Section 7.1(c), as the case may be, in such kind and number as it would have received if it had been a holder of Common Shares on the applicable record date or effective date, as the case may be, by virtue of the Principal Sum having then already been converted into Common Shares at the Conversion Price in effect on the applicable record or effective date, as the case may be. Participation of the Holder in the issuance of rights, options or warrants referred to in Section 7.1(b) or Section 7.1(c) shall be subject to any required prior approval of the NASDAQ;
- f. the adjustments provided for in this Section 7.1 are cumulative, and shall, in the case of adjustments to the Conversion Price and Adjustment Price, be computed to the nearest whole cent and shall apply to successive subdivisions, redivisions, reductions, combinations, consolidations, distributions, issues or other events resulting in any adjustment under the provisions of this Section 7.1; and
- g. if, in the opinion of the Directors, acting reasonably and in good faith, the provisions of this Section 7.1 are not strictly applicable, or if strictly applicable would not fairly protect the rights of the Holder in accordance with the intent and purposes hereof, the Directors, acting reasonably and in good faith, shall make any adjustment in such provisions for the benefit of the Holder as the Directors deem appropriate.

Section 7.2 Entitlement to Securities on Exercise of Conversion Right.

All shares of any class or other securities which the Holder is at the time in question entitled or obligated to receive on the exercise of the Conversion Right, whether or not as a result of adjustments made pursuant to this Article 7, shall, for the purposes of the interpretation of this Debenture, be deemed to be Common Shares which the Holder is entitled or obligated to acquire pursuant to the exercise of the Conversion Right.

Section 7.3 No Adjustment for Stock Options etc.

Notwithstanding anything in this Article 7, no adjustment shall be made in the Conversion Price and Adjustment Price if the issue of Common Shares is being made pursuant to (a) this Debenture, (b) any stock option plan in force from time to time for directors, officers, employees and consultants of the Corporation or the Purchaser or (c) any warrant, option or right to acquire Common Shares where such warrant, option or right is outstanding on the date of this Debenture.

Section 7.4 Determination by Auditors.

In the event of any question arising with respect to the adjustments provided for in this Article 7, such question shall be conclusively determined by a firm of chartered accountants in Canada mutually acceptable to the Corporation and the Holder, who shall have access to all necessary records of the Corporation, and such determination shall be binding upon the Corporation, the Holder and all other Persons interested therein.

Section 7.5 Proceedings Prior to any Action Requiring Adjustment.

As a condition precedent to the taking of any action which would require an adjustment in any of the conversion rights pursuant hereto, including the number of Common Shares which are to be received upon the exercise thereof, the Purchaser shall take any corporate action which may, in the opinion of legal counsel to the Purchaser, be necessary in order that the Purchaser has unissued and reserved in its authorized capital and may validly and legally issue as fully paid and non-assessable all the shares or other securities which the Holder is entitled to receive on the full exercise of the Conversion Right in accordance with the provisions hereof.

Section 7.6 Certificate of Adjustment.

The Corporation shall from time to time immediately after the occurrence of any event which requires an adjustment or readjustment as provided in Article 7, deliver a certificate of the Corporation to the Holder specifying the nature of the event requiring the same and the amount of the adjustment necessitated thereby and setting forth in reasonable detail the method of calculation and the facts upon which such calculation is based.

Section 7.7 Notice of Special Matters.

The Corporation covenants that it will cause the Purchaser to give notice to the Holder of its intention to fix a record date that is prior to the Expiry Time for the issuance of rights, options or warrants to all or substantially all the holders of its outstanding Common Shares or for the payment of any cash dividend, stock dividend or other distribution on its Common Shares. Such notice shall specify the particulars of such event, the record date for such event and, if prepared or available as at the date that such notice is required to be given pursuant to this Section 7.7, such notice shall be accompanied by the material (i.e., proxy circulars, information booklets etc.) sent to the holders of Common Shares in respect of the event in question, provided that the Purchaser shall only be required to specify in the notice such particulars of the event as shall have been fixed and determined on the date on which the notice is given. The notice shall be given in each case not less than fourteen (14) days prior to such applicable record date.

**ARTICLE 8
COVENANTS OF THE CORPORATION**

Section 8.1 Positive Covenants.

The Corporation covenants with the Holder that while any Principal Sum or accrued and unpaid interest remains outstanding under this Debenture it shall:

- a. **Payment and Performance:** duly and punctually pay all amounts due by it hereunder, and shall perform all other obligations on its part to be performed under the terms of this Debenture at the times and places and in the manner provided for herein;
 - b. **Corporate Existence:** maintain its corporate existence in good standing under the laws of Canada and shall ensure that the Purchaser maintains the Purchaser's corporate existence in good standing under the laws of Oregon;
 - c. **Conduct of Business and Compliance With Applicable Laws:** carry on and conduct its business, and ensure that the Purchaser carries on and conducts the Purchaser's business, in the ordinary course in compliance with all Applicable Laws;
 - d. **Notice of an Event of Default:** provide the Holder with prompt written notice of the occurrence of any Event of Default;
 - e. **Share Capital:**
 - i. reserves and keeps available a sufficient number of Common Shares for the purpose of enabling it to satisfy its obligations to issue Common Shares upon the exercise of the Conversion Right;
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- ii. causes the Common Shares and the certificates, as applicable, representing the Common Shares, from time to time acquired pursuant to the exercise of the Conversion Right, to be duly issued and delivered in accordance with the terms hereof;
 - iii. ensures that all Common Shares which shall be issued upon the exercise of the Conversion Right be issued as fully paid and non-assessable; and
 - iv. ensures that all Common Shares otherwise issued hereunder be issued as fully paid and non-assessable.
- f. **Reporting Issuer and Listing Status.** The Purchaser must use reasonable commercial efforts to ensure that the Common Shares are listed and posted for trading on NASDAQ, to maintain such listing and posting for trading of the Common Shares on NASDAQ and to ensure that the Purchaser remains a registrant under the U.S. Securities Exchange Act of 1934, as amended. No later than October 31, 2017, the Purchaser shall file with the United States Securities and Exchange Commission, and shall use its commercially reasonable efforts to have declared effective by no later than November 30, 2017, the S-3 Registration Statement. The Purchaser shall use commercially reasonable efforts to maintain the effectiveness of the S-3 Registration Statement for so long as the Debenture remains outstanding.

Section 8.2 Negative Covenants of the Corporation.

The Corporation covenants with the Holder that it shall not without having first obtained the permission of the Holder:

- (d) **Change of Business:** change in any material respect the nature of its business or operations as presently carried on; or
- (e) **Prohibited Disposition:** directly or indirectly sell, transfer, assign, abandon, surrender, exchange, lease, sublease, convey or otherwise dispose of all, or substantially all, of its property, assets, and undertakings.

**ARTICLE 9
DEFAULT**

Section 9.1 Events of Default.

An Event of Default shall occur upon the happening of any one or more of the following events, namely:

- a. if the Corporation defaults in payment of the Principal Sum or interest when the same becomes due and payable under this Debenture;
- b. if either of the Corporation or the Purchaser (i) makes a general assignment for the benefit of creditors, (ii) institutes or has instituted against it any proceeding seeking to adjudicate it a bankrupt or insolvent, liquidation, winding-up, reorganization, arrangement, adjustment, protection, relief or composition of it or its debts under any law relating to bankruptcy, insolvency, reorganization or relief of debtors including any plan of compromise or arrangement or other corporate proceeding involving its creditors, or the entry of an order for relief or the appointment of a receiver, trustee or other similar official for it or for any substantial part of its properties and assets, and in the case of any such proceeding instituted against it (but not instituted by it), either the proceeding remains undismissed or unstayed for a period of thirty (30) days, or any of the actions sought in such proceeding (including the entry of an order for relief against it or the appointment of a receiver, trustee, custodian or other similar official for it or for any substantial part of its properties and assets) occurs, or (iii) takes any corporate action to authorize any of the above actions;
- c. if the Corporation, without the prior consent of the Secured Creditors Representative, which shall not be unreasonably withheld or delayed, shall, outside of the ordinary course of business, sell, transfer, assign, abandon, surrender, exchange, license or otherwise dispose of any patent, trade-mark, copyright, industrial design, trade secret or any other tangible or intangible property which is commonly referred to as "intellectual property";
- d. if the Corporation shall, without the prior consent of the Secured Creditors Representative, sell or otherwise alienate any rights which it may have to apply for income tax or other fiscal purposes any losses (or tax credits) which it may have or may in the future incur or reduce any taxable income including, but not limited to, ordinary income and/or capital gains;
- e. if the Corporation shall breach or otherwise fail to perform or observe any other material covenant, term or condition contained in this Debenture, and the breach is not cured after thirty (30) days written notice by the Holder to the Corporation; or
- f. if a Change of Control shall occur.

Section 9.2 Acceleration.

Upon the occurrence of an Event of Default, the Holder may by notice made in writing within thirty (30) days of the Event of Default, to the Corporation declare the Principal Sum and all accrued and unpaid interest thereon, and all other amounts owing hereunder, to be immediately due and payable and the same shall become immediately due and payable to the Holder and the Corporation shall forthwith pay the same to the Holder, failing which all rights and remedies of the Holder hereunder or at law or equity in respect of such non-payment shall become enforceable.

Section 9.3 Remedies Not Exclusive.

No right, power or remedy herein conferred upon or reserved to the Holder is intended to be exclusive of any other right, power or remedy or remedies, and each and every right, power and remedy shall, to the extent permitted by Applicable Laws, be cumulative and shall be in addition to every other right, power or remedy given hereunder or now or hereafter existing at law, in equity or by statute. The Holder shall have the power to waive any Default or Event of Default, provided such waiver is obtained in accordance with Section 11.2, and shall not constitute a waiver of any other or subsequent Default or Event of Default. No delay or omission of the Holder or Holders in the exercise of any right, power or remedy accruing upon any Default or Event of Default shall impair any such right, power or remedy or shall be construed to be a waiver of any such Default or Event of Default or an acquiescence therein. Every right, power and remedy given to the Holder by this Debenture or under Applicable Laws may be exercised from time to time and as often as may be deemed expedient by the Holder. In case the Holder shall have proceeded to enforce any right under this Debenture and the proceedings for the enforcement thereof shall have been discontinued or abandoned for any reason or shall have been determined adversely to the Holder, then and in every such case, the Corporation and the Holder shall, without any further action hereunder, to the full extent permitted by Applicable Laws, subject to any determination in such proceedings, severally and respectively, be restored to their former positions and rights hereunder and thereafter all rights, remedies and powers of the Holder shall continue as though no such proceeding had been taken.

Section 9.4 Application of Monies.

Subject to Applicable Laws, all monies collected or received by the Holder pursuant to or in exercise of any right or remedy shall be applied on account of the amounts outstanding hereunder in such manner as the Holder deems best or, at the option of the Holder, or released to the Corporation, all without prejudice to the liability of the Corporation or the rights of the Holder hereunder, and any surplus shall be accounted for as required by Applicable Laws.

**ARTICLE 10
COST AND EXPENSES**

Section 10.1 Expenses.

The Corporation shall be responsible for its own costs and expenses. The Corporation will, in addition, reimburse the reasonable costs, expenses and fees of McCullough O'Connor Irwin LLP incurred in its role as legal counsel to the Holders (on a collective basis), for negotiating and documenting the Private Placement. For greater certainty, the Corporation will not be responsible for the payment (or reimbursement) of any costs, expenses, legal fees or advisory fees incurred by any Holder on an individual basis whether such costs, expenses or fees are billed to the Corporation directly or through McCullough O'Connor Irwin LLP or any other party. The Corporation will, in addition, reimburse the reasonable costs, expenses and fees of McCullough O'Connor Irwin LLP incurred in its role as legal counsel to the Holders (on a collective basis), for negotiating and documenting the amendments to the Debenture.

**ARTICLE 11
SUPPLEMENTAL INDENTURES**

Section 11.1 Supplemental Indentures.

From time to time the Corporation may, and it shall, when required by this Debenture, execute, acknowledge and deliver, by its proper officers, indentures supplemental hereto or in replacement hereof, as the case may be, which thereafter shall form part hereof in the case of a supplemental indenture, for any one or more of the following purposes:

- a. evidencing the succession, or successive successions, of other corporations to the Corporation, and the terms, provisions, conditions, covenants and obligations assumed by any such successor;
- b. evidencing the remaining Principal Sum and any accrued and unpaid interest where a partial conversion, redemption or repurchase occurs; and
- c. for any other purpose not inconsistent with the terms of this Debenture.

Section 11.2 No Amendment or Waiver.

Notwithstanding any other provisions of this Debenture, no amendment or waiver of any provisions of this Debenture, nor consent to any departure by the Corporation therefrom shall in any event be effective unless the same shall be obtained from the Holder, and then such amendment, waiver or consent shall be effective only in the specific instance and for the specific purpose for which it was given and shall not extend to or be taken in any manner whatsoever to affect any subsequent breach or Default or to affect the rights of the Holders resulting therefrom.

**ARTICLE 12
REGISTRATION AND TRANSFER OF DEBENTURE**

Section 12.1 Register of the Debenture.

1. The Corporation shall keep or cause to be kept a register in which the Holder or Holders of the Debentures shall be registered. The name and address of each Holder of the Debenture and particulars of the Debenture held shall be entered
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in the register. For the purposes of this Debenture, the Corporation may treat the registered owner of this Debenture as the beneficial owner thereof for all purposes, unless otherwise notified.

2. The Corporation shall have full power and authority to appoint, at any time, and at its sole discretion, an agent or trustee to maintain the register of Holders. Where the Corporation appoints an agent or trustee to maintain the register of Holders, the Holder agrees to execute and deliver all such agreements, indentures, and other documents required by such agent or trustee. The Corporation shall pay all costs associated with appointing an agent or trustee to maintain the register of Holders, and all on-going costs.

Section 12.2 Transfer of the Debentures.

This Debenture or part hereof is transferable and assignable by the Holder to any other Person at any time. The Holder acknowledges and understands that the transfer or assignment of all or part of the Principal Sum and any accrued and unpaid interest is subject to Applicable Securities Laws, and may only be effected upon compliance with such laws. The Holder further acknowledges no transfer shall be made unless and until the transferee agrees to be bound by the Intercreditor Agreement if such agreement is in place on the date of the transfer.

Section 12.3 U.S. Transferee.

This Debenture and the Common Shares issuable upon exercise of the Conversion Right or otherwise under this Debenture have not been registered under the U.S. Securities Act, or any other Applicable U.S. Securities Laws, and may not be transferred in the United States or to a U.S. Person unless this Debenture and the Common Shares issuable upon exercise of the Conversion Right or otherwise under this Debenture have been registered under the U.S. Securities Act and any other Applicable U.S. Securities Laws or an exemption from such registration requirements is available.

Section 12.4 Exchange of Debentures.

Any one or more Debentures may, upon compliance with the reasonable requirements of the Corporation (including compliance with Applicable Securities Laws), be exchanged for one or more other Debentures representing the same aggregate Principal Sum and any accrued and unpaid interest as represented by the Debenture so exchanged. Any Debenture tendered for exchange shall be cancelled and surrendered by the Holder to the Corporation.

Section 12.5 Replacement Debenture.

If this Debenture becomes mutilated or is lost, destroyed or stolen, the Corporation, subject to Applicable Laws, shall issue and deliver, a new debenture of like tenor as the one mutilated, lost, destroyed or stolen in exchange for and in place of and upon cancellation of this Debenture. The Holder shall bear the cost of the issue of a replacement Debenture and in case of loss, destruction or theft shall, as a condition precedent to the issuance thereof, furnish to the Corporation such evidence of ownership and of the loss, destruction or theft of this Debenture as shall be satisfactory to the Corporation, in its sole discretion, and the Holder may also be required to furnish an indemnity in an amount reasonable under the circumstances and in a form satisfactory to the Corporation, in its sole discretion, and shall pay the reasonable charges of the Corporation in connection therewith.

ARTICLE 13 PURCHASE FOR CANCELLATION

Section 13.1 Purchase for Cancellation.

At any time prior to the Maturity Date, and subject to Applicable Laws, the Corporation may purchase any Principal Sum of Debentures and the related accrued and unpaid interest, for cancellation, at any price, by tender, by private contract, or any other means permitted at law, subject only to the consent of the Holder of such Debenture having been obtained.

ARTICLE 14 MISCELLANEOUS

Section 14.1 Tax Treatment.

Based on the provisions of the Tax Act, the Debentures will be a qualified investment under the Tax Act at the time of their issuance to a trust governed by a Plan Trust, provided that at the time of their issuance, the Common Shares are listed on a "designated stock exchange", within the meaning of the Tax Act (which currently includes the NASDAQ).

Section 14.2 Severability.

If any one or more of the provisions or parts thereof contained in this Debenture should be or become invalid, illegal or unenforceable in any respect in any jurisdiction, the remaining provisions or parts thereof contained herein shall be and shall be conclusively deemed to be, as to such jurisdiction, severable therefrom and:

- a. the validity, legality or enforceability of such remaining provisions or parts thereof shall not in any way be affected or impaired by the severance of the provisions or parts thereof severed; and
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- b. the invalidity, illegality or unenforceability of any provision or any part thereof contained in this Debenture in any jurisdiction shall not affect or impair such provision or part thereof or any other provisions of this Debenture in any other jurisdiction.

Section 14.3 Governing Law.

This Debenture shall be deemed to have been made and shall be construed in accordance with the laws of the Province of Ontario and the laws of Canada applicable therein and shall be treated in all respects as an Ontario contract. The Corporation and the Holder hereby irrevocably submit to the jurisdiction of the courts of the Province of Ontario for any action, suit or any other proceeding arising out of or relating to this Debenture and any other agreement or instrument mentioned therein or any of the transactions contemplated thereby.

Section 14.4 Notices.

All notices, reports or other communication required or permitted by this Debenture must be in writing and either delivered by hand or by any form of electronic communication by means of which a written or typed copy is produced by the receiver thereof and is effective on actual receipt unless sent by electronic means in which case it is effective on the Business Day next following the date of transmission, addressed to the relevant party, as follows:

- a. if to the Corporation:

1210 Sheppard Ave E. Fax: (416) 646-1042
Suite 800
Toronto, Ontario
M2K 1E3

- b. if to the Holder:

Address: **Fax:** _____

or the last address or telecopier number of the party concerned, notice of which was given in accordance with this Section 14.4.

Section 14.5 Term.

The provisions of this Debenture shall become effective as of the date set forth on the first page hereof and shall continue in full force and effect until discharged in accordance with Section 1.7.

Section 14.6 No Merger or Novation.

The execution and delivery of this Debenture or of any instruments or documents supplemental hereto shall not operate as a merger of any representation, warranty, term, condition or other provision contained in any other obligation or indebtedness of the Corporation to the Holder.

Section 14.7 Enurement.

This Debenture and all its provisions shall enure to the benefit of the Holder, its successors and assigns and shall be binding upon the Corporation, its successors and permitted assigns.

Section 14.8 Time of Essence.

Time shall be of the essence hereof.

APPENDIX 1

CONVERSION NOTICE

TO: VIXS SYSTEMS INC. (the "Corporation")

The undersigned hereby exercises its right to acquire Common Shares in the capital of Pixelworks, Inc. pursuant to the terms of a 10.00%, subject to adjustment, amended and restated secured convertible debenture issued by the Corporation on the Closing Date, on the terms set therein and herein. Capitalized terms not defined herein shall have the meaning ascribed to such terms in such debenture.

1. PRINCIPAL SUM TO BE CONVERTED: _____

**2. NUMBER OF COMMON SHARES
TO BE ACQUIRED:** _____

3. CONVERSION PRICE: _____

**4. PRINCIPAL SUM REMAINING
FOLLOWING CONVERSION:** _____

5. CONVERSION DATE: _____
(Must be between 3 and 10 days following the date of this notice.)

**6. NAME AND ADDRESS OF THE PERSON
TO WHOM SUCH COMMON SHARES ARE
TO BE ISSUED AND REGISTERED OR DELIVERED:**

5. IF THIS CONVERSION IS PARTIAL, THE

NAME AND ADDRESS WHERE A NEW

DEBENTURE REPRESENTING THE UNCONVERTED

PRINCIPAL SUM IS TO BE DELIVERED:

DATED this _____ day of _____, _____.

Signature Guarantee

(Signature of Debentureholder or authorized representative)

Print Full Name

Note:

1. Once this notice is delivered to the Corporation, the Debentureholder may not revoke, cancel, or otherwise withdraw the giving of this notice, except with the express, written consent of the Corporation.
2. This notice must be accompanied by the Debenture(s) representing the Principal Sums to be converted. Until such delivery the Corporation is under no obligation to deliver, or cause to be delivered, to the Debentureholder, the Common Shares to be acquired.
3. The Debentureholder may exercise its right to receive Common Shares by completing this form and surrendering this form and the Debenture to the Corporation at its principal office at 1219 Sheppard Ave E, Suite 800, Toronto, Ontario M2K 1E3.

APPENDIX 2

GENERAL SECURITY AGREEMENT

(attached)

THE SECURITIES REPRESENTED HEREBY, OR THE SECURITIES INTO WHICH SUCH SECURITIES MAY BE CONVERTED, HAVE NOT BEEN REGISTERED UNDER THE UNITED STATES SECURITIES ACT OF 1933 AS AMENDED (THE "U.S. SECURITIES ACT"), AND MAY BE OFFERED, SOLD OR OTHERWISE TRANSFERRED ONLY (A) TO THE CORPORATION, (B) OUTSIDE THE UNITED STATES IN COMPLIANCE WITH RULE 904 OF REGULATION S UNDER THE U.S. SECURITIES ACT, (C) IN COMPLIANCE WITH THE EXEMPTION FROM REGISTRATION UNDER THE U.S. SECURITIES ACT PROVIDED BY RULE 144 OR 144A THEREUNDER, IF AVAILABLE, AND IN COMPLIANCE WITH ANY APPLICABLE STATE SECURITIES LAWS, OR (D) WITH THE PRIOR WRITTEN CONSENT OF THE CORPORATION (WHICH MAY BE CONDITIONED ON DELIVERY OF A LEGAL OPINION IN FORM AND SUBSTANCE SATISFACTORY TO THE CORPORATION), PURSUANT TO ANOTHER EXEMPTION FROM REGISTRATION UNDER THE U.S. SECURITIES ACT AND ANY APPLICABLE STATE SECURITIES LAWS.

UNLESS PERMITTED UNDER SECURITIES LEGISLATION, THE HOLDER OF THIS SECURITY SHALL NOT TRADE THE SECURITIES BEFORE MAY 13, 2016.

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VIXS SYSTEMS INC.

Incorporated under the Canada Business Corporations Act

10.00%, Subject to Adjustment, Amended and Restated Secured Convertible Debenture

Due January 12, 2020

VIXS SYSTEMS INC. (the "Corporation") for value received hereby promises to pay to (the "Holder") or registered assigns on January 12, 2020, or such earlier or later date as the principal sum hereof may become due, subject to and in accordance with the terms, conditions and provisions of Schedule "A" attached hereto and forming a part hereof, on presentation and surrender of this Debenture, the principal sum of \$ (the "Principal Sum") in lawful money of Canada as provided in Schedule "A", at the offices of the Corporation at 1210 Sheppard Ave E, Suite 800, Toronto, Ontario M5K 1E3 (or such other place or time or in such other manner as is herein provided) and to accrue and pay interest on the Principal Sum outstanding hereunder at such time, or at such other times as set out in Schedule "A", at the rate of 10.00% per annum, subject to adjustment, from the date of issue until full and final payment and discharge hereof, or until conversion or redemption of this Debenture on the terms set out in Schedule "A". Interest accruing hereunder shall be calculated daily on the basis of a 365 day year and shall accrue semi-annually not in advance of the last day of each of the months of July and January until full and final payment and discharge hereof at maturity, or until conversion or redemption of this Debenture on the terms set out in Schedule "A". The first interest accrual date being January 31, 2017 and will represent accrued and unpaid interest from the date of issue to but excluding January 31, 2017. Any amount of interest not paid when due (including overdue and unpaid interest), and all interest calculated after maturity, default and judgment, shall bear interest per annum equal to the applicable Interest Rate (as defined below) in accordance with the terms, conditions and provisions in Schedule "A", be calculated daily, be compounded on the last Business Day of each month, and shall be paid on demand by the Holder. The theory of deemed reinvestment shall not apply to the calculation of interest or the payment of other amounts hereunder.

This Debenture is issued upon the terms and conditions, including redemption and conversion, as are set out in Schedule "A" hereto, and the terms, conditions and provisions contained in Schedule "A", including its appendices are incorporated herein and constitute a part hereof. Unless the context otherwise requires, capitalized expressions herein shall have the meaning ascribed to them in Schedule "A" hereto.

IN WITNESS WHEREOF, the Corporation has caused the initial Debenture dated as of January 12, 2016 to be amended and restated effective as of August 2, 2017 pursuant to the terms of this Amended and Restated Debenture.

VIXS SYSTEMS INC.

By:

Name: Steven L. Moore
Title: Chief Financial Officer

SCHEDULE "A"

The following conditions are applicable to the 10.00%, subject to adjustment, Amended and Restated Secured Convertible Debentures, due January 12, 2020, of ViXS Systems Inc.

ARTICLE 1 INTERPRETATION

Section 1.1 Definitions.

In this Debenture, unless there is something in the subject matter or context inconsistent therewith, the following expressions shall have the following meanings, namely:

“**Act**” means the *Securities Act* (Ontario), as such legislation may be amended, supplemented or replaced from time to time;

“**Adjustment Period**” means the period from and including the date hereof up to and including the Expiry Time;

“**Affiliate**” has the meaning ascribed to such term in National Instrument 45-106 - *Prospectus Exemptions*, as such instrument may be amended, supplemented or replaced from time to time;

“**Applicable Canadian Securities Laws**” means all applicable securities and related laws, rules, regulations, and the notices and policies of the Securities Commissions;

“**Applicable Laws**” means, in relation to any Person, property, transaction or event, all applicable provisions, whether now or hereafter in effect (or mandatory applicable provisions, if so specified) of federal, provincial, state or local laws, statutes, rules, regulations, official directives and orders of all Governmental Authorities (whether or not having the force of law) and all judgments, orders and decisions of all Governmental Authorities in which the Person in question is a party or by which it is bound or having application to the Person, property, transaction or event;

“**Applicable Securities Laws**” means Applicable Canadian Securities Laws together with Applicable U.S. Securities Laws;

“**Applicable U.S. Securities Laws**” means all applicable United States federal and state securities laws, rules, regulations, notices and policies;

“**Business Day**” means a day (other than a Saturday, Sunday or statutory holiday) on which banks are generally open for business in the City of Toronto, Ontario;

“**Change of Control**” means

- (a) a transaction whereby property constituting all or substantially all of the assets of the Corporation or the Purchaser are sold, in one or more related transactions, to any “person” or “company” (as such terms are defined in the Act) or to a combination of persons or companies; or
- (b) an event or series of events (whether a share purchase, amalgamation, merger, reorganization, arrangement, consolidation or other business combination or otherwise), other than solely involving the Corporation or the Purchaser and one or more of their respective Affiliates, by which any person or company is or becomes the “beneficial owner” (as defined in Section 1(5) of the Act) directly or indirectly of fifty-one percent (51%) or more of the combined voting power of the then outstanding securities of the Corporation or the Purchaser (for greater certainty, this shall not include a public offering or private placement out of treasury); or
- (c) a formal bid or tender offer for Common Shares being made (other than by the Purchaser or any Affiliate of the Purchaser or by an employee benefit plan established or maintained by the Purchaser or any Affiliate) as a result of which the offeror and its affiliates would, if successful, beneficially own, directly or indirectly, fifty-one percent (51%) or more of the Common Shares then outstanding;

“**Closing Date**” means January 12, 2016;

“Common Shares” means, subject to adjustment by application of Article 7, fully paid and non-assessable shares of common stock in the capital of the Purchaser as presently constituted;

“Conversion Date” means the date on which this Debenture, or any portion thereof, is surrendered by the Holder for conversion;

“Conversion Price” means \$7.03 per Common Share, or one (1) Common Share per \$7.03 of Principal Sum, subject to adjustment in accordance with the provisions of Article 7, in which case it shall mean the adjusted price in effect at such time after such adjustment;

“Conversion Right” means the right of the Holder to convert a portion or all of the Principal Sum into Common Shares at the Conversion Price pursuant to Article 5;

“Corporation” means ViXS Systems Inc.;

“Current Market Price” of the Common Shares means, for any period, the price per share equal to the volume weighted average trading price of the Common Shares on NASDAQ or, if the Common Shares are not then listed on NASDAQ, on such other Canadian or U.S. stock exchange as may be selected by the directors of the Purchaser for such purpose or, if the Common Shares are not then listed on any Canadian or U.S. stock exchange, in the over-the-counter market; provided that the volume weighted average price will be determined by dividing the aggregate sale price of all Common Shares sold during the applicable period on the said exchange or market, as the case may be, by the total number of Common Shares so sold; and provided further that if the Common Shares are not then listed on any Canadian or U.S. stock exchange or traded in the over-the-counter market, then the Current Market Price will be determined by such firm of independent chartered accountants as may be selected by the directors of the Corporation, acting reasonably;

“Debenture” means this 10.00%, subject to adjustment, amended and restated secured convertible debenture and **“Debentures”** means all of the Debentures issued pursuant to the Private Placement;

“Default” means any event or circumstance which, with the giving of notice or lapse of time or otherwise, would constitute an Event of Default;

“Director” means a director of the Corporation for the time being and, unless otherwise specified herein, reference to action “by the directors” means action by the directors of the Corporation as a board or, whenever duly empowered, action by any committee of such board;

“Event of Default” means any event specified in Article 9, which has not been waived, cured or remedied;

“Expiry Time” means 5:00 p.m. (Toronto time) on the Maturity Date;

“Governmental Authority” means any (i) multinational, federal, provincial, state, municipal, local or other government, governmental or public department, central bank, court, commission, board, bureau, agency or instrumentality, domestic or foreign, (ii) any subdivision or authority of any of the foregoing, or (iii) any quasi-governmental or private body exercising any regulatory, expropriation or taxing authority under or for the account of any of the above;

“Holder” means the holder of this Debenture and **“Holders”** means the holders all of all Debentures issued pursuant to the Private Placement;

“including” means including, without limitation, and shall not be construed to limit any general statement which it follows to the specific or similar items or matters immediately following it, and **“includes”** shall be construed in a like manner;

“Indebtedness” means all present and future obligations, indebtedness, liabilities, covenants, agreements and undertakings of the Corporation howsoever arising, whether direct or indirect, secured or unsecured, absolute or contingent, matured or not, extended or renewed, wheresoever and howsoever incurred, including all future advances and re-advances, and whether the same is from time to time reduced and thereafter increased or entirely extinguished and thereafter incurred again and whether the Corporation be bound alone or with others and whether as principal or surety, including all interest, fees, expenses, indemnities and costs;

“Intercreditor Agreement” means the agreement to be entered into amongst all of the Holders;

“Interest Rate” means a rate of interest of ten per cent (10.00%) per annum calculated on the basis of a 365 day year, subject to adjustment pursuant to Section 2.2 and Section 2.3;

“Junior Indebtedness” has the meaning set forth in Section 3.1(1);

“Market Hurdle Price” means the volume weighted average price of the Common Shares on NASDAQ, or another stock exchange where the majority of the trading volume and value of the Common Shares occurs, for the five trading days immediately preceding the relevant date;

“Maturity Date” has the meaning set forth in Section 6.2;

“Obligations” means all of the present and future obligations, liabilities, indebtedness, covenants and agreements, direct or indirect, absolute or contingent, matured or not, extended or renewed, of the Corporation to the Holder under this Debenture, including interest, interest on overdue and unpaid interest, fees, costs, expenses and indemnities and **“Obligation”** means any of them;

“Payment Account” means the account of the Holder as the Holder may from time to time advise the Corporation in writing;

“Person” means any individual, firm, partnership, company, corporation or other body corporate, government, governmental body, agency, instrumentality, unincorporated body of Persons or association and the heirs, executors, administrators or other legal representatives of an individual;

“Purchaser” means Pixelworks, Inc.;

“Plan Trust” means any RRSP, RRIF, deferred profit sharing plan, registered disability savings plan, registered education savings plan or TFSA;

“Principal Sum” has the meaning ascribed thereto on the front page of this Debenture or such greater or lesser amounts owing under this Debenture;

“Prime Rate” means, on any date, the annual rate of interest established by the Bank of Montreal as its reference rate for that day for commercial loans made by it in Canada in Canadian dollars;

“Private Placement” means the private placement of Debentures in the aggregate principal amount of \$3,424,266 issued on the Closing Date;

“Redemption Amount” means, in respect of any redemption of this Debenture pursuant to Article 6, the Principal Sum to be redeemed;

“Redemption Date” has the meaning set forth in Section 6.1;

“Redemption Notice” has the meaning set forth in Section 6.1;

“Registration Date” means the date on which the S-3 Registration Statement is declared effective;

“Rights Period” has the meaning set forth in Section 7.1(b);

“Rights Offering” has the meaning set forth in Section 7.1(b);

“RRIF” means a registered retirement income fund as it is defined in the Tax Act;

“RRSP” means a registered retirement savings plan as it is defined in the Tax Act;

“S-3 Registration Statement” means the registration statement filed by the Purchaser on Form S-3 under the U.S. Securities Act to register the shares of common stock in the capital of the Purchaser to be issued from time to time upon the conversion of the Debenture;

“Secured Creditors Representative” has the meaning given to such term in the General Security Agreement;

“**Securities Commissions**” means, collectively, the securities commissions or similar regulatory authorities in each of the Provinces of Canada;

“**Senior Indebtedness**” has the meaning set forth in Section 3.1(2);

“**Shareholder**” means a holder of record of one or more Common Shares;

“**Tax**” means all present and future taxes, rates, levies, imposts, assessments, dues, government fees, stamp taxes, deductions, charges or withholdings, and all indebtedness with respect thereto, and any interest, additions to tax and penalties imposed with respect thereto, excluding, with respect to the Holder, taxes imposed on its income or capital and franchise taxes imposed on it by any taxation authority;

“**Tax Act**” means the *Income Tax Act* (Canada) and the regulations promulgated thereunder, and amendments thereto proposed by or on behalf of the Minister of Finance prior to the date hereof;

“**TFSA**” means a tax-free savings account as it is defined in the Tax Act;

“**U.S. Securities Act**” means the United States *Securities Act of 1933*, as amended;

“**United States**” and “**U.S. Person**” have the meaning given to such terms under Regulation S of the U.S. Securities Act. For purposes of Regulation S, “**United States**” means the United States of America, its territories and possessions, any state of the United States and the District of Columbia. “**U.S. Person**” includes, but is not limited to, with certain exceptions, any partnership or corporation organized or incorporated under the laws of the United States;

“**written order of the Corporation**”, “**written request of the Corporation**”, “**written consent of the Corporation**” and “**certificate of the Corporation**” mean, respectively, a written order, request, consent and certificate signed in the name of the Corporation by any one of its Chief Executive Officer or Chief Financial Officer, and may consist of one or more instruments so executed.

Section 1.2 Headings, Etc.

The division of this Debenture into Articles and Sections and the insertion of headings are for convenience of reference only and shall not affect the construction or interpretation of this Debenture.

Section 1.3 Day Not a Business Day.

In the event that any day on or before which any action is required to be taken hereunder is not a Business Day, then, except as otherwise provided herein, such action shall be required to be taken on a Business Day which is the next following day that is a Business Day.

Section 1.4 Currency.

All references to currency herein shall be to lawful money of Canada unless otherwise expressly specified.

Section 1.5 Consents or Approvals.

It shall be a condition hereof that any consent or approval of the Holder required hereby shall be obtained in writing prior to the event for which it is required.

Section 1.6 Expanded Meanings.

Unless the context otherwise necessarily requires, the following provisions shall govern the interpretation of this Debenture:

- (a) words used herein importing the singular number only shall include the plural and vice versa, and words importing the use of any gender shall include all genders;
 - (b) all references to Sections, Articles, and Schedules are to Sections, Articles, and Appendices to this Debenture;
 - (c) references herein to any agreement or instrument shall be deemed to be references to the agreement or instrument as varied, amended, modified, supplemented or replaced from time to time, and any specific references herein to any enactment, regulation, order, ruling or decision shall be deemed to be references to such enactment, regulation, order, ruling or decision as the same may be re-enacted, varied, amended, modified, supplemented or replaced from time to time; and
 - (d) “this Debenture”, “the Debenture”, “hereto”, “herein”, “whereby”, “hereunder”, “hereof” and similar expressions refer to this 10.00%, subject to adjustment, amended and restated secured convertible debenture due January 12, 2020, to which this Schedule is attached and to the Schedules attached thereto, taken as a whole, and not to
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any particular Article, Section, subsection, paragraph, subdivision or other portion hereof and include any and every instrument supplemental or ancillary hereto and every debenture issued in replacement hereof.

Section 1.7 Interpretation of “Outstanding”.

This Debenture shall be deemed to be outstanding until the later of the date on which:

- (e) monies or securities for the payment of all amounts owing to the Holder hereunder shall have been paid and delivered to the Holder whether on, after or prior to the Maturity Date; and
- (f) the obligations of the Corporation hereunder shall have been duly performed as herein contemplated, or otherwise discharged to the satisfaction of the Holder.

Section 1.8 Appendices.

The following are the Appendices annexed to and incorporated in this Debenture by reference to their respective numbers as given below and which are deemed to be part hereof:

Appendix 1 - Conversion Notice

Appendix 2 - General Security Agreement

**ARTICLE 2
INTEREST**

Section 2.1 Interest on Principal Sum.

Subject to Section 2.2 and Section 2.3, the Principal Sum shall bear interest both before and after maturity, default and judgment from and including the Closing Date to the date of repayment in full at a rate equal to the Interest Rate calculated on a daily basis and on the basis of the actual number of days elapsed in a year of 365 days and accrue semi-annually not in advance on the last day of each of the months of July and January.

Section 2.2 Interest Rate Adjustment:

- (1) If, after the Registration Date, the Market Hurdle Price of the Common Shares exceeds the US dollar equivalent (based on the exchange rate quoted by the Bank of Canada at the relevant time) of \$16.54, subject to adjustment in accordance with Article 7 hereof (the “**Adjustment Price**”) for fifteen consecutive trading days, then the Interest Rate will be reduced to one percent (1.0%) per annum fixed from the first day following this fifteen-day period.
- (2) Once the Interest Rate is reduced as described above, the Interest Rate applicable to the Debentures will remain at the lower rate regardless of what happens to the Current Market Price of the Common Shares after the applicable date of adjustment.

Section 2.3 Extension Period Interest Rate.

Notwithstanding Section 2.2, if the Maturity Date is extended pursuant to Section 6.2, the Interest Rate will be as follows:

- (a) If on January 12, 2020 the Principal Sum and any accrued and unpaid interest is not fully paid and delivered to the Holder, then the Interest Rate will equal to the Prime Rate on January 12, 2020 plus 8% per annum fixed from the first day following January 12, 2020;
- (b) If on January 12, 2021, the Principal Sum and any accrued and unpaid interest is not fully paid and delivered to the Holder, then the Interest Rate will equal to the Prime Rate on January 12, 2021 plus 8% per annum fixed from the first day following January 12, 2021; and
- (c) If on January 12, 2022, the Principal Sum and any accrued and unpaid interest is not fully paid and delivered to the Holder, then the Interest Rate will equal to the Prime Rate on January 12, 2022 plus 8% per annum fixed from the first day following January 12, 2022.

Section 2.4 Compounding

Notwithstanding anything in this Debenture, if on January 12, 2020 the Principal Sum and any accrued and unpaid interest is not fully paid and delivered to the Holder, then any amount of interest not paid thereat and all interest calculated thereafter shall be added to the Principal Sum, be calculated daily at the applicable Interest Rate, in accordance with Section 2.3, and be compounded on January 12.

Section 2.5 Payment of Interest.

Interest on this Debenture is payable on the last day of each of the months of July and January. The first interest payment date being January 31, 2017 and will represent accrued and unpaid interest from the present date to but excluding January 31, 2017.

Section 2.6 Payment of Overdue Interest.

The Corporation shall, on demand, pay to the Holder by depositing to the Payment Account, interest on all overdue payments in connection with this Debenture from the date any such payment becomes overdue and for so long as such amount remains unpaid at a rate per annum which is equal to the applicable Interest Rate. Interest at the applicable Interest Rate on overdue

amounts shall be calculated daily, compounded monthly on the last Business Day of the month, and shall be payable both before and after default, maturity, and judgment.

Section 2.7 Compliance with the *Interest Act* (Canada).

For the purposes of this Debenture, whenever any interest is calculated on the basis of a period of time other than a calendar year, the annual rate of interest to which each rate of interest determined pursuant to such calculation is equivalent for the purposes of the *Interest Act* (Canada) is such rate as so determined multiplied by the actual number of days in the calendar year in which the same is to be paid and divided by the number of days used in the basis of such determination.

Section 2.8 Withholding Tax.

The Corporation shall be entitled to deduct and withhold from any amount paid or credited (or deemed to be paid or credited) hereunder to any Holder as, on account or in lieu of payment of, or in satisfaction of interest such amounts as the Corporation is required to deduct and withhold with respect to such payment under the Tax Act. To the extent that amounts are so withheld, such withheld amounts shall be treated for all purposes hereof as having been paid to the Holder in respect of which such deduction and withholding was made provided such amounts are remitted to the appropriate taxation authority. To the extent that the amount so required to be deducted or withheld from any payment to a Holder exceeds the cash portion of the consideration otherwise payable to the Holder at such time, the Corporation is hereby authorized to sell or otherwise dispose of such portion of the consideration as is necessary in order to provide sufficient funds to the Corporation to enable it to comply with such deduction or withholding requirement and the Corporation shall notify the Holder thereof of the same and remit any unapplied balance of the net proceeds of such sale to the Holder.

Section 2.9 Interest Generally.

The theory of deemed reinvestment shall not apply to the calculation of interest or payment of fees or other amounts hereunder, notwithstanding anything contained in this Debenture, and all interest and fees payable by the Corporation to the Holder shall accrue from day to day and be computed as described herein.

Section 2.10 Time, Place and Currency of Payment.

Payments of principal (including the Principal Sum), accrued and unpaid interest, fees and all other amounts payable by the Corporation pursuant to this Debenture shall be paid at or before 5:00 p.m. (Toronto time) on the day such amount is due. If any such day is not a Business Day such amount shall be deemed for all purposes of this Debenture to be due on the next immediately following day that is a Business Day. All payments shall be made to the Payment Account.

Section 2.11 Judgment Currency.

If, for the purpose of calculating the amount of any judgment in any court, it is necessary to convert the currency of any obligation giving rise to the judgment (the “**First Currency**”) into another currency (the “**Other Currency**”), the rate of exchange used shall be that at which the party obtaining such judgment could purchase the First Currency with the Other Currency from the Holder determined at the close of business on the Business Day immediately preceding the day on which judgment is rendered. The obligation of the party making payment on account of any judgment shall, notwithstanding any judgment in such Other Currency, be discharged only to the extent that, on the Business Day following the receipt of any sum paid on account of the judgment in the Other Currency, the recipient could purchase the First Currency from the Holder at 12:00 o’clock noon (Toronto time) on such date. If the value in the Other Currency of the First Currency so purchased or capable of being purchased is less than the sum due to the payee in the First Currency before conversion into the Other Currency, the payor, as a separate and distinct obligation and notwithstanding such judgment or payment, shall indemnify the payee against any loss and, if the value in the Other Currency of the First Currency so purchased or capable of being purchased exceeds the sum originally due to the payee in the First Currency before the conversion into the Other Currency, the payee shall remit such excess to the payor.

**ARTICLE 3
SENIOR INDEBTEDNESS**

Section 3.1 Senior Debt.

- (1) For all purposes of this Debenture “**Junior Indebtedness**” means all Indebtedness for money borrowed by the Corporation, whether outstanding on the date of this Debenture or thereafter created or incurred.
 - (2) The indebtedness payable under this Debenture, including the Principal Sum and interest hereunder (such indebtedness being hereinafter referred to as “**Senior Indebtedness**”), shall be senior in right of payment, to the extent and in the manner set forth herein, to the payment in full of all Junior Indebtedness, and the Holder by its acceptance hereof agrees to and shall be bound by the provisions hereof.
 - (3) If and whenever at any time, or from time to time, an event of default has occurred and is continuing uncured under, or in connection with, any Junior Indebtedness or any agreement or instrument relating thereto, and written notice of such event of default has been given by or on behalf of one or more holders of such Junior Indebtedness to the Corporation,
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no payment on account of the Junior Indebtedness shall be made to such holders and such holders shall not be entitled to receive any payment or benefit whatever on account of the Junior Indebtedness, unless and until the Senior Indebtedness shall have been first paid in full or the holders of all Senior Indebtedness shall have consented to such payment on account of the Junior Indebtedness.

- (4) Nothing contained herein is intended to or shall impair, or affect the relative rights of the Holder and creditors of the Corporation other than the holders of Junior Indebtedness, nor shall anything herein or therein prevent such holders from exercising all remedies otherwise permitted by Applicable Laws upon default under such Junior Indebtedness, subject to the rights of the holders of Senior Indebtedness in respect of assets of the Corporation received upon the exercise of any such remedy.

ARTICLE 4 SECURITY

Section 4.1 Security.

As security for the due and punctual payment of all of the Obligations, the Corporation has delivered to and in favour of Holders a general security agreement dated January 12, 2016 (“**General Security Agreement**”), attached hereto as Appendix 2.

Section 4.2 Release of Security.

Following due payment and performance in full in cash, or as otherwise as permitted by the Debenture, of all Obligations of the Corporation under this Debenture, the Holder will, at the request, cost and expense of the Corporation, release and discharge the Holder’s right and interest in the property subject to the security granted pursuant to the General Security Agreement.

ARTICLE 5 EXERCISE OF CONVERSION RIGHT

Section 5.1 Conversion Right.

- (1) Upon delivering a conversion notice to the Corporation substantially in the form provided in Appendix 1, and subject to the terms and conditions of this Article 5, the Holder shall have the right, at its option, at any time, and from time to time between the date that is ninety (90) days after the Closing Date and the Expiry Time, to convert the Principal Sum in whole or in multiples of \$50,000 (or the entire outstanding Principal Sum if less than \$50,000), at the option of the Holder into fully paid non-assessable Common Shares at the Conversion Price.
- (2) The Conversion Right shall entitle the Holder, and the Holder shall have authority to exercise its option at its sole discretion, to receive on the Conversion Date (i) Common Shares, and (ii) all accrued and unpaid interest on the Principal Sum and any other amount then payable by the Corporation to the Holder hereunder up to the Conversion Date.
- (3) The Holder may only exercise the Conversion Right by surrendering to the Corporation, prior to the Expiry Time, this Debenture with a duly completed conversion notice specifying the following:
- (a) the Principal Sum in respect of which the Conversion Right is being exercised;
 - (b) to the extent known, the number of Common Shares which the Holder wishes to acquire (being not more than those which the Holder is entitled to acquire);
 - (c) the Person or Persons in whose name or names such Common Shares are to be issued;
 - (d) the address or addresses of such Persons;
 - (e) the number of Common Shares to be issued to each such Person if more than one is so specified;
 - (f) the address where the new Debenture, if any, representing the unconverted portion of the Principal Sum may be sent, if applicable; and
 - (g) the Conversion Date for the Debenture being converted, being a date not less than three (3) days nor more than ten (10) days after the date that the conversion notice is deemed by Section 14.4 to have been effectively given and received.
- (4) Once notice of the exercise of the Conversion Right, in whole or in part, by the Holder is received, or deemed to be received by the Corporation pursuant to Section 14.4, the Holder may not revoke, cancel or otherwise withdraw the giving of notice to exercise its Conversion Right, except with the express written consent of the Corporation, given prior to the Conversion Date.

Section 5.2 Effect of Exercise of Conversion Right.

- (1) Upon the exercise of the Conversion Right pursuant to Section 5.1, subject to Section 5.3, the Common Shares subscribed for shall be deemed to have been issued and the Person or Persons to whom such Common Shares are to be issued shall be deemed to have become the holder or holders of record of such Common Shares on the Conversion Date unless (i) the transfer registers of the Purchaser shall be closed on such date (including by application of any Applicable Laws), or (ii) in connection with the Conversion Right such notice of conversion is withdrawn, revoked or cancelled in accordance with Section 5.1(4), and in the case of (i) the Common Shares subscribed for shall be deemed to have been issued and such Person or Persons deemed to have become the holder or holders of record of such Common Shares, on the date on which such transfer registers are reopened.
- (2) Within ten (10) Business Days following the Conversion Date, the Corporation shall cause to be (i) delivered, a share certificate or certificates for the appropriate number of Common Shares acquired, to, or (ii) registered in the name of,
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the Holder or the Person or Persons in whose name or names the Common Shares have been issued, as specified in the conversion notice referred to in Section 5.1.

Section 5.3 Partial Exercise of Conversion Right; Fractions.

- (1) Subject to Section 5.1(2) the Holder may elect to convert less than the whole Principal Sum, in which case the Holder upon the exercise of the Conversion Right shall be entitled to receive, without charge therefor, a new Debenture in respect of the balance of the Principal Sum which is not converted.
- (2) Notwithstanding anything herein contained, including any adjustment provided for in Article 7, the Corporation shall not be required, upon the exercise of the Conversion Right, or upon redemption, to issue fractions of Common Shares or to distribute certificates which evidence fractional Common Shares. In lieu of fractional Common Shares, the Corporation shall pay to the Holder within ten (10) Business Days after the Conversion Date, or upon redemption, an amount in lawful money of Canada equal to the Conversion Price of the Common Shares on such date multiplied by an amount equal to the fractional interest of Common Shares such Holder would otherwise be entitled to receive upon such exercise or upon conversion, provided that the Corporation shall not be required to make any payment, calculated as aforesaid, that is less than \$1.00.

Section 5.4 Cancellation and Distribution of Debenture.

Any portion of this Debenture converted under this Article 5 shall forthwith be cancelled by the Corporation and no Debenture shall be issued in substitution for the portion so cancelled as a result of conversion.

Section 5.5 Expiration of Conversion Right.

At the Expiry Time, the Conversion Right shall cease and terminate with respect to any amount of the Principal Sum which has not been converted, and is otherwise outstanding at such time, and for which the conversion notice described in Section 5.1 was not duly and properly given before such time, except to the extent that the Holder has not received certificates representing the Common Shares issued or been registered as the owner of such Common Shares, or has not received payment for any fractional Common Shares pursuant to Section 5.3(2), upon due exercise of the Conversion Right prior to the Expiry Time, in which instances the Holder's rights hereunder shall continue until it has received that to which it is entitled hereunder.

Section 5.6 Securities Law Restrictions.

Notwithstanding anything herein contained, Common Shares will only be issued pursuant to the Conversion Right, as applicable, in compliance with Applicable Securities Laws.

Section 5.7 Holder Not a Shareholder.

Nothing in this Debenture shall, in itself, confer or be construed as conferring upon the Holder any right or interest whatsoever as a Shareholder or as any other shareholder of the Corporation, including, but not limited to, the right to vote at, to receive notice of, or to attend, meetings of Shareholders or any other proceedings of the Corporation, or the right to receive dividends and other distributions.

Section 5.8 Charges for Exchange or Transfer.

The Corporation will from time to time promptly pay or make provision satisfactory to the Holder for the payment of any and all Taxes which may be imposed by Applicable Laws with respect to the issuance or delivery of the Common Shares to the Holder upon the exercise of the Conversion Right.

**ARTICLE 6
REDEMPTION and REPAYMENT BY THE CORPORATION**

Section 6.1 Redemption.

The Corporation, at its sole option, subject to providing no more than sixty (60) and no less than thirty (30) days' prior notice ("**Redemption Notice**"), may redeem the Debentures in whole or in multiples of \$500,000 and pro-rated over all outstanding Debentures of the Corporation issued pursuant to the Private Placement, at any time between:

- (a) the Registration Date and December 31, 2017 at a redemption price equal to 110% of the Principal Sum of the Debentures plus accrued and unpaid interest; and
- (b) January 1, 2018 until the Maturity Date at a redemption price equal to the Principal Sum of the Debentures plus accrued and unpaid interest.

Prior to the Registration Date, the Corporation shall not provide a Redemption Notice. Following receipt of a Redemption Notice and up to the day immediately prior to the date set for redemption (the "**Redemption Date**"), the Holder shall, subject to Section 5.5, maintain its right to convert, in whole or in part, the Debenture into Common Shares at the Conversion Price.

Section 6.2 Repayment at the Maturity Date.

This Debenture shall be repayable in full as to the Principal Sum, together with all accrued and unpaid interest then outstanding hereunder, as well as any and all other sums then payable by the Corporation to the Holder hereunder, on the earlier of January

12, 2020 and the date on which the Principal Sum and the accrued and unpaid interest is declared, or deemed to be, due and owing as a result of an Event of Default; provided, however, that, with the consent of the Holder and the Corporation, if on January 12, 2020 the Principal Sum and any accrued and unpaid interest is not fully paid and delivered to the Holder at such time, then the maturity date on this Debenture may be extended for up to three years (the "Maturity Date").

ARTICLE 7 ADJUSTMENTS

Section 7.1 Adjustment of Conversion Price.

The Conversion Price and Adjustment Price, as the case may be, in effect at any date shall be subject to adjustment from time to time as follows:

- a. if and whenever at any time during the Adjustment Period, the Purchaser shall:
 - i. subdivide, redivide or change its outstanding Common Shares into a greater number of such shares; or
 - ii. reduce, combine or consolidate its outstanding Common Shares into a smaller number of such shares;
 - iii. issue Common Shares or securities exchangeable or convertible into Common Shares to the holders of all or substantially all of the outstanding Common Shares by way of a dividend or distribution;then the Conversion Price and Adjustment Price, as the case may be, in effect on the effective date of such subdivision, redivision, change, reduction, combination or consolidation, as the case may be, shall in the case of the events referred to in (i) and (iii) above, be decreased in proportion to the number of outstanding Common Shares resulting from such subdivision, redivision or change, or shall, in the case of the events referred to in (ii) above, be increased in proportion to the number of outstanding Common Shares resulting from such reduction, combination or consolidation; in each case by multiplying the Conversion Price and Adjustment Price, as the case may be, in effect on such effective date by a fraction of which the numerator shall be the total number of Common Shares outstanding immediately prior to such date and the denominator shall be the total number of Common Shares outstanding immediately after such date. Such adjustment shall be made successively whenever any event referred to in this Section 7.1(a) shall occur;

- b. if and whenever at any time during the Adjustment Period, the Purchaser shall fix a record date for the issuance of rights, options or warrants to all or substantially all the holders of its outstanding Common Shares entitling them, for a period expiring not more than 45 days after such record date (the "Rights Period"), to subscribe for or purchase Common Shares (or securities convertible or exchangeable into Common Shares) at a price per share (or having a conversion or exchange price per share) less than 95% of the Current Market Price for Common Shares ending on the third trading day prior to such record date (any such events being called a "Rights Offering"), then the Conversion Price, First Adjustment Price and Second Adjustment Price, as the case may be, shall be adjusted immediately after the end of the Rights Period so that it shall equal the amount determined by multiplying the Conversion Price and Adjustment Price, as the case may be, in effect immediately prior to the end of the Rights Period by a fraction:
 - i. the numerator of which will be the aggregate of:
 - A. the total number of Common Shares outstanding as of the record date for such Rights Offering, and
 - B. a number determined by dividing (i) the product of the number of Common Shares subscribed for during the Rights Period upon the exercise of the rights, options or warrants under the Rights Offering and the price at which such Common Shares are offered for such issue or subscription, by (ii) the Current Market Price for Common Shares ending on the third trading day prior to such record date for the commencement of the Rights Offering, and
 - ii. the denominator of which will be the total number of Common Shares outstanding, or the number of Common Shares which would be outstanding if all the exchangeable or convertible securities were exchanged for or converted into Common Shares during the Rights Period, after giving effect to the Rights Offering and including the number of Common Shares actually issued or subscribed for during the Rights Period upon exercise of the rights, warrants or options under the Rights Offering;provided that any Common Shares owned by or held for the account of the Purchaser or any subsidiary shall be deemed not to be outstanding for the purpose of any such computation; such adjustment shall be made successively whenever such a record date is fixed; and to the extent that any such rights, options or warrants are not issued or exercised prior to the expiration thereof, the Conversion Price and Adjustment Price as the case may be, shall be readjusted to the Conversion Price and Adjustment Price, as the case may be, which would then be in effect if such record date had not been fixed or to the Conversion Price and Adjustment Price, as the case may be, which would then be in effect based upon the number of Common Shares (or securities convertible into Common Shares) actually issued upon the exercise of such rights, options or warrants, as the case may be;

- c. if and whenever at any time during the Adjustment Period the Purchaser shall fix a record date for the making of a distribution to all or substantially all the holders of its outstanding Common Shares of (i) shares or other securities of any class, whether of the Purchaser or any other corporation (including stock dividends); (ii) rights, options or warrants (excluding those referred to in Section 7.1(b)); (iii) evidences of its indebtedness; (iv) assets (including cash) or property of the Purchaser; or (v) cash dividends or distributions, then, in each such case, the Conversion Price and Adjustment Price, as the case may be, shall be adjusted immediately after such record date so that it shall equal the price determined by multiplying the Current Market Price per Common Share in effect on such record date by a fraction, of which the numerator shall be the total number of Common Shares outstanding on such record date multiplied by the Current Market Price per Common Share on such record date, less the fair market value (as determined by the Directors, acting reasonably, subject to Section 7.4) of such shares, rights, options, warrants, evidences of indebtedness or assets so distributed, and of which the denominator shall be the total number of Common Shares outstanding on such record date multiplied by such Current Market Price per Common Share; provided that:
 - i. Common Shares owned by or held for the account of the Purchaser or any subsidiary shall be deemed not to be outstanding for the purpose of any such computation;
 - ii. such adjustment shall be made successively whenever such a record date is fixed;
 - iii. to the extent that such distribution is not so made, the Conversion Price and Adjustment Price, shall be readjusted to the Conversion Price, First Adjustment Price and Second Adjustment Price, which would then be in effect if such record date had not been fixed or to the Conversion Price and Adjustment Price, which would then be in effect based upon such shares or rights, options or warrants or evidences of indebtedness or assets actually distributed, as the case may be;
- d. subject to Section 9.1(f) and Section 9.2, if and whenever at any time during the Adjustment Period, there is a reclassification of the Common Shares or a capital reorganization of the Purchaser other than as described in Section 7.1(a) or a Change of Control, the Holder shall, upon the exercise of the Conversion Right, be entitled to receive and shall accept, in lieu of the number of shares then sought to be acquired by it, the number of shares or other securities of the Purchaser or of the body corporate, trust, partnership or other entity resulting from such Change of Control, or to which a sale or conveyance of substantially all of the assets of the Purchaser may be made, as the case may be, that the Holder would have been entitled to receive on such reclassification, capital reorganization or Change of Control, if, on the record date or the effective date thereof, as the case may be, the Holder had been the registered holder of the number of Common Shares sought to be acquired by it and to which it was entitled to acquire upon the exercise of the Conversion Right and a contemporaneous and equal adjustment shall be made to the Conversion Price and the Adjustment Price;
- e. in any case in which Section 7.1(b) or Section 7.1(c) require that an adjustment be made to the Conversion Price and the Adjustment Price, no such adjustment shall be made if, the Holder receives the rights, options or warrants referred to in Section 7.1(b) or the share rights, options, warrants, evidences of indebtedness or assets referred to in Section 7.1(c), as the case may be, in such kind and number as it would have received if it had been a holder of Common Shares on the applicable record date or effective date, as the case may be, by virtue of the Principal Sum having then already been converted into Common Shares at the Conversion Price in effect on the applicable record or effective date, as the case may be. Participation of the Holder in the issuance of rights, options or warrants referred to in Section 7.1(b) or Section 7.1(c) shall be subject to any required prior approval of the NASDAQ;
- f. the adjustments provided for in this Section 7.1 are cumulative, and shall, in the case of adjustments to the Conversion Price and Adjustment Price, be computed to the nearest whole cent and shall apply to successive subdivisions, redvisions, reductions, combinations, consolidations, distributions, issues or other events resulting in any adjustment under the provisions of this Section 7.1; and
- g. if, in the opinion of the Directors, acting reasonably and in good faith, the provisions of this Section 7.1 are not strictly applicable, or if strictly applicable would not fairly protect the rights of the Holder in accordance with the intent and purposes hereof, the Directors, acting reasonably and in good faith, shall make any adjustment in such provisions for the benefit of the Holder as the Directors deem appropriate.

Section 7.2 Entitlement to Securities on Exercise of Conversion Right.

All shares of any class or other securities which the Holder is at the time in question entitled or obligated to receive on the exercise of the Conversion Right, whether or not as a result of adjustments made pursuant to this Article 7, shall, for the purposes of the interpretation of this Debenture, be deemed to be Common Shares which the Holder is entitled or obligated to acquire pursuant to the exercise of the Conversion Right.

Section 7.3 No Adjustment for Stock Options etc.

Notwithstanding anything in this Article 7, no adjustment shall be made in the Conversion Price and Adjustment Price if the issue of Common Shares is being made pursuant to (a) this Debenture, (b) any stock option plan in force from time to time for

directors, officers, employees and consultants of the Corporation or the Purchaser or (c) any warrant, option or right to acquire Common Shares where such warrant, option or right is outstanding on the date of this Debenture.

Section 7.4 Determination by Auditors.

In the event of any question arising with respect to the adjustments provided for in this Article 7, such question shall be conclusively determined by a firm of chartered accountants in Canada mutually acceptable to the Corporation and the Holder, who shall have access to all necessary records of the Corporation, and such determination shall be binding upon the Corporation, the Holder and all other Persons interested therein.

Section 7.5 Proceedings Prior to any Action Requiring Adjustment.

As a condition precedent to the taking of any action which would require an adjustment in any of the conversion rights pursuant hereto, including the number of Common Shares which are to be received upon the exercise thereof, the Purchaser shall take any corporate action which may, in the opinion of legal counsel to the Purchaser, be necessary in order that the Purchaser has unissued and reserved in its authorized capital and may validly and legally issue as fully paid and non-assessable all the shares or other securities which the Holder is entitled to receive on the full exercise of the Conversion Right in accordance with the provisions hereof.

Section 7.6 Certificate of Adjustment.

The Corporation shall from time to time immediately after the occurrence of any event which requires an adjustment or readjustment as provided in Article 7, deliver a certificate of the Corporation to the Holder specifying the nature of the event requiring the same and the amount of the adjustment necessitated thereby and setting forth in reasonable detail the method of calculation and the facts upon which such calculation is based.

Section 7.7 Notice of Special Matters.

The Corporation covenants that it will cause the Purchaser to give notice to the Holder of its intention to fix a record date that is prior to the Expiry Time for the issuance of rights, options or warrants to all or substantially all the holders of its outstanding Common Shares or for the payment of any cash dividend, stock dividend or other distribution on its Common Shares. Such notice shall specify the particulars of such event, the record date for such event and, if prepared or available as at the date that such notice is required to be given pursuant to this Section 7.7, such notice shall be accompanied by the material (i.e., proxy circulars, information booklets etc.) sent to the holders of Common Shares in respect of the event in question, provided that the Purchaser shall only be required to specify in the notice such particulars of the event as shall have been fixed and determined on the date on which the notice is given. The notice shall be given in each case not less than fourteen (14) days prior to such applicable record date.

**ARTICLE 8
COVENANTS OF THE CORPORATION**

Section 8.1 Positive Covenants.

The Corporation covenants with the Holder that while any Principal Sum or accrued and unpaid interest remains outstanding under this Debenture it shall:

- a. **Payment and Performance:** duly and punctually pay all amounts due by it hereunder, and shall perform all other obligations on its part to be performed under the terms of this Debenture at the times and places and in the manner provided for herein;
 - b. **Corporate Existence:** maintain its corporate existence in good standing under the laws of Canada and shall ensure that the Purchaser maintains the Purchaser's corporate existence in good standing under the laws of Oregon;
 - c. **Conduct of Business and Compliance With Applicable Laws:** carry on and conduct its business, and ensure that the Purchaser carries on and conducts the Purchaser's business, in the ordinary course in compliance with all Applicable Laws;
 - d. **Notice of an Event of Default:** provide the Holder with prompt written notice of the occurrence of any Event of Default;
 - e. **Share Capital:**
ensure that the Purchaser:
 - i. reserves and keeps available a sufficient number of Common Shares for the purpose of enabling it to satisfy its obligations to issue Common Shares upon the exercise of the Conversion Right;
 - ii. causes the Common Shares and the certificates, as applicable, representing the Common Shares, from time to time acquired pursuant to the exercise of the Conversion Right, to be duly issued and delivered in accordance with the terms hereof;
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- iii. ensures that all Common Shares which shall be issued upon the exercise of the Conversion Right be issued as fully paid and non-assessable; and
- iv. ensures that all Common Shares otherwise issued hereunder be issued as fully paid and non-assessable.
- f. **Reporting Issuer and Listing Status.** The Purchaser must use reasonable commercial efforts to ensure that the Common Shares are listed and posted for trading on NASDAQ, to maintain such listing and posting for trading of the Common Shares on NASDAQ and to ensure that the Purchaser remains a registrant under the U.S. Securities Exchange Act of 1934, as amended. No later than October 31, 2017, the Purchaser shall file with the United States Securities and Exchange Commission, and shall use its commercially reasonable efforts to have declared effective by no later than November 30, 2017, the S-3 Registration Statement. The Purchaser shall use commercially reasonable efforts to maintain the effectiveness of the S-3 Registration Statement for so long as the Debenture remains outstanding.

Section 8.2 Negative Covenants of the Corporation.

The Corporation covenants with the Holder that it shall not without having first obtained the permission of the Holder:

- a. **Change of Business:** change in any material respect the nature of its business or operations as presently carried on; or
- b. **Prohibited Disposition:** directly or indirectly sell, transfer, assign, abandon, surrender, exchange, lease, sublease, convey or otherwise dispose of all, or substantially all, of its property, assets, and undertakings.

**ARTICLE 9
DEFAULT**

Section 9.1 Events of Default.

An Event of Default shall occur upon the happening of any one or more of the following events, namely:

- a. if the Corporation defaults in payment of the Principal Sum or interest when the same becomes due and payable under this Debenture;
- b. if either of the Corporation or the Purchaser (i) makes a general assignment for the benefit of creditors, (ii) institutes or has instituted against it any proceeding seeking to adjudicate it a bankrupt or insolvent, liquidation, winding-up, reorganization, arrangement, adjustment, protection, relief or composition of it or its debts under any law relating to bankruptcy, insolvency, reorganization or relief of debtors including any plan of compromise or arrangement or other corporate proceeding involving its creditors, or the entry of an order for relief or the appointment of a receiver, trustee or other similar official for it or for any substantial part of its properties and assets, and in the case of any such proceeding instituted against it (but not instituted by it), either the proceeding remains undismissed or unstayed for a period of thirty (30) days, or any of the actions sought in such proceeding (including the entry of an order for relief against it or the appointment of a receiver, trustee, custodian or other similar official for it or for any substantial part of its properties and assets) occurs, or (iii) takes any corporate action to authorize any of the above actions;
- c. if the Corporation, without the prior consent of the Secured Creditors Representative, which shall not be unreasonably withheld or delayed, shall, outside of the ordinary course of business, sell, transfer, assign, abandon, surrender, exchange, license or otherwise dispose of any patent, trade-mark, copyright, industrial design, trade secret or any other tangible or intangible property which is commonly referred to as "intellectual property";
- d. if the Corporation shall, without the prior consent of the Secured Creditors Representative, sell or otherwise alienate any rights which it may have to apply for income tax or other fiscal purposes any losses (or tax credits) which it may have or may in the future incur or reduce any taxable income including, but not limited to, ordinary income and/or capital gains;
- e. if the Corporation shall breach or otherwise fail to perform or observe any other material covenant, term or condition contained in this Debenture, and the breach is not cured after thirty (30) days written notice by the Holder to the Corporation; or
- f. if a Change of Control shall occur.

Section 9.2 Acceleration.

Upon the occurrence of an Event of Default, the Holder may by notice made in writing within thirty (30) days of the Event of Default, to the Corporation declare the Principal Sum and all accrued and unpaid interest thereon, and all other amounts owing hereunder, to be immediately due and payable and the same shall become immediately due and payable to the Holder and the Corporation shall forthwith pay the same to the Holder, failing which all rights and remedies of the Holder hereunder or at law or equity in respect of such non-payment shall become enforceable.

Section 9.3 Remedies Not Exclusive.

No right, power or remedy herein conferred upon or reserved to the Holder is intended to be exclusive of any other right, power or remedy or remedies, and each and every right, power and remedy shall, to the extent permitted by Applicable Laws, be cumulative and shall be in addition to every other right, power or remedy given hereunder or now or hereafter existing at law, in equity or by statute. The Holder shall have the power to waive any Default or Event of Default, provided such waiver is obtained in accordance with Section 11.2, and shall not constitute a waiver of any other or subsequent Default or Event of Default. No delay or omission of the Holder or Holders in the exercise of any right, power or remedy accruing upon any Default or Event of Default shall impair any such right, power or remedy or shall be construed to be a waiver of any such Default or Event of Default or an acquiescence therein. Every right, power and remedy given to the Holder by this Debenture or under Applicable Laws may be exercised from time to time and as often as may be deemed expedient by the Holder. In case the Holder shall have proceeded to enforce any right under this Debenture and the proceedings for the enforcement thereof shall have been discontinued or abandoned for any reason or shall have been determined adversely to the Holder, then and in every such case, the Corporation and the Holder shall, without any further action hereunder, to the full extent permitted by Applicable Laws, subject to any determination in such proceedings, severally and respectively, be restored to their former positions and rights hereunder and thereafter all rights, remedies and powers of the Holder shall continue as though no such proceeding had been taken.

Section 9.4 Application of Monies.

Subject to Applicable Laws, all monies collected or received by the Holder pursuant to or in exercise of any right or remedy shall be applied on account of the amounts outstanding hereunder in such manner as the Holder deems best or, at the option of the Holder, or released to the Corporation, all without prejudice to the liability of the Corporation or the rights of the Holder hereunder, and any surplus shall be accounted for as required by Applicable Laws.

**ARTICLE 10
COST AND EXPENSES**

Section 10.1 Expenses.

The Corporation shall be responsible for its own costs and expenses. The Corporation will, in addition, reimburse the reasonable costs, expenses and fees of McCullough O'Connor Irwin LLP incurred in its role as legal counsel to the Holders (on a collective basis), for negotiating and documenting the Private Placement. For greater certainty, the Corporation will not be responsible for the payment (or reimbursement) of any costs, expenses, legal fees or advisory fees incurred by any Holder on an individual basis whether such costs, expenses or fees are billed to the Corporation directly or through McCullough O'Connor Irwin LLP or any other party. The Corporation will, in addition, reimburse the reasonable costs, expenses and fees of McCullough O'Connor Irwin LLP incurred in its role as legal counsel to the Holders (on a collective basis), for negotiating and documenting the amendments to the Debenture.

**ARTICLE 11
SUPPLEMENTAL INDENTURES**

Section 11.1 Supplemental Indentures.

From time to time the Corporation may, and it shall, when required by this Debenture, execute, acknowledge and deliver, by its proper officers, indentures supplemental hereto or in replacement hereof, as the case may be, which thereafter shall form part hereof in the case of a supplemental indenture, for any one or more of the following purposes:

- a. evidencing the succession, or successive successions, of other corporations to the Corporation, and the terms, provisions, conditions, covenants and obligations assumed by any such successor;
- b. evidencing the remaining Principal Sum and any accrued and unpaid interest where a partial conversion, redemption or repurchase occurs; and
- c. for any other purpose not inconsistent with the terms of this Debenture.

Section 11.2 No Amendment or Waiver.

Notwithstanding any other provisions of this Debenture, no amendment or waiver of any provisions of this Debenture, nor consent to any departure by the Corporation therefrom shall in any event be effective unless the same shall be obtained from the Holder, and then such amendment, waiver or consent shall be effective only in the specific instance and for the specific purpose for which it was given and shall not extend to or be taken in any manner whatsoever to affect any subsequent breach or Default or to affect the rights of the Holders resulting therefrom.

**ARTICLE 12
REGISTRATION AND TRANSFER OF DEBENTURE**

Section 12.1 Register of the Debenture.

1. The Corporation shall keep or cause to be kept a register in which the Holder or Holders of the Debentures shall be registered. The name and address of each Holder of the Debenture and particulars of the Debenture held shall be entered
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in the register. For the purposes of this Debenture, the Corporation may treat the registered owner of this Debenture as the beneficial owner thereof for all purposes, unless otherwise notified.

2. The Corporation shall have full power and authority to appoint, at any time, and at its sole discretion, an agent or trustee to maintain the register of Holders. Where the Corporation appoints an agent or trustee to maintain the register of Holders, the Holder agrees to execute and deliver all such agreements, indentures, and other documents required by such agent or trustee. The Corporation shall pay all costs associated with appointing an agent or trustee to maintain the register of Holders, and all on-going costs.

Section 12.2 Transfer of the Debentures.

This Debenture or part hereof is transferable and assignable by the Holder to any other Person at any time. The Holder acknowledges and understands that the transfer or assignment of all or part of the Principal Sum and any accrued and unpaid interest is subject to Applicable Securities Laws, and may only be effected upon compliance with such laws. The Holder further acknowledges no transfer shall be made unless and until the transferee agrees to be bound by the Intercreditor Agreement if such agreement is in place on the date of the transfer.

Section 12.3 U.S. Transferee.

This Debenture and the Common Shares issuable upon exercise of the Conversion Right or otherwise under this Debenture have not been registered under the U.S. Securities Act, or any other Applicable U.S. Securities Laws, and may not be transferred in the United States or to a U.S. Person unless this Debenture and the Common Shares issuable upon exercise of the Conversion Right or otherwise under this Debenture have been registered under the U.S. Securities Act and any other Applicable U.S. Securities Laws or an exemption from such registration requirements is available.

Section 12.4 Exchange of Debentures.

Any one or more Debentures may, upon compliance with the reasonable requirements of the Corporation (including compliance with Applicable Securities Laws), be exchanged for one or more other Debentures representing the same aggregate Principal Sum and any accrued and unpaid interest as represented by the Debenture so exchanged. Any Debenture tendered for exchange shall be cancelled and surrendered by the Holder to the Corporation.

Section 12.5 Replacement Debenture.

If this Debenture becomes mutilated or is lost, destroyed or stolen, the Corporation, subject to Applicable Laws, shall issue and deliver, a new debenture of like tenor as the one mutilated, lost, destroyed or stolen in exchange for and in place of and upon cancellation of this Debenture. The Holder shall bear the cost of the issue of a replacement Debenture and in case of loss, destruction or theft shall, as a condition precedent to the issuance thereof, furnish to the Corporation such evidence of ownership and of the loss, destruction or theft of this Debenture as shall be satisfactory to the Corporation, in its sole discretion, and the Holder may also be required to furnish an indemnity in an amount reasonable under the circumstances and in a form satisfactory to the Corporation, in its sole discretion, and shall pay the reasonable charges of the Corporation in connection therewith.

**ARTICLE 13
PURCHASE FOR CANCELLATION**

Section 13.1 Purchase for Cancellation.

At any time prior to the Maturity Date, and subject to Applicable Laws, the Corporation may purchase any Principal Sum of Debentures and the related accrued and unpaid interest, for cancellation, at any price, by tender, by private contract, or any other means permitted at law, subject only to the consent of the Holder of such Debenture having been obtained.

**ARTICLE 14
MISCELLANEOUS**

Section 14.1 Tax Treatment.

Based on the provisions of the Tax Act, the Debentures will be a qualified investment under the Tax Act at the time of their issuance to a trust governed by a Plan Trust, provided that at the time of their issuance, the Common Shares are listed on a "designated stock exchange", within the meaning of the Tax Act (which currently includes the NASDAQ).

Section 14.2 Severability.

If any one or more of the provisions or parts thereof contained in this Debenture should be or become invalid, illegal or unenforceable in any respect in any jurisdiction, the remaining provisions or parts thereof contained herein shall be and shall be conclusively deemed to be, as to such jurisdiction, severable therefrom and:

- a. the validity, legality or enforceability of such remaining provisions or parts thereof shall not in any way be affected or impaired by the severance of the provisions or parts thereof severed; and
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- b. the invalidity, illegality or unenforceability of any provision or any part thereof contained in this Debenture in any jurisdiction shall not affect or impair such provision or part thereof or any other provisions of this Debenture in any other jurisdiction.

Section 14.3 Governing Law.

This Debenture shall be deemed to have been made and shall be construed in accordance with the laws of the Province of Ontario and the laws of Canada applicable therein and shall be treated in all respects as an Ontario contract. The Corporation and the Holder hereby irrevocably submit to the jurisdiction of the courts of the Province of Ontario for any action, suit or any other proceeding arising out of or relating to this Debenture and any other agreement or instrument mentioned therein or any of the transactions contemplated thereby.

Section 14.4 Notices.

All notices, reports or other communication required or permitted by this Debenture must be in writing and either delivered by hand or by any form of electronic communication by means of which a written or typed copy is produced by the receiver thereof and is effective on actual receipt unless sent by electronic means in which case it is effective on the Business Day next following the date of transmission, addressed to the relevant party, as follows:

- a. if to the Corporation:

1210 Sheppard Ave E. Fax: (416) 646-1042
Suite 800
Toronto, Ontario
M2K 1E3

- b. if to the Holder:

Address: **Fax:** _____

or the last address or telecopier number of the party concerned, notice of which was given in accordance with this Section 14.4.

Section 14.5 Term.

The provisions of this Debenture shall become effective as of the date set forth on the first page hereof and shall continue in full force and effect until discharged in accordance with Section 1.7.

Section 14.6 No Merger or Novation.

The execution and delivery of this Debenture or of any instruments or documents supplemental hereto shall not operate as a merger of any representation, warranty, term, condition or other provision contained in any other obligation or indebtedness of the Corporation to the Holder.

Section 14.7 Enurement.

This Debenture and all its provisions shall enure to the benefit of the Holder, its successors and assigns and shall be binding upon the Corporation, its successors and permitted assigns.

Section 14.8 Time of Essence.

Time shall be of the essence hereof.

APPENDIX 1

CONVERSION NOTICE

TO: VIXS SYSTEMS INC. (the "Corporation")

The undersigned hereby exercises its right to acquire Common Shares in the capital of Pixelworks, Inc. pursuant to the terms of a 10.00%, subject to adjustment, amended and restated secured convertible debenture issued by the Corporation on the Closing Date, on the terms set therein and herein. Capitalized terms not defined herein shall have the meaning ascribed to such terms in such debenture.

1. PRINCIPAL SUM TO BE CONVERTED: _____

**2. NUMBER OF COMMON SHARES
TO BE ACQUIRED:** _____

3. CONVERSION PRICE: _____

**4. PRINCIPAL SUM REMAINING
FOLLOWING CONVERSION:** _____

5. CONVERSION DATE: _____
(Must be between 3 and 10 days following the date of this notice.)

**6. NAME AND ADDRESS OF THE PERSON
TO WHOM SUCH COMMON SHARES ARE
TO BE ISSUED AND REGISTERED OR DELIVERED:**

5. IF THIS CONVERSION IS PARTIAL, THE

NAME AND ADDRESS WHERE A NEW

DEBENTURE REPRESENTING THE UNCONVERTED

PRINCIPAL SUM IS TO BE DELIVERED:

DATED this _____ day of _____, _____.

Signature Guarantee

(Signature of Debentureholder or authorized representative)

Print Full Name

Note:

1. Once this notice is delivered to the Corporation, the Debentureholder may not revoke, cancel, or otherwise withdraw the giving of this notice, except with the express, written consent of the Corporation.
2. This notice must be accompanied by the Debenture(s) representing the Principal Sums to be converted. Until such delivery the Corporation is under no obligation to deliver, or cause to be delivered, to the Debentureholder, the Common Shares to be acquired.
3. The Debentureholder may exercise its right to receive Common Shares by completing this form and surrendering this form and the Debenture to the Corporation at its principal office at 1219 Sheppard Ave E, Suite 800, Toronto, Ontario M2K 1E3.

APPENDIX 2

GENERAL SECURITY AGREEMENT

(attached)

CERTIFICATION

I, Todd A. DeBonis, certify that:

1. I have reviewed this quarterly report on Form 10-Q 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(s) 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(s) 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: November 14, 2017

By: /s/ Todd A. DeBonis

Todd A. DeBonis

President and Chief Executive Officer

(Principal Executive Officer)

CERTIFICATION

I, Steven L. Moore, certify that:

1. I have reviewed this quarterly report on Form 10-Q 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(s) 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(s) 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: November 14, 2017

By: /s/ Steven L. Moore

Steven L. Moore
*Vice President, Chief Financial
Officer, Secretary and Treasurer
(Principal Financial Officer)*

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Quarterly Report of Pixelworks, Inc. (the "Company") on Form 10-Q for the quarterly period ended September 30, 2017 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Todd A. DeBonis, President and Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. §1350, as adopted pursuant to §906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

1. The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

By: /s/ Todd A. DeBonis

Todd A. DeBonis

*President and Chief Executive Officer
(Principal Executive Officer)*

Date: November 14, 2017

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Quarterly Report of Pixelworks, Inc. (the "Company") on Form 10-Q for the quarterly period ended September 30, 2017 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Steven L. Moore, Vice President, Chief Financial Officer, Secretary and Treasurer of the Company, certify, pursuant to 18 U.S.C. §1350, as adopted pursuant to §906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

1. The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

By: /s/ Steven L. Moore

Steven L. Moore

*Vice President, Chief Financial
Officer, Secretary and Treasurer
(Principal Financial Officer)*

Date: November 14, 2017

