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

FORM 10-K

x **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the fiscal year ended September 30, 2019

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 001-36632

emcore®

EMCORE Corporation
(Exact name of registrant as specified in its charter)

New Jersey	**22-2746503**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

2015 W. Chestnut Street, Alhambra, California, 91803
(Address of principal executive offices) (Zip Code)

Registrant's telephone number, including area code: **(626) 293-3400**

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Trading Symbol	Name of Each Exchange on Which Registered
Common stock, no par value	EMKR	The Nasdaq Stock Market LLC (Nasdaq Global Market)

Securities registered pursuant to Section 12(g) of the Act: **None**
Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act ☐ Yes ☑ **No**
Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. ☐ Yes ☑ **No**

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

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definition of “large accelerated filer”, “accelerated filer”, “smaller reporting company” and “emerging growth company” in Rule 12b-2 of the Exchange Act.
☐ Large accelerated filer ☑ **Accelerated filer** ☐ Non-accelerated filer ☑ **Smaller reporting company** ☐ Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

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

The aggregate market value of our common stock held by non-affiliates as of March 29, 2019 (the last business day of our most recently completed second fiscal quarter) was approximately $98.4 million, based on the closing sale price of $3.65 per share of common stock as reported on the Nasdaq Global Market. For purposes of this disclosure, shares of common stock held by officers and directors and by each person known by us to own 10% or more of our outstanding common stock have been excluded. This determination of affiliate status is not necessarily a conclusive determination for any other purpose.

As of December 6, 2019, the number of shares outstanding of our no par value common stock totaled 28,904,853.

DOCUMENTS INCORPORATED BY REFERENCE

In accordance with General Instruction G(3) of Form 10-K, certain information required by Part III hereof will either be incorporated into this Form 10-K by reference to our Definitive Proxy Statement for our Annual Meeting of Shareholders filed within 120 days of September 30, 2019 or will be included in an amendment to this Form 10-K filed within 120 days of September 30, 2019.

CAUTIONARY STATEMENT
REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K includes forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). These forward-looking statements are made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. These forward-looking statements are based on our current expectations and projections about future events and financial trends affecting the financial condition of our business. Such forward-looking statements include, in particular, projections about our future results included in our Exchange Act reports and statements about our plans, strategies, business prospects, changes and trends in our business and the markets in which we operate. These forward-looking statements may be identified by the use of terms and phrases such as "anticipates," "believes," "can," "could," "estimates," "expects," "forecasts," "intends," "may," "plans," "projects," "should," "targets," "will," "would," and similar expressions or variations of these terms and similar phrases. Additionally, statements concerning future matters such as our expected liquidity, development of new products, enhancements or technologies, sales levels, expense levels, expectations regarding the outcome of legal proceedings and other statements regarding matters that are not historical are forward-looking statements. Management cautions that these forward-looking statements relate to future events or our future financial performance and are subject to business, economic, and other risks and uncertainties, both known and unknown, that may cause actual results, levels of activity, performance, or achievements of our business or our industry to be materially different from those expressed or implied by any forward-looking statements. Factors that could cause or contribute to such differences in results and outcomes include without limitation the following: (a) the rapidly evolving markets for the Company's products and uncertainty regarding the development of these markets; (b) the Company's historical dependence on sales to a limited number of customers and fluctuations in the mix of products and customers in any period; (c) delays and other difficulties in commercializing new products; (d) the failure of new products: (i) to perform as expected without material defects, (ii) to be manufactured at acceptable volumes, yields, and cost, (iii) to be qualified and accepted by our customers, and (iv) to successfully compete with products offered by our competitors; (e) uncertainties concerning the availability and cost of commodity materials and specialized product components that we do not make internally; (f) actions by competitors; (g) risks and uncertainties related to applicable laws and regulations, including the impact of changes to applicable tax laws and tariff regulations; (h) acquisition-related risks, including that (i) the revenues and net operating results obtained from the Systron Donner Inertial, Inc. ("SDI") business may not meet our expectations, (ii) the costs and cash expenditures for integration of the SDI business operations may be higher than expected, (iii) there could be losses and liabilities arising from the acquisition of SDI that we will not be able to recover from any source, and (iv) we may not realize sufficient scale in our navigation systems product line from the SDI acquisition and will need to take additional steps, including making additional acquisitions, to achieve our growth objectives for this product line; (i) risks related to our ability to obtain capital; (j) risks related to the transition of certain of our manufacturing operations from our Beijing facility to a contract manufacturer's facility; and (k) other risks and uncertainties discussed in Part I, Item 1A, Risk Factors in this Annual Report as well as those discussed elsewhere in this Annual Report, as such risk factors may be amended, supplemented or superseded from time to time by our subsequent periodic reports we file with the Securities and Exchange Commission ("SEC"). These cautionary statements apply to all forward-looking statements wherever they appear in this Annual Report.

Forward-looking statements are based on certain assumptions and analysis made in light of our experience and perception of historical trends, current conditions and expected future developments as well as other factors that we believe are appropriate under the circumstances. While these statements represent our judgment on what the future may hold, and we believe these judgments are reasonable, these statements are not guarantees of any events or financial results. All forward-looking statements in this Annual Report are made as of the date hereof, based on information available to us as of the date hereof, and subsequent facts or circumstances may contradict, obviate, undermine, or otherwise fail to support or substantiate such statements. We caution you not to rely on these statements without also considering the risks and uncertainties associated with these statements and our business that are addressed in this Annual Report on Form 10-K. Certain information included in this Annual Report may supersede or supplement forward-looking statements in our other reports filed with the SEC. We assume no obligation to update any forward-looking statement to conform such statements to actual results or to changes in our expectations, except as required by applicable law or regulation.

EMCORE Corporation
FORM 10-K
For the Fiscal Year ended September 30, 2019

TABLE OF CONTENTS

PART I.

Item 1. Business

Company Overview

EMCORE Corporation, together with its subsidiaries (referred to herein as the “Company,” “we,” “our,” or “EMCORE”), was established in 1984 as a New Jersey corporation. The Company became publicly traded in 1997 and is listed on the Nasdaq Stock Exchange under the ticker symbol EMKR. EMCORE is a leading provider of sensors for navigation in the Aerospace and Defense market as well as a manufacturer of lasers and optical subsystems for use in the cable TV industry.

EMCORE pioneered the linear fiber optic transmission technology that enabled the world’s first delivery of Cable TV directly on fiber, and today is a leading provider of advanced *Mixed-Signal Optics* products serving the broadband communications and Aerospace and Defense markets. The *Mixed-Signal Optics* technology at the heart of our broadband communications products is shared with our fiber optic gyros and inertial sensors to provide the aerospace and defense markets with state-of-the-art navigations systems technology. With the acquisition of Systron Donner Inertial, Inc. (“SDI”), a navigation systems provider with a scalable, chip-based platform for higher volume gyro applications utilizing Quartz MEMS technology, in June of 2019, EMCORE further expanded its portfolio of gyros and inertial sensors with SDI’s quartz MEMS gyro and accelerometer technology.

EMCORE has fully vertically-integrated manufacturing capability through our Indium Phosphide (“InP”) compound semiconductor wafer fabrication facility at our headquarters in Alhambra, CA, and through our quartz processing and sensor manufacturing facility in Concord, CA. These facilities support EMCORE’s vertically-integrated manufacturing strategy for quartz and fiber optic gyro products, for Navigation systems, and for our chip, laser, transmitter, and receiver products for broadband applications.

For the fiscal year ended September 30, 2019, we had one reporting segment, comprised of three product lines: Navigation Systems, Broadband and Chip Devices. Please see our consolidated financial statements and notes included in this Annual Report for financial information regarding this segment.

For the fiscal year ending September 30, 2020, as a result of the acquisition of SDI and the increased size and growth expectations of our aerospace and defense business, we expect that we will have two reporting segments, Aerospace and Defense, and Broadband. Aerospace and Defense will be comprised of two product lines: (i) Navigation and Inertial Sensing, and (ii) Defense Optoelectronics. The Broadband segment will be comprised of three product lines: (i) Cable TV Lasers and Transmitters, (ii) Chip Devices, and (iii) Other. Due to a shift in customer base, the previously existing Satellite/Microwave Communications product line has been renamed “Defense Optoelectronics”.

This reporting change, detailing information for these two segments, will go into effect when EMCORE releases our results of operations for the period ending December 31, 2019.

EMCORE’s headquarters and principal executive offices are located at 2015 W. Chestnut Avenue, Alhambra, California, 91803 and our main telephone number is (626) 293-3400. For specific information about us, our products or the markets we serve, please visit our website at http://www.emcore.com. The information contained in or linked to our website is not a part of, nor incorporated by reference into, this Annual Report on Form 10-K or a part of any other report or filing with the Securities and Exchange Commission (the “SEC”).

We are subject to the information requirements of the Securities Exchange Act of 1934 (the “Exchange Act”). We file periodic reports, current reports, proxy statements, and other information with the SEC. The SEC maintains a website at http://www.sec.gov that contains all of our information that has been filed or furnished electronically with the SEC. We make available free of charge on our website a link to our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act, as soon as reasonably practicable, after such material is electronically filed with, or furnished to, the SEC.

Overview of Our Industry and Markets We Serve

InP compound semiconductor-based products provide the foundation of components, subsystems, and systems used in a broad range of technology markets. Compound semiconductor materials can provide electrical or electro-optical functions, such as emitting optical communications signals and detecting optical communications signals.

Specifically, within our Fiber Optics reporting segment, our Broadband products serve the Cable TV (“CATV”), Satellite Communications and Wireless markets; our Chip products serve the Telecommunications, Fiber-To-The-Premises (“FTTP”), Long-Term Evolution (“LTE”) and Data Center markets; and our Navigation Systems products primarily serve the Aerospace and Defense markets.

Navigation and Inertial Sensing Product Line

EMCORE, through our vertically-integrated infrastructure, has been able to adapt the same technologies, chip designs, and production assets applicable to our CATV products to the development of state-of-the-art Fiber Optic Gyroscopes (“FOG”) that have broad application within the aerospace and defense markets for land, sea, air and space navigation. This gives EMCORE the ability to leverage our high-volume infrastructure for lower volume, higher value-added product. EMCORE has expanded its FOG-based product line to include Inertial Measurement Units (“IMU or IMUs”) and Inertial Navigation Systems (“INS”) that provide superior Size, Weight and Power (“SWaP”) compared to competing or legacy systems. In June of 2019, EMCORE added the SDI series of Quartz MEMS (“QMEMS”) gyros and IMU products to our portfolio, expanding EMCORE’s portfolio to better address high volume markets and taking advantage of EMCORE’s core wafer fabrication and processing capabilities to further improve upon SDI’s base technology platforms.

To the extent sales of our navigation system products are related to U.S. government contracts or subcontracts, this portion of the business may be subject to renegotiation of profits or termination of contracts or subcontracts at the election of the U.S. government or an agency thereof.

- ***Fiber Optic Gyroscope Products*** - EMCORE’s FOG program has received multiple U.S. patents and has been qualified for several key military programs for applications including Unmanned Aerial Systems (“UAS”), line-of-site stabilization, aviation and aeronautics. All EMCORE FOGs feature advanced optics with only three components for simplified assembly along with Digital Signal Processing (“DSP”) or Field Programmable Gate Array (“FPGA”) for higher accuracy, lower noise and greater efficiency. The integrated DSP or FGPA also improves optical drift stability and enables higher linearity and greater environmental flexibility. EMCORE’s FOG products range from tactical to navigational grade gyros where the critical specifications for fiber length, Angle Random Walk (“ARW”) and drift rate improves through the product line to provide customers greater flexibility in choosing the performance level that best meets their application.

- ***Quartz MEMS Gyroscope Products*** - EMCORE’s Systron Donner Inertial brand supplies the world’s highest performance MEMS Inertial Sensors & Systems. Our quartz MEMS Gyroscopes, Accelerometers, Inertial Measurement Units and GPS/INS products deliver a clear, continuously improving Size, Weight, Power, and Cost (“SWaPC”) advantages over alternative technologies. With more than 50 years of extensive experience EMCORE is continuously developing leading-edge disciplines with new innovative breakthrough products, which are enabling advanced performance capabilities in mission critical applications worldwide.

Systron Donner Inertial products have no moving parts, no friction, no known modes of wear out, and require no recalibration or rebuilding. They deliver industry-leading reliability under the most demanding conditions through dedicated engineering technology and manufacturing operations excellence, and AS9100 Aerospace Quality System Certification. EMCORE's QMEMS products provide precision system solutions and establish higher standards for price/performance characteristics across guidance, navigation, control, pointing and stabilization applications in commercial and military aircraft, unmanned autonomous vehicles, land vehicles, precision guided weapons, industrial and marine platforms.

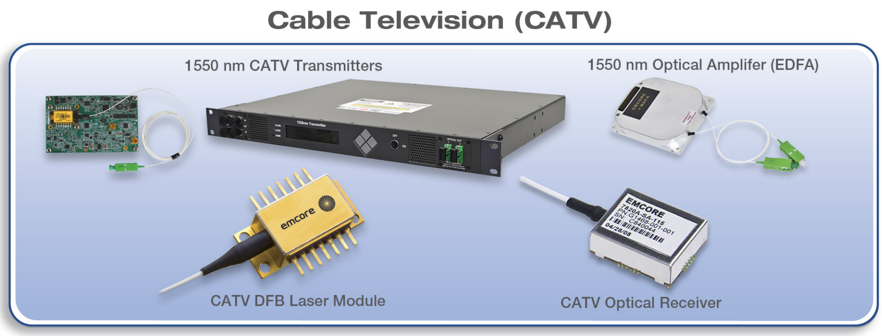
- ***FOG-Based Inertial Measurement Units and Navigation Systems Products*** - EMCORE's FOG-based MU and INS systems provide superior SWaP compared to competing systems. Our products provide customers the flexibility to choose options from straightforward IMU operation to full navigation and are higher performance form, fit and function replacements for other IMUs and legacy systems. EMCORE's FOG-based IMUs and INS products deliver high-precision with up to five-times better performance than competing units in compact, portable form-factors that provide standalone aircraft grade navigator performance at one-third the size of competing systems.

[Table of Contents](#)

Defense Optoelectronics Product Line (*Formerly Satellite/Microwave Communications Products*)

Satellite/Microwave Communications Products - EMCORE has an established history as a pioneer of innovative Radio Frequency ("RF") over fiber solutions for high-performance fiber optic links in the terrestrial portion of satellite communications networks. EMCORE's satellite/microwave band components and complete systems transport an ultra-broadband frequency range including IF, L, S, C, X, DBS, Ku, K, Ka, and Ultra-Wideband signal transport. A wide range of high-dynamic-range applications are supported including satellite antenna remoting and signal distribution, inter- and intra-facility links, site diversity systems, high-performance supertrunking links, electronic warfare systems and radar testing. EMCORE's complete line of satellite and microwave components, subassemblies and systems eliminate the distance limitations of copper-based coaxial systems. Our rack-mount Optiva Platform RF & Microwave Fiber Optic Transport System features a wide range of Simple Network Management Protocol ("SNMP") managed fiber optic transmitters, receivers, optical amplifiers, RF and optical switches, passive devices and Ethernet products that provide high-performance fiber optic transmission between satellite hub equipment and antenna dishes. EMCORE also offers a series of ruggedized microwave flange-mount transmitters, receivers and optical delay line products that meet the reliability and durability requirements of the U.S. government and defense markets. These products are tailored to the requirements of higher frequency applications such as microwave antenna signal distribution, electronic warfare systems and radar system calibration and testing. They provide our customers with high frequency, dynamic range, compact form-factors, and extreme temperature, shock and vibration tolerance. To the extent sales of our satellite/microwave communications products are related to U.S. government contracts or subcontracts, this portion of the business may be subject to renegotiation of profits or termination of contracts or subcontracts at the election of the U.S. government or an agency thereof.

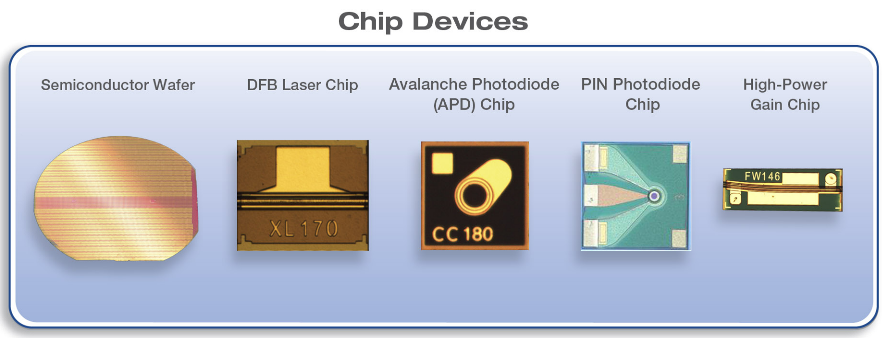
Cable TV Lasers and Transmitters Product Line



EMCORE is an established market leader in providing RF over fiber products for the CATV industry. Our products enable cable systems providers to increase data transmission distance, speed and bandwidth in Hybrid Fiber Coaxial ("HFC") networks, with lower noise and power consumption. This empowers cable service operators to meet the growing demand for high-speed Internet, HDTV, Ultra HDTV, 4K, video streaming and other advanced services. Our CATV products include forward and return-path analog lasers, receivers, photodetectors and subassembly components; analog and digital fiber-optic transmitters, Quadrature Amplitude Modulation ("QAM") transmitters, optical switches and CATV fiber amplifiers.

EMCORE's latest series of CATV transmitters feature the Company's breakthrough Linear Externally Modulated Laser ("L-EML") technology that enables long distance optical link performance approaching traditional lithium niobate-based externally-modulated transmitters, but is more cost-effective and far exceeds the performance of Distributed Feedback ("DFB") laser-based systems. EMCORE's CATV transmitter products are offered on an OEM and ODM basis for integration into complete CATV transmission systems. The Company also offers its own branded line of EMCORE Medallion series rack-mount CATV transmitters, optical switches and fiber amplifiers. EMCORE's Medallion series products include DOCSIS 3.1, 1550 nm externally-modulated transmitters, 1550 nm directly-modulated transmitters, optical A/B switches, and 1RU and 2RU rack-mount CATV fiber amplifiers. EMCORE's Medallion series transmitters, optical switches and fiber amplifiers, in conjunction with EMCORE's components and Radio Frequency over Glass ("RFoG") products, comprise a complete end-to-end CATV system.

Chip Devices Product Line



Telecommunications companies throughout the world have been extending their Passive Optical Network ("PON") infrastructure to business, enterprise and residential customers for several years. Since the sale of the Company's telecom module products in 2015, EMCORE has supported this market through commercialization of products developed in our InP wafer fab to become a merchant supplier of high-performance chip devices to the Telecom industry. EMCORE's semiconductor wafer fabrication facility features Metal-Organic Chemical Vapor Deposition ("MOCVD") reactors for 2" or 3" wafer processing for InP-based devices including high-power gain chips, laser chips, Avalanche Photodiode ("APD") and P-type Intrinsic N-type ("PIN") photodetector chips. Our technical team has expertise in device design, epitaxial growth, wafer processing, device characterization, and Chip-On-Block ("COB"), TO-Can and Optical Sub-Assembly ("OSA") from development through manufacturing.

- ***High-Power Gain Chips Products*** - EMCORE, through our previous experience in the Telecom tunable module market, has design and engineering expertise in development and manufacturing of high-power gain chips for tunable lasers and transceivers utilized in coherent DWDM optical transmission systems.

- ***Photodiode Products*** - In addition to EMCORE's offering of GPON and gain chip products, the Company also has an extensive offering of photodiodes for use in Telecommunications and Datacenter applications. These products include (but are not limited to) 2.5G and 10G APD top and bottom illuminated chips and COB, along with 10G PIN photodiode chips, with additional products in development.

- ***GPON Fiber-To-The-Premises (FTTP) and Data Center Chip Products*** - EMCORE's chip devices portfolio is continually developing to support the latest advances in PON including GPON, 10G-EPON, XG-PON, XGS-PON, along with 4G LTE and data center applications. The Company's laser chip devices offering includes 2.5G and 10G PON DFB and 10G Fabry-Perot laser chips. Wavelengths supported include 1270, 1290, 1310, 1330, 1490, 1550 and 1610 nm.

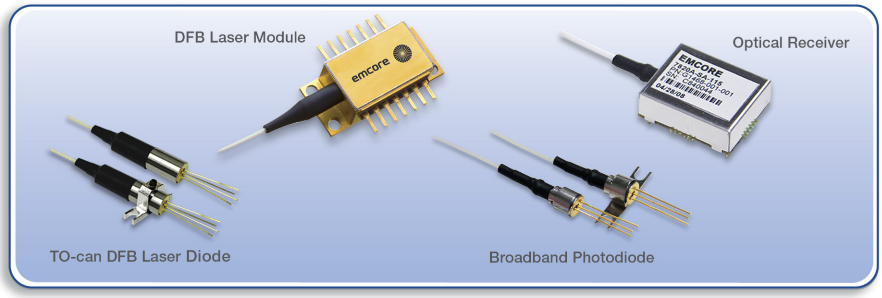
Other Optical Product Line

The Other Optical Product Line is comprised of lasers and subsystems sold into a variety of applications, including wireless, distributed sensing, and Light Detecting and Ranging. ("LiDAR").

Wireless & Distributed Antenna Systems (DAS)

- ***Wireless Communications Products*** - The increasing dependence on wireless access for social media, text, email, uploading and downloading of apps, music, videos and photos has created greater demand for deployment of cost-effective, high-performance, integrated wireless Distributed Antenna System ("DAS") networks. Wireless systems providers are building systems in subway tunnels, stadiums, hotels, high-speed trains and cruise ships. EMCORE has developed highly linear fiber optic products that are optimized for wireless applications which we believe integrate extremely well into these systems. They enhance bandwidth and linearity to enable the delivery of consistent, reliable signals in areas where interference is high or signals are weak. EMCORE's products for wireless applications include DFB lasers and optical receivers specifically designed for wireless networks, 3 GHz and 6.5 GHz fiber optic links for cellular backhaul, 4G LTE and DAS.

Lasers, Receivers & Photodetector Components



- ***Laser, Receiver and Photodetector Component Products*** - We are a leading provider of optical components including lasers, receivers and photodetectors (also called "photodiodes"). Our products include CWDM ("Coarse Wavelength Division Multiplexing") and DWDM ("Dense Wavelength Division Multiplexing"), 1310 nm and 1550 nm DFB lasers and optical receivers optimized for CATV, DOCSIS (Data Over Cable Service Interface Specification) 3.1 and wireless applications. In addition, we offer narrow linewidth 1310 and 1550 nm DFB lasers optimized for LiDAR and distributed sensing applications. Form-factors for laser products include 14-pin butterfly and coaxial TO-Can. In addition, we offer broadband photodiodes used in forward-and return-path broadband and FTTP applications. EMCORE's component products to the global fiber optics industry leverage the benefits of our vertically-integrated infrastructure, low-cost manufacturing and early access to newly developed internally-produced components.

Customers

Our major customers include: Cisco Systems Inc., Commscope Holding Company, Inc. and Raytheon Company and their respective affiliates. In the fiscal year ended September 30, 2019, Cisco Systems Inc., Commscope Holding Company, Inc. and Raytheon Company and their respective affiliates each represented greater than 10% of our consolidated revenue. See Note 15 - Geographical Information in the notes to our consolidated financial statements for additional information about our significant customers.

Strategic Plan

Strategy and Alternatives Committee of the Board of Directors

In addition to organic growth and development of our existing Fiber Optics business, we intend to pursue other strategies to enhance shareholder value. The Strategy and Alternatives Committee of the Company's Board of Directors (the "Strategy Committee"), which was established in December 2013, is charged with overseeing the Company’s strategic plan and evaluating strategic opportunities and alternatives available to the Company, including potential mergers, acquisitions, divestitures and other key strategic transactions outside the ordinary course of the Company’s business. Accordingly, the Strategy Committee may from time to time consider strategic opportunities to enhance shareholder value, which may include, at various times depending on the circumstances, acquisitions, investments in joint ventures, partnerships, and other strategic alternatives, such as dispositions, reorganizations, recapitalizations or other similar transactions, the repurchase of shares of our outstanding common stock or payment of dividends to our shareholders. The Strategy Committee may engage financial and other advisors to assist it in doing so. Accordingly, the Strategy Committee and our management may from time to time be engaged in evaluating potential strategic opportunities and may enter into definitive agreements with respect to such transactions or other strategic alternatives. However, there is no assurance that the Strategy Committee will identify further strategic opportunities that the Company will determine to pursue, or that the consideration of any such opportunity would result in the completion of a strategic transaction. The Strategy Committee met five (5) times during the fiscal year ended September 30, 2019.

Acquisition of Systron Donner Inertial, Inc.

On June 7, 2019, the Company acquired SDI, a private-equity backed navigation systems provider with a scalable, chip-based platform for higher volume gyro applications utilizing QMEMS technology. The total purchase price was approximately $25.0 million, consisting of (i) approximately $22.0 million in cash after working capital adjutments and (ii) the issuance of 811 thousand shares of common stock with an aggregate value of approximately $3.0 million as of the closing date.

Following the closing, we began integrating SDI into our Navigation and Inertial Sensing product line and have included the financial results of SDI in our condensed consolidated financial statements beginning on the acquisition date. Net revenue and net loss of SDI from the acquisition date through September 30, 2019 of $9.8 million and $0.6 million, respectively, is included in our consolidated statements of operations and comprehensive (loss) income for the fiscal year ended September 30, 2019.

Sources of Raw Materials

We depend on a limited number of suppliers for certain raw materials, components, and equipment used in our products, though no single supplier of raw materials or components accounts for more than 10% of our aggregate consolidated cost of goods sold. We continually review our supplier relationships to mitigate risks and lower costs, especially where we depend on one or two suppliers for critical components or raw materials. While maintaining inventories that we believe are sufficient to meet our near-term needs, we strive not to carry significant inventories of raw materials. Accordingly, we maintain ongoing communications with our suppliers in order to prevent any interruptions in supply, and have implemented a supply-chain management program to maintain quality and lower purchase prices through standardized purchasing efficiencies and design requirements. To date, we generally have been able to obtain sufficient quantities of critical supplies in a timely manner.

We are subject to rules promulgated by the SEC pursuant to the Dodd-Frank Wall Street Reform and Consumer Protection Act regarding the use of "conflict minerals". These rules have imposed and will continue to impose additional costs and may introduce new risks related to our ability to verify the origin of any "conflict minerals" used in our products.

Manufacturing

We utilize MOCVD (metal-organic chemical vapor deposition) systems that are capable of processing virtually all compound semiconductor-based materials. Our operations include wafer fabrication, device design and production and fiber optic module, subsystem and system design and manufacture. Many of our manufacturing operations are computer monitored or controlled to enhance production output and statistical control. We employ a strategy of minimizing ongoing capital investments, while maximizing the variable nature of our cost structure. We maintain supply agreements with key suppliers. Where we can gain cost advantages while maintaining quality and intellectual property control, we outsource the production of certain products, subsystems, components, and subassemblies to contract manufacturers located overseas. Our contract manufacturers maintain comprehensive quality assurance and delivery systems, and we continuously monitor them for compliance.

Our various manufacturing processes involve extensive quality assurance systems and performance testing. Our facilities have acquired and maintain certification status for their quality management systems. Our manufacturing facilities located in Alhambra, California; and Beijing, China are registered to ISO 9001 standards. Our manufacturing facility located in Concord, California is registered to AS 9100 standards.

As part of the effort to better streamline operations and move to a variable cost model with respect to our Cable TV Lasers and Transmitters product line, on October 25, 2019, the Company entered into an Asset Purchase Agreement (the “Purchase Agreement”) with Hytera Communications (Hong Kong) Company Limited, a limited liability company incorporated in Hong Kong (“Hytera HK”), and Shenzhen Hytera Communications Co., Ltd., a corporation formed under the laws of the P.R.C. (“Shenzhen Hytera”, and together with Hytera HK, the “Buyers”), pursuant to which the Buyers agreed to purchase from EMCORE certain Cable TV Laser and Transmitter catv module and transmitter manufacturing equipment (the “Equipment”) owned by EMCORE and currently located at the manufacturing facility of EMCORE’s wholly-owned subsidiary, EMCORE Optoelectronics (Beijing) Co, Ltd., a corporation formed under the laws of the P.R.C., for an aggregate purchase price of approximately $5.54 million. The Equipment will be transferred to the Buyers in multiple closings, the last of which is expected to occur during the quarter ending March 31, 2020. Concurrently with entry into the Purchase Agreement, EMCORE entered into a Contract Manufacturing Agreement (the “Manufacturing Agreement”), dated as of October 25, 2019, with the Buyers pursuant to which the Buyers agreed to manufacture certain catv module and transmitter products for EMCORE from a manufacturing facility located in Thailand for an initial five year term at product prices agreed to between the parties. These manufacturing activities are expected to commence during the fiscal year ending September 30, 2020.

Sales and Marketing

We sell our products worldwide through our direct sales force, application engineers, third party sales representatives and distributors. Our sales force communicates with our customers' engineering, manufacturing, and purchasing personnel to provide optimized customer solutions through product design, qualifications, performance, and price. Our strategy is to use our direct sales force to sell to original equipment manufacturers and key accounts and to expand our use of distribution partners for increased coverage in both international markets and certain domestic segments.

Throughout our sales cycle, we work closely with our customers to qualify our products into their product lines and platforms. As a result, we develop strategic and long-lasting customer relationships with products and services that are tailored to our customers' requirements. We focus our marketing communication efforts on increasing brand awareness, communicating our technologies' advantages, and generating leads for our sales force. We use a variety of marketing methods, including our website, participation at trade shows, and selective advertising to achieve these goals.

Externally, our marketing group works with customers to define requirements, characterize market trends, define new product development activities, identify cost reduction initiatives, and manage new product introductions. Internally, our marketing group communicates and manages customer requirements with the goal of ensuring that our product development activities are aligned with our customers' needs. These product development activities allow our marketing group to manage new product introductions and market trends. See Note 15 - Geographical Information in the notes to the consolidated financial statements for disclosures related to geographic revenue and significant customers.

Research and Development

Our research and development efforts have been focused on maintaining our technological competitive edge by working to improve the quality and features of our product lines. We are also making investments to expand our existing technology and infrastructure in an effort to develop new products and production technology that we can use to expand into new markets. Our industry is characterized by rapid changes in process technologies with increasing levels of functional integration. Our efforts are focused on designing new proprietary processes and products, on improving the performance of our existing materials, components, and subsystems, and on reducing costs in the product manufacturing process.

As part of the ongoing effort to cut costs, many of our projects have focused on developing lower cost versions of our existing products. In view of the high cost of development, we solicit research contracts that provide opportunities to enhance our core technology base and promote the commercialization of targeted products. Generally, internal research and development funding is used for the development of products that will be released within twelve months and external funding is used for long-term research and development efforts.

We believe that in order to remain competitive, we must invest significant financial resources in developing new product features and enhancements and in maintaining customer satisfaction worldwide. Research and development expense was $19.4 million, $15.4 million and $12.5 million for the fiscal years ended September 30, 2019, 2018 and 2017, respectively. As a percentage of revenue, research and development expenses were 22.3%, 18.0% and 10.2% for the fiscal years ended September 30, 2019, 2018 and 2017, respectively. Our research and development expense consists primarily of compensation expense including non-cash stock-based compensation expense, as well as engineering and prototype costs, depreciation expense, and other overhead expenses, as they relate to the design, development, and testing of our products. These costs are expensed as incurred.

Intellectual Property and Licensing

We protect our proprietary technology by applying for patents, where appropriate, and in other cases by preserving the technology, related know-how, and information as trade secrets. The success and competitive advantage enjoyed by our product lines depends heavily on our ability to obtain intellectual property protection for our proprietary technologies. We also acquire, through license grants or assignments, rights to patents on inventions originally developed by others. As of September 30, 2019, we held approximately 76 U.S. patents and approximately 64 foreign patents and had over 9 additional patent applications pending. The issued patents cover various products in the major markets we serve. Our U.S. patents will expire on varying dates between 2020 and 2035. These patents and patent applications claim protection for various aspects of current or planned commercial versions of our materials, components, subsystems, and systems.

We also have entered into license agreements with other organizations, under which we have obtained exclusive or non-exclusive rights to practice inventions claimed in various patents and applications issued or pending in the U.S. or other foreign jurisdictions. We do not believe our financial obligations under any of these agreements adversely affects our business, financial condition, or results of operations.

We rely on trade secrets to protect our intellectual property when we believe that publishing patents would make it easier for others to reverse engineer our proprietary processes. We also rely on other intellectual property rights such as trademarks and copyrights where appropriate.

Environmental Regulations

We are subject to U.S. federal, state, and local laws and regulations concerning the use, storage, handling, generation, treatment, emission, release, discharge, and disposal of certain materials used in our research and development and production operations, as well as laws and regulations concerning environmental remediation, homeland security, and employee health and safety. The production of wafers and devices involves the use of certain hazardous raw materials, including, but not limited to, ammonia, phosphine, and arsine. We have in-house professionals to address compliance with applicable environmental, homeland security, and health and safety laws and regulations. We believe that we are currently in compliance with all applicable federal, state, and local environmental protection laws and regulations.

Competition

The markets for our products are extremely competitive and are characterized by rapid technological change, frequent introduction of new products, short product life cycles, and with respect to certain of our product lines, significant price erosion. We face actual and potential competition from numerous domestic and international companies. Many of these companies have significant engineering, manufacturing, marketing, and financial resources.

We also sell our products to current competitors and companies with the capability of becoming competitors. As the markets for our products grow, new competitors are likely to emerge and current competitors may increase their market share. In the European Union ("EU") and certain countries throughout the world, political and legal arrangements encourage the purchase of domestically produced goods, which places us at a disadvantage in those regions or countries.

There are substantial barriers to entry by new competitors across our product lines. These barriers include the large number of existing patents, the time and costs required to develop products, the technical difficulty in manufacturing semiconductor-based products, the lengthy sales and qualification cycles, and the difficulties in hiring and retaining skilled employees with the required scientific and technical backgrounds. We believe that the primary competitive factors within our current markets are product cost, yield, throughput, performance and reliability, breadth of product line, product heritage, customer satisfaction, and customer commitment to competing technologies. Competitors may develop enhancements to or future generations of competitive products that offer superior price and performance characteristics. We believe that in order to remain competitive, we must invest significant financial resources in developing new product features and enhancements and in maintaining customer satisfaction worldwide.

Order Backlog

EMCORE's product sales are made pursuant to purchase orders, often with short lead times. These orders are subject to revision or cancellation and often are made without deposits. For certain of our product categories, products typically ship within the same quarter in which a purchase order is received; therefore, our order backlog at any particular date is not necessarily indicative of actual revenue or the level of orders for any succeeding period and may not be comparable to prior periods.

Seasonality

In certain of our previous fiscal years, we have experienced an increase in revenues in our third and fourth fiscal quarters due to increased sales of our CATV products resulting from an increased build of cable networks during seasons with warmer weather.

Employees

As of September 30, 2019, we had approximately 420 employees, including approximately 101 international employees that are located primarily in China. This represents an increase of approximately 29 employees when compared to September 30, 2018, primarily as a result of the purchase of SDI in June 2019, partially offset by a reduction of headcount in China and the U.S. during the fiscal year ended September 30, 2019. None of our employees are covered by a collective bargaining agreement. We have never experienced any labor-related work stoppage and believe that our employee relations are good.

Competition is intense in the recruiting of personnel in the semiconductor industry and fiber optics industries. Our ability to attract and retain qualified personnel is essential to our continued success. We are focused on retaining key contributors, developing our staff, and cultivating their commitment to our Company.

ITEM 1A. Risk Factors

We have incurred losses from continuing operations and our future profitability is not certain.

For the fiscal years ended September 30, 2019 and 2018, loss from continuing operations was $36.0 million and $17.5 million, respectively. For the fiscal year ended September 30, 2017, income from continuing operations was $8.2 million. Our operating results for future periods are subject to numerous uncertainties and we cannot be certain that we will be profitable or that we will not experience substantial losses in the future. If we are not able to increase revenue and reduce our costs, we may not be able to achieve profitability in future periods and our business, financial condition, results of operations and cash flows may be adversely affected.

We are a small company and dependent on a few products for our success.

We are a small company with a narrow, focused portfolio of products. Our small size could cause our cash flow and growth prospects to be more volatile and makes us more vulnerable to actions by our competitors. As a small company, we will be subject to greater revenue fluctuations if our older product lines' sales were to decline faster than we anticipate or if we are unable to grow our revenue inour newer product lines in the manner we anticipate. In addition, we may not be able to appropriately restructure or maintain our supporting functions to fit the needs of a small company, which could adversely affect our business, financial condition, results of operations, and cash flows.

We may not be able to obtain capital when desired on favorable terms, if at all, or without dilution to our shareholders.

We believe that our existing cash and cash equivalents, and cash flows from our operating activities and funds available under our credit facilities, will be sufficient to meet our anticipated cash needs for at least the next 12 months. We operate in an industry, however, that makes our prospects difficult to evaluate. It is possible that we may not generate sufficient cash flow from operations or otherwise have the capital resources to meet our future capital needs. If this occurs, we may need additional financing to continue operations or execute on our current or future business strategies, including to:

- invest in our research and development efforts, including by hiring additional technical and other personnel;
- maintain and expand our operating or manufacturing infrastructure;
- acquire complementary businesses, products, services or technologies; or
- otherwise pursue our strategic plans and respond to competitive pressures.

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. We cannot be certain that additional financing will be available on terms favorable to us, or at all. In addition, as described in Note 11 - Credit Facilities in the notes to the consolidated financial statements, our Credit and Security Agreement with Wells Fargo Bank, N.A. (i) is subject to a borrowing base formula based on the Company's eligible accounts receivable, inventory, and machinery and equipment accounts and (ii) requires that for certain specific uses, the Company have liquidity of at least $25.0 million after such use. If adequate funds are not available or are not available on acceptable terms, if and when needed, our ability to fund our operations, take advantage of unanticipated opportunities, develop or enhance our products, or otherwise respond to competitive pressures could be significantly limited. Furthermore, in the event adequate capital is not available to us as required, or is not available on favorable terms, our business, financial condition, results of operations, and cash flows may be adversely affected.

We are substantially dependent on revenues from a small number of customers. The loss of or decrease in sales from any one of these customers could adversely affect our business, financial condition, results of operations, and cash flows.

A small number of customers account for a significant portion of our revenue, and our dependence on orders from a relatively small number of customers makes our relationship with each customer critically important to our business. For example, for the fiscal year ended September 30, 2019, sales to three customers accounted for an aggregate of 55% of our total consolidated revenues, for the fiscal year ended September 30, 2018, sales to two customers accounted for an aggregate of 60.3% of our total consolidated revenues, and for the fiscal year ended September 30, 2017, sales to three customers accounted for an aggregate of 71% of our total consolidated revenues. Sales from any of our major customers may decline or fluctuate significantly in the future. We may not be able to offset any decline in sales from our existing major customers with sales from new customers or other existing customers. Because of our reliance on a limited number of customers, any decrease in sales from, or loss of, one or more of these customers without a corresponding increase in sales from other customers would harm our business, operating results, financial condition and cash flows.

In addition, any negative developments in the business of existing significant customers could result in significantly decreased sales to these customers, which could seriously harm our business, operating results, financial condition and cash flows, and if there is consolidation among our customer base, our customers may be able to command increased leverage in negotiating prices and other terms of sale, which could adversely affect our profitability. If we are required to reduce our pricing, our revenue and gross margins would be adversely impacted. Consolidation among our customer base may also lead to reduced demand for our products, replacement of our products by the combined entity with those of our competitors and cancellations of orders, each of which could adversely affect our business, financial condition, results of operations, and cash flows.

Although we are attempting to expand our customer base, the markets in which we sell our products are dominated by a relatively small number of companies, thereby limiting the number of potential customers. Accordingly, our success will depend on our continued ability to develop and manage relationships with significant customers, and we expect that the majority of our sales will continue to depend on sales of our products to a limited number of customers for the foreseeable future.

Our future revenue is inherently unpredictable. As a result, our operating results are likely to fluctuate from period to period, and we may fail to meet the expectations of our analysts and/or investors, which may cause volatility in our stock price and may cause our stock price to decline.

Our quarterly and annual operating results have fluctuated substantially in the past and are likely to fluctuate significantly in the future due to a variety of factors, some of which are outside of our control. Factors that could cause our quarterly or annual operating results to fluctuate include:

- a downturn in the markets for our customers' products;
- discontinuation by our vendors of, or unavailability of, components or services used in our products;
- disruptions or delays in our manufacturing processes or in our supply of raw materials or product components;
- a failure to anticipate changing customer product requirements;
- market acceptance of our products;
- cancellations or postponements of previously placed orders;
- increased financing costs or any inability to obtain necessary financing;
- the impact on our business of current or future cost reduction measures;
- a loss of key personnel or the shortage of available skilled workers;
- economic conditions in various geographic areas where we or our customers do business;
- the impact of political uncertainties, such as government sequestration and uncertainties surrounding the federal budget, customer spending and demand for our products;
- significant warranty claims, including those not covered by our suppliers;
- product liability claims;

- other conditions affecting the timing of customer orders;
- reductions in prices for our products or increases in the costs of our raw materials;
- effects of competitive pricing pressures, including decreases in average selling prices of our products;
- fluctuations in manufacturing yields;
- obsolescence of products;
- research and development expenses incurred associated with new product introductions;
- natural disasters, such as hurricanes, earthquakes, fires, and floods;
- the emergence of new industry standards;
- the loss or gain of significant customers;
- the introduction of new products and manufacturing processes;
- changes in technology;
- intellectual property disputes;
- customs (including tariffs imposed on our products or raw materials, equipment or components used in the production of our products), import/export, and other regulations of the countries in which we do business;
- the occurrence of M&A activities; and
- acts of terrorism or violence and international conflicts or crises.

In addition, the limited lead times with which several of our customers order our products restrict our ability to forecast revenue. We may also experience a delay in generating or recognizing revenue for a number of reasons. For example, orders at the beginning of each quarter typically represent a small percentage of expected revenue for that quarter. We depend on obtaining orders during each quarter for shipment in that quarter to achieve our revenue objectives. Failure to ship these products by the end of a quarter may adversely affect our results of operations and cash flows.

As a result of the foregoing factors, we believe that period-to-period comparisons of our results of operations should not be solely relied upon as indicators of future performance.

We are subject to the cyclical nature of the markets in which we compete and any future downturn may reduce demand for our products and revenue.

In the past, the markets in which we compete have experienced significant downturns, often connected with, or in anticipation of, the maturation of product cycles, for both manufacturers' and their customers' products, and declining general economic conditions. These downturns have been characterized by diminished product demand, production overcapacity, high inventory levels, and accelerated erosion of average selling prices. These markets are impacted by the aggregate capital expenditures of service providers and enterprises as they build out and upgrade their network infrastructure. These markets are highly cyclical and characterized by constant and rapid technological change, pricing pressures, evolving standards, and wide fluctuations in product supply and demand.

We may experience substantial period-to-period fluctuations in future results of operations. Any future downturn in the markets in which we compete, or changes in demand for our products from our customers, could result in a significant reduction in our revenue and may also increase the volatility of the price of our common stock.

In addition, the communication networks industry from time to time has experienced and may again experience a pronounced downturn. To respond to a downturn, many service providers and enterprises may slow their capital expenditures, cancel or delay new developments, reduce their workforces and inventories, and take a cautious approach to acquiring new equipment and technologies, any of which could cause our results of operations to fluctuate from period to period and harm our business.

Customer demand is difficult to forecast and, as a result, we may be unable to optimally match production with customer demand.

We make planning and spending decisions, including determining the levels of business that we will seek and accept, production schedules, component procurement commitments, personnel needs and other resource requirements, based on our estimates of customer demand. While our customers generally provide us with their demand forecasts, they are typically not contractually committed to buy any quantity of products beyond firm purchase orders. The short-term nature of our customer commitments and the possibility of unexpected changes in demand for their products limit our ability to accurately predict future customer demand. On occasion, customers have required rapid increases in production, which has strained our resources. We may not have sufficient capacity at any given time to meet the volume demands of our customers, or one or more of our suppliers may not have sufficient capacity at any given time to meet our volume demands. Conversely, a downturn in the markets in which our customers compete can cause, and in the past has caused, our customers to significantly reduce the amount of products ordered from us or to cancel existing orders, leading to lower utilization of our facilities. Because many of our costs and operating expenses are relatively fixed, reduction in customer demand would have an adverse effect on our gross margin, results of operations, and cash flow. During an industry downturn, there is also a higher risk that a larger portion of our trade receivables would be uncollectible. In addition, certain of our arrangements with component vendors require us to purchase minimum quantities of components within specific time periods, which could cause us to hold excess inventories of these components during periods concurrent with a decrease in customer demand for our products.

Our acquisition of Systron Donner Inertial, Inc., and acquisitions of other companies or investments in joint ventures with other companies could adversely affect our operating results, dilute our shareholders' equity, or cause us to incur additional debt or assume contingent liabilities.

To increase our business, maintain our competitive position or for other business or strategic reasons, we may acquire other companies or engage in joint ventures or similar transactions in the future. For example, in June 2019, we acquired SDI, a navigation systems provider with a scalable, chip-based platform for higher volume gyro applications utilizing Quartz MEMS technology. Our acquisition of SDI, and any other acquisitions, joint ventures and similar transactions that we may enter into from time to time, involve a number of risks that could harm our business and result in SDI or any other acquired business or joint venture not performing as expected, including:

- problems integrating the acquired operations, personnel, technologies, or products with the existing business and products;
- failure to achieve cost savings or other financial or operating objectives with respect to an acquisition;
- possible adverse short-term effects on our cash flows or operating results, and the use of cash and other resources for the acquisition that might affect our liquidity, and that could have been used for other purposes;
- diversion of management's time and attention from our core business to the acquired business or joint venture;
- potential failure to retain key technical, management, sales, and other personnel of the acquired business or joint venture;
- difficulties in retaining relationships with suppliers and customers of the acquired business, particularly where such customers or suppliers compete with us;
- difficulties in the integration of financial reporting systems, which could cause a delay in the issuance of, or impact the reliability of our financial statements;

- failure to comply with Section 404 of the Sarbanes-Oxley Act of 2002, including a delay in or failure to successfully integrate these businesses into our internal control over financial reporting;

- insufficient experience with technologies and markets in which the acquired business is involved, which may be necessary to successfully operate and integrate the business;

- reliance upon joint ventures which we do not control;

- subsequent impairment of goodwill and acquired long-lived assets, including intangible assets; and

- assumption of liabilities including, but not limited to, lawsuits, environmental liabilities, regulatory liabilities, tax examinations and warranty issues.

We may decide that it is in our best interests to enter into acquisitions, joint ventures or similar transactions that are dilutive to earnings per share or that adversely impact margins as a whole. In addition, acquisitions or joint ventures could require investment of significant financial resources and require us to obtain additional equity financing, which may dilute our shareholders' equity, or require us to incur indebtedness.

We expect to consider from time to time further strategic opportunities that may involve acquisitions, dispositions, investments in joint ventures, partnerships, and other strategic alternatives that may enhance shareholder value, any of which may result in the use of a significant amount of our management resources or significant costs, and we may not be able to fully realize the potential benefit of such transactions.

We expect to continue to consider acquisitions, dispositions, investments in joint ventures, partnerships, and other strategic alternatives that may enhance shareholder value. The Strategy and Alternatives Committee of the Board and our management may from time to time be engaged in evaluating potential transactions and other strategic alternatives. In addition, from time to time, we may engage financial advisors, enter into non-disclosure agreements, conduct discussions, and undertake other actions that may result in one or more transactions. Although there would be uncertainty that any of these activities or discussions would result in definitive agreements or the completion of any transaction, we may devote a significant amount of our management resources to analyzing and pursuing such a transaction, which could negatively impact our operations. In addition, we may incur significant costs in connection with seeking such transactions or other strategic alternatives regardless of whether the transaction is completed. In the event that we consummate an acquisition, disposition, partnership, or other or strategic alternative in the future, we cannot be certain that we would fully realize the potential benefit of such a transaction and cannot predict the impact that such strategic transaction might have on our operations or stock price. We do not undertake to provide updates or make further comments regarding the evaluation of strategic alternatives, unless otherwise required by law.

Our failure to successfully manage the transition of certain of our manufacturing operations from our Beijing facility to a contract manufacturer's facility could harm our business, financial condition, results of operations and cash flows.

In October 2019, we entered into (i) an agreement with Hytera Communications (Hong Kong) Company Limited and Shenzhen Hytera Communications Co., Ltd. (collectively, "Hytera") to transfer and sell to Hytera the equipment that was being used by us to manufacture certain of our CATV modules and transmitters and (ii) an agreement pursuant to which Hytera agreed to manufacture such CATV modules and transmitters for sale to us. In connection with these agreements, the manufacture of our product lines and sub-assemblies previously manufactured at our Beijing facility is in the process of being relocated to Hytera's facility located in Thailand.

This transition could involve the re-acceptance and requalification of certain of our products by customers, potentially creating a competitive disadvantage for our products. These initiatives can be time-consuming, disruptive to our operations, and costly in the short-term. In addition, this transition has and will continue to cause us to incur costs associated with the shipment of complex manufacturing equipment. If we are unable to manage this transfer smoothly and comprehensively, we could suffer delays, resulting in harm to our reputation with our customers and potentially loss of customers. If we are unable to successfully manage the relocation or initiation of the manufacture of these products by our contract manufacturer, our business, financial condition, results of operations and cash flows could be harmed.

Changes in U.S. and international trade policies, particularly with regard to China, may adversely impact our business and operating results.

The U.S. government has recently taken certain actions with respect to its trade policies, including recently imposed tariffs affecting certain products manufactured in China, and may take further actions with respect to these policies in the future. For example, the U.S. and China have applied tariffs to certain of each other's exports and announced additional tariffs to be applied in the future to certain of each other's exports. Certain of our broadband products manufactured by our Chinese affiliate have been included in the tariffs imposed on imports into the U.S. from China, and these products manufactured by our Chinese affiliate may be subject to tariff increases that may be implemented in the future. China has imposed retaliatory tariffs affecting certain products manufactured in the U.S. and imported into China, including our chip products manufactured in the U.S., and other products manufactured by us in the U.S. may be included on lists of products to be targeted by proposed tariff increases that may be implemented by China in the future. The implementation of these tariffs could result in decreased sales of our products manufactured in China and shipped to the U.S. and sales of our products manufactured in the U.S. and shipped to China, which would negatively impact our business.

In addition, it is unknown whether and to what extent new tariffs (or other new laws or regulations) will be adopted that increase the cost of importing products into the U.S., or that might trigger retaliatory action by U.S. trading partners. Further, it is unknown what effect any such new tariffs or retaliatory actions would have on us or our industry and customers. For example, there are risks that the Chinese government may, among other things, require the use of local suppliers, compel companies that do business in China to partner with local companies to conduct business and provide incentives to government-backed local customers to buy from local suppliers. If any new tariffs, legislation and/or regulations are implemented, or if existing trade agreements are renegotiated or if China or other affected countries take retaliatory trade actions, such changes could have a material adverse effect on our business, financial condition, results of operations and cash flows.

We currently have substantial operations in China, which exposes us to risks inherent in doing business in China.

In an effort to keep manufacturing costs down, we currently operate a manufacturing facility and certain operations logistics functions in China. Our China-based activities are subject to greater political, legal, and economic risks than those faced by our other operations. In particular, the political, legal, and economic climate in China (both at the national and regional levels) is extremely volatile and unpredictable. Our ability to operate in China may be adversely affected by changes in, or our failure to comply with, Chinese laws and regulations, such as those relating to taxation, import and export tariffs, environmental regulations, land use rights, intellectual property, labor and employment laws and other matters, which laws and regulations remain underdeveloped and subject to change for political or other reasons, with little or no prior notice. Moreover, the enforceability of applicable existing Chinese laws and regulations is uncertain. For example, since Chinese administrative and court authorities have significant discretion in interpreting and implementing statutory and contract terms, it may be more difficult to evaluate the outcome of administrative and court proceedings and the level of legal protection we would receive. These uncertainties may impede our ability to enforce the contracts we have entered into with our distributors, business partners, customers and suppliers. In addition, protections of intellectual property rights and confidentiality in China may not be as effective as in the U.S. or other countries or regions. All of these uncertainties could limit the legal protections available to us and could materially and adversely affect our business, financial condition, cash flows and results of operations.

Also, if we are found to be, or to have been, in violation of Chinese laws or regulations governing technology import and export, the relevant regulatory authorities have broad discretion in dealing with such violations, including, but not limited to, issuing a warning, levying fines, restricting us from benefiting from these technologies inside or outside of China, confiscating our earnings generated from the import or export of such technology or even restricting our future import and export of any technology.

In addition, we may not obtain the requisite legal permits to continue to operate in China and costs or operational limitations may be imposed in connection with obtaining and complying with such permits. Our business could be adversely harmed by any changes in the political, legal, or economic climate in China, our failure to comply with applicable laws and regulations or our inability to enforce applicable Chinese laws and regulations.

While under certain circumstances we previously were not subject to certain Chinese taxes and were exempt from customs duty assessment on imported components or materials when our finished products were exported from China, we are no longer eligible for such exemptions due to our current Beijing facility being located in a non-economic zone. In addition, we are required to pay income taxes in China subject to certain tax relief. We may become subject to other forms of taxation and duty assessments in China, including import tariffs as described in more detail above, or may be required to pay for export license fees in the future. In the event that we become subject to any increased taxes or new forms of taxation imposed by authorities in China, our results of operations and cash flows could be adversely affected.

Retention of employees in China is a challenge as compared to companies headquartered in China. If our China employee turnover rates are higher than we expect, or we otherwise fail to adequately manage these rates, then our business and results of operations could be adversely affected.

We may have difficulty maintaining adequate management and financial controls over our China operations.

Businesses in China have historically not adopted a western style of management and financial reporting concepts and practices, which includes strong corporate governance, internal controls and computer, financial and other control systems. Moreover, familiarity with accounting principles generally accepted in the United States of America ("U.S. GAAP") principles and reporting procedures is less common in China. As a consequence and due to our current operations in China, we may have difficulty employing accounting personnel experienced with U.S. GAAP, and we may have difficulty integrating our China-based accounting staff with our U.S.-based finance organization. As a result of these factors, we may experience difficulty in maintaining adequate management and financial controls over our China operations. These difficulties include collecting financial data and preparing financial statements, books of account and corporate records and instituting business practices that meet U.S. public-company reporting requirements. We may, in turn, experience difficulties in implementing and maintaining adequate internal controls as required under Section 404 of the Sarbanes-Oxley Act. If we cannot provide reliable and timely financial reports, our brand, operating results, and the market value of our equity securities could be harmed.

We have a large amount of intercompany balances with our China entities, which may be subject to taxes and penalties when we try to pay them down or collect them.

Payments for goods and services into and out of China are subject to numerous and over-lapping government regulation with respect to foreign exchange controls, banking controls, import and export controls, and taxes. We have been operating in China for an extended period of time and have accumulated significant intercompany balances with our related entities. Our ability to repay or collect these balances may be restricted by Chinese laws and, as a result, we may be unable to successfully pay down or collect on these balances. As a consequence, we may be assessed additional taxes in China if we are unable to claim bad debt deductions or incur debt forgiveness income from the cancellation of these intercompany balances. Additionally, if we are found not to have complied with the various local laws surrounding cross border payments, we may incur penalties and fines for non-compliance. Any such taxes, penalties and/or fines could be significant in amount and, as a result, could have an adverse effect on our financial condition and results of operations, including our cash and cash equivalent balances.

Our products are complex and may take longer to develop and qualify than anticipated and we face lengthy sales and qualification cycles for our new products and, in many cases, must invest a substantial amount of time and money before we receive orders.

We are constantly developing new products and using new technologies in these products. These products often take substantial time to develop because of their complexity, rigorous testing and qualification requirements and because customer and market requirements can change during the product development or qualification process. Most of our products are tested by current and potential customers to determine whether they meet customer or industry specifications. The length of the qualification process, which can span a year or more, varies substantially by product and customer and, thus, can cause our results of operations and cash flows to be unpredictable. During a given qualification period, we invest significant resources and allocate substantial production capacity to manufacture these new products prior to any commitment to purchase by customers. In addition, it is difficult to obtain new customers during the qualification period as customers are reluctant to expend the resources necessary to qualify a new supplier if they have one or more existing qualified sources. If we are unable to meet applicable specifications or do not receive sufficient orders to profitably use our allocated production capacity, our business, financial condition, results of operations, and cash flows may be adversely affected.

Our historical and future budgets for operating expenses, capital expenditures, operating leases, and service contracts are based upon our assumptions as to the future market acceptance of our products. Because of the lengthy lead times required for product development and the changes in technology that typically occur while a product is being developed, it is difficult to accurately estimate customer demand for any given product. If our products do not achieve an adequate level of customer demand, our business, financial condition, results of operations, and cash flows may be adversely affected.

Our products are difficult to manufacture. Our production could be disrupted and our results of operations and cash flows could suffer if our production yields are low as a result of manufacturing difficulties.

We manufacture many of our wafers and products in our own production facilities. Difficulties in the production process, such as contamination, raw material quality issues, human error, or equipment failure, could cause a substantial percentage of wafers and devices to be nonfunctional. These problems may be difficult to detect at an early stage of the manufacturing process and often are time-consuming and expensive to correct. Lower-than-expected production yields may delay shipments or result in unexpected levels of warranty claims, either of which could adversely affect our results of operations and cash flows. We have experienced difficulties in achieving planned yields in the past, particularly in pre-production and upon initial commencement of full production volumes, which have adversely affected our gross margins. Because the majority of our manufacturing costs are fixed, achieving planned production yields is critical to our results of operations and cash flows. Changes in manufacturing processes required as a result of changes in product specifications, changing customer needs and the introduction of new product lines could significantly reduce our manufacturing yields, resulting in low or negative margins on those products. In addition, transitioning to automation in certain manufacturing processes could result in manufacturing delays or significantly reduce our manufacturing yields.

Manufacturing yields depend on a number of factors, including the stability and manufacturability of the product design, manufacturing improvements gained over cumulative production volumes, the quality and consistency of component parts and the nature and extent of customization requirements by customers. Higher volume demand for more mature designs requiring less customization generally results in higher manufacturing yields than products with lower volumes, less mature designs and requiring extensive customization. Capacity constraints, raw materials shortages, logistics issues, the introduction of new product lines and changes in our customer requirements, manufacturing facilities or processes or those of our third-party contract manufacturers and component suppliers have historically caused, and may in the future cause, significantly reduced manufacturing yields, negatively impacting the gross margins on, and our production capacity for, those products. Our ability to maintain sufficient manufacturing yields is particularly important with respect to certain products we manufacture, as a result of the long manufacturing process. Moreover, an increase in the rejection and rework rate of products during the quality control process before, during or after manufacture would result in lower yields, gross margins and production capacity. Finally, manufacturing yields and margins can also be lower if we receive and inadvertently use defective or contaminated materials from our suppliers.

Also, we have substantial risk of interruption in manufacturing resulting from fire, natural disaster, equipment failures, or similar events, because we manufacture most of our products using a few facilities, and do not have back-up facilities available for manufacturing these products. We could also incur significant costs to repair and/or replace products that are defective and in some cases costly product redesigns and/or rework may be required to correct a defect. Additionally, any defect could adversely affect our reputation and result in the loss of future orders.

Some of the capital equipment used in the manufacture of our products have been developed and made specifically for us, may not be readily available from multiple vendors, and would be difficult to repair or replace if they were to become damaged or stop working. If any of these suppliers were to experience financial difficulties or go out of business, or if there were any damage to, or a breakdown of our manufacturing equipment at a time when we are manufacturing commercial quantities of our products, our business, financial condition, results of operations, and cash flows could be adversely affected.

If we do not keep pace with rapid technological change, our products may not be competitive.

We compete in markets that are characterized by rapid technological change, frequent new product introductions, changes in customer requirements, evolving industry standards, continuous improvement in products and the use of our existing products in new applications. We may not be able to develop the underlying core technologies necessary to create new products and enhancements to our existing products at the same rate as or faster than our competitors, to develop products that effectively compete with competitors’ products used in new applications, such as remote physical layer (“remote PHY”), or to license the technology from third parties that is necessary for our products. Product development delays may result from numerous factors, including:

- changing product specifications and customer requirements;
- unanticipated engineering complexities;
- expense reduction measures we have implemented and others we may implement;
- difficulties in hiring and retaining necessary technical personnel; and
- difficulties in allocating engineering resources and overcoming resource limitations.

We cannot be certain that we will be able to identify, develop, manufacture, market, or support new or enhanced products successfully, if at all, or on a timely, cost effective, or repeatable basis. Our future performance will depend on our successful development and introduction of, as well as market acceptance of, new and enhanced products that address market changes, as well as current and potential customer requirements and our ability to respond effectively to product announcements by competitors, technological changes, or emerging industry standards. Because it is generally not possible to predict the amount of time required and the costs involved in achieving certain research, development and engineering objectives, actual development costs may exceed budgeted amounts and estimated product development schedules may be extended. If we are unable to develop, manufacture, market, or support new or enhanced products successfully, or incur budget overruns or delays in our research and development efforts, our business, financial condition, results of operations, and cash flows may be adversely affected.

Spending to develop and improve our technology may adversely impact our financial results.

We may need to increase our research and development and/or capital expenditures and expenses above our historical run-rate model in order to attempt to improve our existing technology and develop new technology. Increasing our investments in research and development of technology could cause our cost structure to fall out of alignment with demand for our products, which would have a negative impact on our financial results. If we are unable to fund these types of expenditures, we may be unable to improve our technology or develop new technologies, which may adversely affect our business, financial condition, results of operations and cash flows. Further, our research and development programs may not produce successful results, and our new products and services may not achieve market acceptance, create additional revenue or become profitable, which could materially harm our business, prospects, financial results and liquidity.

The competitive and rapidly evolving nature of our industries and pressure from competitors with greater resources has in the past resulted in and is likely in the future to result in reductions in our product prices and periods of reduced demand for our products.

We face substantial competition from a number of companies, many of which have greater financial, marketing, manufacturing, and technical resources than we do. Larger-sized competitors often spend more on research and development, which could give those competitors an advantage in meeting customer demands and introducing technologically innovative products before we do. We expect that existing and new competitors will continue to improve the design of their existing products and will introduce new products with enhanced performance characteristics.

The introduction of new products and more efficient production of existing products by our competitors have resulted and are likely in the future to result in price reductions, increases in expenses, and reduced demand for our products. In addition, some of our competitors may be willing to provide their products at lower prices, accept a lower profit margin, or spend more capital in order to obtain or retain business. Competitive pressures have required us to reduce the prices of some of our products. These competitive forces could diminish our market share and gross margins, resulting in an adverse effect on our business, financial condition, results of operations, and cash flows.

New competitors may also enter our markets, including some of our current and potential customers who may attempt to integrate their operations by producing their own components and subsystems or acquiring one of our competitors, thereby reducing demand for our products. In addition, rapid product development cycles, increasing price competition due to maturation of technologies, the emergence of new competitors in Asia with lower cost structures, and industry consolidation resulting in competitors with greater financial, marketing, and technical resources could result in lower prices or reduced demand for our products, which could have an adverse effect on our business, financial condition, results of operations, and cash flows.

Expected and actual introductions of new and enhanced products may cause our customers to defer or cancel orders for existing products and may cause our products to become obsolete. A slowdown in demand for existing products ahead of a new product introduction could result in a write-down in the value of inventory on hand related to existing products. We have in the past experienced a slowdown in demand for existing products and delays in new product development and such delays may occur in the future. To the extent customers defer or cancel orders for existing products due to a slowdown in demand or in anticipation of a new product release, or if there is any delay in development or introduction of our new products or enhancements of our products, our business, financial condition, results of operations, and cash flows could be adversely affected.

A failure to attract and retain managerial, technical, and other key personnel could reduce our revenue and our operational effectiveness.

Our future success depends, in part, on our ability to attract and retain certain key personnel, including scientific, operational, financial, and managerial personnel. In addition, our technical personnel represent a significant asset and serve as the source of our technological and product innovations. The competition for attracting and retaining key employees (especially scientists, technical personnel, and senior managers and executives) is intense. Because of this competition for skilled employees, we may be unable to retain our existing personnel or attract additional qualified employees in the future to keep up with our business demands and changes, and our business, financial condition, results of operations, and cash flows could be adversely affected. The risks involved in recruiting and retaining these key personnel may be increased by our historical lack of profitability, the volatility of our stock price, and the perceived effect of previously implemented reductions in force and other cost reduction efforts.

If spending for CATV and optical communications networks declines, our revenues and financial performance may decline.

A material portion of our revenues depend on continued capital investment in CATV and global communications networks infrastructure and on continued demand for high-bandwidth, high-speed communications networks and the ability of original equipment manufacturers to meet this demand. Spending on CATV and communications networks is limited by several factors, including limited investment resources, uncertainty regarding the long-term evolution and sustainability of service provider business models, and a changing regulatory environment. We cannot be certain that demand for bandwidth-intensive content will continue to grow at the same pace in the future or that communications service providers will continue to increase spending to meet such demand. If investment in CATV and communications networks does not grow as anticipated, our revenues, results of operations, and gross margins could be harmed.

Our ability to achieve operational and material cost reductions and to realize production efficiencies for our operations is critical to our ability to achieve long-term profitability.

We have implemented a number of operational and material cost reductions and productivity improvement initiatives, which are intended to reduce our cost structure at both the cost of revenue and the operating expense levels. Cost reduction initiatives often involve the re-design of our products, which requires our customers to accept and qualify the new designs, potentially creating a competitive disadvantage for our products. These initiatives can be time-consuming, disruptive to our operations, and costly in the short-term. Successfully implementing these and other cost-reduction initiatives throughout our operations is critical to our future competitiveness and ability to achieve long-term profitability. However, we cannot be certain that these initiatives will be successful in creating profit margins sufficient to sustain our current operating structure and business.

Our operating results could be harmed if we are unable to obtain timely deliveries of sufficient components of acceptable quality from sole or limited sources of materials, components, or services, or if the prices of components for which we do not have alternative sources increase.

We currently obtain materials, components, and services used in our products from limited or sole sources. We generally do not carry significant inventories of any raw materials. The reliance on a sole supplier, single qualified vendor or limited number of suppliers could result in delivery or quality problems or reduced control over product pricing, reliability and performance. Because we often do not account for a significant part of our suppliers' businesses, we may not have access to sufficient capacity from these suppliers in periods of high demand. In addition, since we generally do not have guaranteed supply arrangements with our suppliers, we risk serious disruption to our operations if an important supplier terminates product lines, changes business focus, or goes out of business, and we may need large end of life purchases when a sole source supplier is ceasing manufacturing of required components. Because some of these suppliers are located overseas, we may be faced with higher costs of purchasing these materials if the U.S. dollar weakens against other currencies, or if import tariffs are imposed on these materials. If we were to change any of our limited or sole source suppliers, we would be required to re-qualify each new supplier. Re-qualification could prevent or delay product shipments that could adversely affect our results of operations and cash flows. In addition, our reliance on these suppliers may adversely affect our production if the components vary in quality or quantity. If we are unable to obtain timely deliveries of sufficient components of acceptable quality or if the prices of components for which we do not have alternative sources increase, our business, financial condition, results of operations, and cash flows could be materially adversely affected.

If our contract manufacturers fail to deliver qualified products at reasonable prices and on a timely basis, our business, financial condition, results of operations, and cash flows could be adversely affected.

We use contract manufacturers as a less-expensive alternative to our manufacturing of certain products. Contract manufacturers in Asia currently manufacture a significant portion of our CATV fiber optics products. We supply inventory to our contract manufacturers, and we bear the risk of loss, theft, or damage to our inventory while it is held in their facilities.

If these contract manufacturers do not fulfill their obligations to us, or if we do not properly manage these relationships and the transition of production to these contract manufacturers, our existing customer relationships may suffer. In addition, by undertaking these activities, we run the risk that the reputation and competitiveness of our products and services may deteriorate as a result of the reduction of our ability to oversee and control the assembly process, quality and delivery schedules. If we fail to manage our relationship with our contract manufacturers, or if any of the contract manufacturers experience financial difficulty, delays, disruptions, capacity constraints or quality control problems in their operations, our ability to ship products to our customers could be impaired and our competitive position and reputation could be harmed.

The use of contract manufacturers located outside of the U.S. also subjects us to the following additional risks that could significantly impair our ability to source our contract manufacturing requirements internationally, including:

- unexpected changes in regulatory requirements;
- legal uncertainties regarding liability, tariffs, and other trade barriers;
- inadequate protection of intellectual property in some countries;
- greater incidence of shipping delays;
- greater difficulty in overseeing manufacturing operations;
- greater difficulty in hiring talent needed to oversee manufacturing operations;
- potential political and economic instability and natural disasters;
- potential adverse actions by the U.S. government pursuant to its stated intention to reduce the loss of U.S. jobs;
- trade and travel restrictions; and
- the outbreak of infectious diseases which could result in travel restrictions or the closure of the facilities of our contract manufacturers.

Any of these factors could significantly impair our ability to source our contract manufacturing requirements internationally. Prior to our customers accepting products manufactured at our contract manufacturers, they must qualify the product and manufacturing processes. The qualification process can be lengthy and expensive, with no guarantee that any particular product qualification process will lead to profitable product sales. The qualification process determines whether the product manufactured at our contract manufacturer achieves our customers' quality, performance, and reliability standards. Our expectations as to the time periods required to qualify a product line and ship products in volumes to our customers may be erroneous. Delays in qualification can impair our expected timing of the transfer of a product line to our contract manufacturer and may impair our expected amount of sales of the affected products. Any of these uncertainties could adversely affect our operating results and customer relationships.

In addition, our contract manufacturers may terminate our agreements with them upon prior notice to us or immediately for reasons such as if we become insolvent, or if we fail to perform a material obligation under the agreements. If we are required to change contract manufacturers or assume internal manufacturing operations for any reason, including the termination of one of our contracts, we will likely suffer manufacturing and shipping delays, lost revenue, increased costs and damage to our customer relationships, any of which could harm our business, financial condition, results of operations and cash flows.

We participate in vendor managed inventory programs for the benefit of certain of our customers, which could result in increased inventory levels and/or decreased visibility into the timing of sales.

Certain of our significant customers have implemented a supply chain management tool called vendor managed inventory (“VMI”) that requires us to assume responsibility for maintaining an agreed upon level of consigned inventory at the customer’s location or at a third-party logistics provider, based on the customer’s demand forecast. Notwithstanding the fact that the supplier builds and ships the inventory, the customer does not purchase the consigned inventory until the inventory is drawn or pulled from the customer or third-party location to be used in the manufacture of the customer’s product. Though the consigned inventory may be at the customer’s or third-party logistics provider’s physical location, it remains inventory owned by the supplier until the inventory is drawn or pulled, which is the time at which the sale takes place. In addition, certain of our customers require us to maintain agreed levels of product inventory at our own locations. Our participation in VMI programs and our commitment to other product inventory requirements at our own locations has resulted in our experiencing higher levels of inventory than we might otherwise and has decreased our visibility into the timing of when our finished goods will ultimately result in revenue-generating sales.

Such VMI programs and other inventory requirements increase the likelihood that estimates of our customers’ requirements that prove to be greater than our customers’ actual purchases could result in surplus inventory and we could be required to record charges for obsolete or excess inventories. If we are unable to effectively manage our customers’ VMI programs or other inventory requirements, our business, financial condition, results of operations and cash flows may be adversely affected.

It could be discovered that our products contain defects that may cause us to incur significant costs, divert management's attention, result in a loss of customers, and result in product liability claims.

Our products are complex and undergo quality testing and formal qualification by our customers and us. However, defects may occur from time to time. Our customers' testing procedures involve evaluating our products under likely and foreseeable failure scenarios and over varying amounts of time. For various reasons, such as the occurrence of performance problems that are unforeseeable in testing or that are detected only when products age or are operated under peak stress conditions, our products may fail to perform as expected long after customer acceptance. Failures could result from faulty components or design, problems in manufacturing, or other unforeseen reasons. For the majority of our products, we provide a product warranty of one year or less from date of shipment. For select customers, we provide extended warranties beyond our normal product warranty period for specified failures on a case-by-case basis. As a result, we could incur significant costs to repair or replace defective products under warranty, particularly when such failures occur in installed systems. We have experienced failures in the past and will continue to face this risk going forward, as our products are widely deployed throughout the world in multiple demanding environments and applications. In addition, we may in certain circumstances honor warranty claims after the warranty has expired or for problems not covered by warranty in order to maintain customer relationships. Any significant product failure could result in product recalls, product liability claims, lost future sales of the affected product and other products, as well as customer relations problems, litigation, and damage to our reputation.

In addition, our products are typically embedded in, or deployed in conjunction with, our customers' products, which incorporate a variety of components, modules and subsystems and may be expected to interpolate with modules and subsystems produced by third parties. As a result, not all defects are immediately detectable and when problems occur, it may be difficult to identify the source of the problem. These problems may cause us to incur significant damages or warranty and repair costs, divert the attention of our engineering personnel from our product development efforts, and cause significant customer relations problems or loss of customers, all of which would harm our business. The occurrence of any defects in our products could also give rise to liability for damages caused by such defects. Although we carry product liability insurance to mitigate this risk, insurance may not adequately cover costs that may arise from defects in our products or otherwise, nor will it protect us from reputational harm that may result from such defects. Costs incurred in connection with product recalls or warranty or product liability claims may adversely affect our business, financial condition, results of operations, and cash flows.

Shifts in industry-wide demands and inventories could result in significant inventory write-downs.

The life cycles of some of our products depend heavily upon the life cycles of the end products into which our products are designed. Products with short life cycles require us to manage production and inventory levels closely. We evaluate our ending inventories on a quarterly basis for excess quantities, impairment of value, and obsolescence. This evaluation includes analysis of sales levels by product and projections of future demand based upon input received from our customers, sales team, and management. If inventories on hand are in excess of demand, or if they are generally greater than 12-months old, appropriate write-downs may be recorded. In addition, we write off inventories that are considered obsolete based upon changes in customer demand, manufacturing process changes that result in existing inventory obsolescence, or new product introductions, which eliminate demand for existing products. Remaining inventory balances are adjusted to approximate the lower of our manufacturing cost or net realizable market value.

If future demand or market conditions are less favorable than our estimates, inventory write-downs may be required. We cannot be certain that obsolete or excess inventories, which may result from unanticipated changes in the estimated total demand for our products and/or the estimated life cycles of the end products into which our products are designed, will not affect us beyond the inventory charges that we have already taken.

The types of sales contracts we use in the markets we serve subject us to unique risks in each of those markets.

We generally do not have long-term supply contracts with our customers, we typically sell our products pursuant to purchase orders with short lead times, and even where we do have long-term supply contracts, our customers are typically not obligated to purchase any minimum amount of our products. As a result, in most cases our customers could stop purchasing our products at any time, and we must fulfill orders in a timely manner to keep our customers satisfied.

Risks associated with an absence of long-term purchase commitments with our customers include the following:

- our customers can stop purchasing our products at any time without penalty;
- our customers may purchase products from our competitors; and
- our customers are not required to make minimum purchases.

These risks are increased by the fact that our customers in this market are large sophisticated companies which have considerable purchasing power and control over their suppliers. If we are unable to fulfill these orders in a timely manner, it is likely that we will lose sales and customers.

Fixed-price development work inherently has more uncertainty than production contracts and, therefore, entails more variability in estimates of the cost to complete the work. Many of these development programs have very complex designs. As technical or quality issues arise, we may experience schedule delays and adverse cost impacts, which could increase our estimated cost to perform the work, either of which could adversely affect our results of operations. Some fixed-price development contracts include initial production units in their scope of work. Successful performance of these contracts depends on our ability to meet production specifications and delivery rates. If we are unable to perform and deliver to contract requirements, our contract price could be reduced through the incorporation of liquidated damages, termination of the contract for default, or other financially significant consequences. Management uses its best judgment to estimate the cost to perform the work and the price we will eventually be paid on fixed-price development programs. While we believe the cost and price estimates incorporated in the financial statements are appropriate, future events could result in either favorable or unfavorable adjustments to those estimates.

We have significant international sales, which expose us to additional risks and uncertainties.

For the fiscal years ended September 30, 2019, 2018 and 2017, sales to customers located outside the U.S. accounted for approximately 21%, 19% and 20%, respectively, of our annual consolidated revenue, with revenue assigned to geographic regions based on our customers' billing address. Sales to customers in Asia represent the majority of our international sales. We believe that international sales will continue to account for a significant percentage of our revenue as we seek international expansion opportunities. In addition, certain of our sales to customers with a U.S. billing address may be physically shipped to a location outside of the U.S. Our international sales and operations are subject to a number of material risks, including, but not limited to:

- political and economic instability or changes in U.S. government policy with respect to these foreign countries may inhibit export of our products and limit potential customers’ access to U.S. dollars in a country or region in which those potential customers are located;
- we may experience difficulties in enforcing our legal contracts or the collecting of foreign accounts receivable in a timely manner and we may be forced to write off these receivables;
- tariffs and other barriers may make our products less cost competitive;
- the laws of certain foreign countries may not adequately protect our trade secrets and intellectual property or may be burdensome to comply with;
- potentially adverse tax consequences to our customers may damage our cost competitiveness;
- customs, import/export, and other regulations of the countries in which we do business may adversely affect our business;
- different technical standards or requirements, such as country or region-specific requirements to eliminate the use of lead
- currency fluctuations may make our products less cost competitive, affecting overseas demand for our products or otherwise adversely affecting our business; and
- language and other cultural barriers may require us to expend additional resources competing in foreign markets or hinder our ability to effectively compete.

Negative developments in one or more countries or regions in which we operate or sell our products could result in a reduction in demand for our products, the cancellation or delay of orders already placed, difficulties in producing and delivering our products, threats to our intellectual property, difficulty in collecting receivables, or a higher cost of doing business, any of which could negatively impact our business, financial condition, cash flows and results of operations. In addition, we may be exposed to legal risks under the laws of the countries outside the U.S. in which we do business, as well as the laws of the U.S. governing our business activities in those other countries, such as the U. S. Foreign Corrupt Practices Act ("FCPA").

We could be subject to legal and regulatory consequences if we fail to comply with applicable export control laws and regulations.

Exports of certain of our products are subject to export controls imposed by the U.S. government and administered by the United States Departments of State and Commerce. In certain instances, these regulations may require pre-shipment authorization from the administering department. For products subject to the Export Administration Regulations, or EAR, administered by the Department of Commerce’s Bureau of Industry and Security, the requirement for a license is dependent on the type and end use of the product, the final destination, the identity of the end user and whether a license exception might apply. Virtually all exports of products subject to the International Traffic in Arms Regulations, or ITAR, administered by the Department of State’s Directorate of Defense Trade Controls, require a license.

Obtaining necessary export licenses can be difficult and time-consuming. Failure to obtain necessary export licenses could significantly reduce our revenue and adversely affect our business, financial condition, results of operations and cash flows. We could be subject to investigation and potential regulatory consequences, including, but not limited to, a no-action letter, monetary penalties, debarment from government contracting or denial of export privileges and criminal sanctions, any of which would adversely affect our business, financial condition, results of operations and cash flows. Compliance with U.S. government regulations may also subject us to significant fees and expenses, including legal expenses, and require us to expend significant time and resources. Finally, the absence of comparable restrictions on competitors in other countries may adversely affect our competitive position.

For a portion of our business, we are subject to extensive government regulation, and our failure to comply with applicable regulations could subject us to penalties that may restrict our ability to conduct our business.

As a contractor and/or subcontractor to the U.S. government, we are subject to and must comply with various government regulations that impact our revenue, operating costs, profit margins and the internal organization and operation of our business. The most significant regulations and regulatory authorities affecting the portion of our business related to U.S. government contracts include the following:

- the Federal Acquisition Regulations, Defense Federal Acquisition Regulation Supplement and other supplemental agency regulations, which comprehensively regulate the formation and administration of, and performance under, U.S. government contracts;

- the Truth in Negotiations Act, which requires certification and disclosure of all factual cost and pricing data in connection with contract negotiations;

- the False Claims Act and the False Statements Act, which impose penalties for payments made on the basis of false facts provided to the government and on the basis of false statements made to the government, respectively; and

- the Foreign Corrupt Practices Act, which prohibits U.S. companies from providing anything of value to a foreign official to help obtain, retain or direct business, or obtain any unfair advantage.

Our failure to comply with applicable regulations, rules and approvals or misconduct by any of our employees could result in the imposition of fines and penalties, the loss of our government contracts or our suspension or debarment from contracting with the U.S. government generally, any of which could harm our business, financial condition, results of operations and cash flows. We are also subject to certain regulations of comparable government agencies in other countries, and our failure to comply with these non-U.S. regulations could also harm our business, financial condition, results of operations and cash flows.

Our business related to government contracts subjects us to additional risks.

We believe that the growth of our navigation business for the foreseeable future will depend to a certain degree on our ability to win government contracts and subcontracts, in particular from the Department of Defense. Many of our government customers are subject to budgetary constraints and our continued performance under these contracts or subcontracts, or award of additional contracts or subcontracts from these agencies, could be jeopardized by spending reductions, including constraints on government spending imposed by the Budget Control Act of 2011 and its subsequent amendments, or budget cutbacks at these agencies. The funding of U.S. government programs is uncertain and dependent on continued congressional appropriations and administrative allotment of funds based on an annual budgeting process. We cannot be certain that current levels of congressional funding for our products and services will continue and that our business related to these products will not decline or increase at currently anticipated levels, or that we will not be subject to delays in the negotiation of contracts or increased costs due to changes in the funding of U.S. government programs. A significant decline in government expenditures generally, or with respect to programs for which we provide products, could adversely affect our business and prospects.

In addition, our business could be adversely affected by a negative audit or investigation by the U.S. government. U.S. government agencies, primarily the Defense Contract Audit Agency and the Defense Contract Management Agency, routinely audit and investigate government contractors. These agencies review a contractor’s performance under its contracts, cost structure and compliance with applicable laws, regulations and standards. These agencies also may review the adequacy of, and a contractor’s compliance with, its internal control systems and policies, including the contractor’s purchasing, quality, accounting, property, estimating, compensation and management information systems. Any costs found to be improperly allocated to a specific cost reimbursement contract will not be reimbursed, while such costs already reimbursed must be refunded. If an audit or investigation of our business were to uncover improper or illegal activities, then we could be subject to civil and criminal penalties and administrative sanctions, including termination of contracts, suspension of payments, fines and suspension or debarment from doing business with the U.S. government. We could experience serious harm to our reputation if allegations of impropriety or illegal acts were made against us, even if the allegations were inaccurate. In addition, responding to governmental audits or investigations may involve significant expense and divert management attention. Moreover, if any of our administrative processes and business systems are found not to comply with the applicable requirements, we may be subjected to increased government scrutiny or required to obtain additional governmental approvals that could delay or otherwise adversely affect our ability to compete for or perform contracts. If any of the foregoing were to occur, our business, financial condition, operating results and cash flows may be adversely affected.

Our failure to obtain or maintain the right to use certain intellectual property may adversely affect our business, financial condition, results of operations, and cash flows.

Our industries are characterized by frequent litigation regarding patent and other intellectual property rights. From time to time we have received, and may receive in the future, notice of claims of infringement of other parties’ proprietary rights and licensing offers to commercialize third party patent rights. Numerous patents in our industry are held by others, including our competitors and certain academic institutions. Our competitors may seek to gain a competitive advantage or other third parties may seek an economic return on their intellectual property portfolios by making infringement claims against us. We cannot be certain that:

- infringement claims (or claims for indemnification resulting from infringement claims) will not be asserted against us or that such claims will not be successful;
- future assertions will not result in an injunction against the sale of infringing products, which could require us to cease the manufacture, use or sale of the infringing products, processes or technology and expend significant resources to develop non-infringing technology, adversely affecting our business, results of operations, and cash flows;
- any patent owned or licensed by us will not be invalidated, circumvented, or challenged; or
- we will not be required to obtain licenses or pay substantial damages for past, present and future use of the infringing technology, the expense of which may adversely affect our results of operations, and cash flows.

For example, on June 12, 2018, Phoenix Navigation Components, LLC (“Phoenix”) commenced an arbitration against EMCORE with the American Arbitration Association (“AAA”) in New York and on June 21, 2018, Phoenix commenced a special proceeding against EMCORE in the New York Supreme Court, Commercial Division, Index No. 653128/2018. Please see the disclosures under the caption “Legal Proceedings” in Note 13 - Commitments and Contingencies in the notes to our condensed consolidated financial statements for additional information regarding these proceedings.

In addition, effective copyright and trade secret protection may be unavailable or limited in certain foreign jurisdictions. Litigation, which could result in substantial cost and diversion of our resources, may be necessary to defend our rights or defend us against claimed infringement of the rights of others. In certain circumstances, our intellectual property rights associated with government contracts may be limited.

If we fail to protect, or incur significant costs in defending, our intellectual property and other proprietary rights, our business and results of operations could be materially harmed.

Our success depends to a significant degree on our ability to protect our intellectual property and other proprietary rights. We rely on a combination of patent, trademark, trade secret and unfair competition laws, as well as license agreements and other contractual provisions, to establish and protect our intellectual property and other proprietary rights. We have applied for patent registrations in the United States and selected international jurisdictions, most of which have been issued. We cannot guarantee that our pending applications will be approved by the applicable governmental authorities. Moreover, our existing and future patents and trademarks may not be sufficiently broad to protect our proprietary rights or may be held invalid or unenforceable in court. Failure to obtain patent registrations or a successful challenge to our registrations in the United States or other foreign countries may limit our ability to protect the intellectual property rights that these applications and registrations are intended to cover.

We also attempt to protect our intellectual property, including our trade secrets and know-how, through the use of trade secret and other intellectual property laws, and contractual provisions. We enter into confidentiality and invention assignment agreements with our employees and independent consultants. We also use non-disclosure agreements with other third parties who may have access to our proprietary technologies and information. Such measures, however, provide only limited protection, and we cannot be certain that our confidentiality and non-disclosure agreements will not be breached, especially after our employees or those of our third-party contract manufacturers end their employment or engagement, and that our trade secrets will not otherwise become known by competitors or that we will have adequate remedies in the event of unauthorized use or disclosure of proprietary information. Unauthorized third parties may try to copy or reverse engineer our products or portions of our products, otherwise obtain and use our intellectual property, or may independently develop similar or equivalent trade secrets or know-how. If we fail to protect our intellectual property and other proprietary rights, or if such intellectual property and proprietary rights are infringed or misappropriated, we could lose our competitive advantage and our business, results of operations, financial condition and cash flows could be materially harmed.

Policing unauthorized use of our technology is difficult, and we cannot be certain that the steps we have taken will prevent the misappropriation, unauthorized use, or other infringement of our intellectual property rights. Further, we may not be able to effectively protect our intellectual property rights from misappropriation or other infringement in foreign countries where we have not applied for patent protections, and where effective patent, trademark, trade secret, and other intellectual property laws may be unavailable, or may not protect our proprietary rights as fully as U.S. law.

In the future, we may need to take legal actions to prevent third parties from infringing upon or misappropriating our intellectual property or from otherwise gaining access to our technology. Protecting and enforcing our intellectual property rights and determining their validity and scope could result in significant litigation costs and require significant time and attention from our technical and management personnel, which could significantly harm our business. The availability of financial resources may limit our ability to commence or defend such litigation. In addition, we may not prevail in such proceedings. An adverse outcome of such proceedings may reduce our competitive advantage or otherwise harm our business, financial condition, results of operations and cash flows.

We may be obligated to indemnify our customers and vendors for claims that our intellectual property infringes the rights of others, which may result in substantial expenses to us.

We may be required to indemnify our customers or vendors for intellectual property claims made against them for products incorporating our technology. As such, claims against our customers and vendors may require us to incur substantial expenses, such as legal expenses, damages for past infringement or royalties for future use. Future indemnity claims could adversely affect our business relationships and result in substantial costs to us.

We face certain litigation risks that could harm our business.

We are and may become subject to various legal proceedings and claims that arise in or outside the ordinary course of business. The results of complex legal proceedings are difficult to predict. Moreover, many of the complaints filed against us do not specify the amount of damages that plaintiffs seek, and we therefore are unable to estimate the possible range of damages that might be incurred should these lawsuits be resolved against us. However, certain of these lawsuits assert types of claims that, if resolved against us, could give rise to substantial damages. Thus, an unfavorable outcome or settlement of one or more of these lawsuits may have an adverse effect on our business, financial condition, results of operations and cash flows. Even if these lawsuits are not resolved against us, the uncertainty and expense associated with unresolved lawsuits could seriously harm our business, financial condition, and reputation. Litigation is costly, time-consuming and disruptive to normal business operations. The costs of defending these lawsuits have been significant, will continue to be costly, and may not be covered by our insurance policies. The defense of these lawsuits could also result in continued diversion of our management's time and attention away from business operations, which could harm our business. For additional discussion regarding litigation in which we are involved, see Note 13 - Commitments and Contingencies in the notes to our consolidated financial statements.

We could be subject to legal consequences if we fail to comply with the Modified Partial Final Award issued in connection with the Phoenix legal proceedings.

In the Interim Award incorporated by reference into the Modified Partial Final Award (in each case as defined in the disclosures under the caption "Legal Proceedings" in Note 13 - Commitments and Contingencies in the notes to our condensed consolidated financial statements), the arbitrator determined and ordered that we are required to pay Phoenix a royalty of 7.5% of the sale price on (i) future customer payments for certain EMCORE product contracts previously entered into at the time the Interim Award was issued and (ii) customer payments for future sales of any product using any Deemed Trade Secret (as defined in the disclosures under the caption "Legal Proceedings" in Note 13 - Commitments and Contingencies in the notes to our condensed consolidated financial statements), in each case payable in a single lump sum within one month of completion of the calendar quarter in which payment has been received from the customer, and that we are required to concurrently submit to Phoenix a written report that sets forth the calculation of the amount of the royalty payment in a form similar to previous royalty reports, provided that following the first $1.0 million of royalty payments on the EMP-1 product only, inclusive of payments made prior to the Interim Award, we must pay to Phoenix a royalty of 2.25% of the sale price (net of any warranty work, returns, rebates, discounts or credits) with respect to subsequent sales of the EMP-1 product. We must continue to make royalty payments in this manner until such time as we have in good faith determined, and can so document, that it has completely ceased use of the Deemed Trade Secrets, and at such time, we must provide Phoenix written notice of same by certified letter, return receipt requested. If we fail to comply with these obligations, it could be subject to additional claims, penalties or judgments, which could harm our business, financial condition, results of operations and cash flows. In addition, we could be subject to significant legal costs and expenses in connection with the interpretation of certain of the obligations pursuant to the Interim Award, which could harm our business, financial condition, results of operations and cash flows.

Our business and operations could be adversely impacted in the event of a failure or security breach of our information technology infrastructure.

We rely upon the capacity, reliability, and security of our information technology hardware and software infrastructure and our ability to expand and update this infrastructure in response to our changing needs. We are constantly updating our information technology infrastructure. Although we have a disaster recovery plan, any failure to manage, expand, and update our information technology infrastructure or any failure in the operation of this infrastructure could harm our business.

The secure maintenance of this information is critical to our business and reputation. Despite our implementation of security measures, our systems are vulnerable to damages from computer viruses, computer denial-of-service attacks, worms, and other malicious software programs or other attacks, covert introduction of malware to computers and networks, unauthorized access, including impersonation of unauthorized users, efforts to discover and exploit any security vulnerabilities or securities weaknesses, and other similar disruptions. Our business is also subject to break-ins, sabotage, and intentional acts of vandalism by third parties as well as intentional and unintentional acts by employees or other insiders with access privileges. Our customers' network and storage applications may be subject to similar disruptions. It is often difficult to anticipate or immediately detect such incidents and the damage caused by such incidents. Data breaches and any unauthorized access or disclosure of our information, employee information or intellectual property could compromise our intellectual property, trade secrets and other sensitive business information, any of which could result in legal action against us, exposure of our intellectual property to our competitors, damages, fines and other adverse effects. A data security breach could also lead to public exposure of personal information of our employees, customers and others. Any such theft, loss or misuse of personal data collected, used, stored or transferred by us to run our business could result in significantly increased security costs or costs related to defending legal claims. Cyber attacks, such as computer viruses or other forms of cyber terrorism, may disrupt access to our network or storage applications. Such disruptions could result in delays or cancellations of customer orders or delays or interruptions in the production or shipment of our products. Data security breaches involving our data center customers could affect their financial condition and ability to continue to purchase our products. In addition, cyber attacks may cause us to incur significant remediation costs, result in product development delays, disrupt key business operations and divert attention of management and key information technology resources. These incidents could also subject us to liability, expose us to significant expense and cause significant harm to our reputation and business.

In addition, our technology infrastructure and systems are vulnerable to damage or interruption from natural disasters, power loss and telecommunications failures. Further, our products contain sophisticated hardware and operating system software and applications that may contain security problems, security vulnerabilities, or defects in design or manufacture, including "bugs" and other problems that could interfere with the intended operation of our products. To the extent that any disruption or security breach results in a loss or damage to our technology infrastructure, systems or data or inappropriate disclosure of confidential information or sensitive or personal information, it could harm our relationships with customers and other third parties and damage our brand and reputation and our business. In addition, we may be required to incur significant costs to protect against damage caused by these disruptions or security breaches in the future.

We may be subject to theft, loss, or misuse of personal data about our employees, customers, or other third parties, which could increase our expenses, damage our reputation, or result in legal or regulatory proceedings.

The theft, loss, or misuse of personal data collected, used, stored, or transferred by us to run our business could result in significantly increased security costs or costs related to defending legal claims. Global privacy legislation, enforcement, and policy activity in this area are rapidly expanding and creating a complex compliance regulatory environment. Costs to comply with and implement these privacy-related and data protection measures could be significant. In addition, our even inadvertent failure to comply with federal, state, or international privacy-related or data protection laws and regulations could result in proceedings against us by governmental entities or others or cause us to incur penalties or other significant legal liability or change our business practices.

The costs of compliance with state, federal and international legal and regulatory requirements, such as environmental, labor, trade and tax regulations, and customers' standards of corporate citizenship could cause an increase in our operating costs.

We are subject to environmental and health and safety laws and regulations and must obtain certain permits and licenses relating to the use of hazardous materials in our production activities. If our control systems are unsuccessful in preventing a release of these materials into the environment or other adverse environmental conditions or human exposure occurs, we could experience interruptions in our operations and incur substantial remediation and other costs or liabilities. We are also subject to a number of federal and state laws and regulations related to safety, including OSHA and comparable state statutes, the purpose of which are to protect the health and safety of workers. Failure to comply with OSHA requirements and other related state regulations, including general industry standards, record keeping requirements and monitoring and control of occupational exposure to regulated substances, could have a material adverse effect on our results of operations and financial condition if we are subjected to significant penalties, fines or compliance costs. In addition, certain foreign laws and regulations place restrictions on the concentration of certain hazardous materials, including, but not limited to, lead, mercury, and cadmium, in our products. Failure to comply with such laws and regulations could subject us to future liabilities or result in the limitation or suspension of the sale or production of our products. These regulations include the European Union's (EU) Restrictions on Hazardous Substances and Directive on Waste Electrical and Electronic Equipment. Failure to comply with environmental and health and safety laws and regulations may limit our ability to export products to the EU and could adversely affect our business, financial condition, results of operations, and cash flows. In addition, we purchase certain chemicals from Europe and Asia that are unique, nearing the end of life and could be subject to future changes to environmental regulations in the country of origin and/or the U.S. In the event new restrictions are placed on any such chemicals, they may be difficult to replace, and may require us to re-design or re-validate existing products that use such chemicals in their production.

In connection with our compliance with such environmental laws and regulations, as well as our compliance with industry environmental initiatives, the standards of business conduct required by some of our customers, and our commitment to sound corporate citizenship in all aspects of our business, we could incur substantial compliance and operating costs and be subject to disruptions to our operations. In addition, in the last few years, there has been increased media scrutiny and associated reports focusing on a potential link between working in semiconductor manufacturing clean room environments and certain illnesses, primarily different types of cancers. Regulatory agencies and industry associations have begun to study the issue to see if any actual correlation exists. Because we utilize clean rooms, we may become subject to liability claims. These reports may also affect our ability to recruit and retain employees. If we were found to be in violation of environmental and safety regulations laws or noncompliance with industry initiatives or standards of conduct, we could be subject to government fines or liabilities owed to our customers, which could have an adverse effect on our business, financial condition, results of operations, and cash flows.

In addition, climate change is a significant topic of discussion and potential regulatory activity and has generated and may continue to generate federal or other regulatory responses in the near future. If we or our component suppliers fail to timely comply with applicable legislation, our customers may refuse to purchase our products or we may face increased operating costs as a result of taxes, fines or penalties, which may have an adverse effect on our business, financial condition, results of operations and cash flows.

The Department of Homeland Security has commenced a program to evaluate the security of certain chemicals which may be of interest to terrorists, including chemicals utilized by us. This evaluation may lead to regulations or restrictions affecting our ability to utilize these chemicals or the costs of doing so.

In connection with our compliance with such environmental laws and regulations, as well as our compliance with industry environmental initiatives, the standards of business conduct required by some of our customers, and our commitment to sound corporate citizenship in all aspects of our business, we could incur substantial compliance and operating costs and be subject to disruptions to our operations and logistics. In addition, if we were found to be in violation of these laws or noncompliant with these initiatives or standards of conduct, we could be subject to governmental fines, liability to our customers and damage to our reputation and corporate brand which could cause our business, financial condition, results of operations and cash flows to suffer.

We are subject to anti-corruption laws in the jurisdictions in which we operate, including the FCPA. Our failure to comply with these laws could result in penalties which could harm our reputation and have an adverse effect on our business, results of operations and financial condition.

We are subject to the FCPA, which generally prohibits companies and their intermediaries from making improper payments to foreign officials for the purpose of obtaining or keeping business and/or other benefits, along with various other anticorruption laws. Although we have implemented policies and procedures designed to ensure that we, our employees and other intermediaries comply with the FCPA and other anticorruption laws to which we are subject, we cannot be certain that such policies or procedures will work effectively all of the time or protect us against liability under the FCPA or other laws for actions taken by our employees and other intermediaries with respect to our business or any businesses that we may acquire.

We have manufacturing operations in China and other jurisdictions, many of which pose elevated risks of anti-corruption violations, and we export our products for sale internationally. This puts us in frequent contact with persons who may be considered “foreign officials” under the FCPA, resulting in an elevated risk of potential FCPA violations. If we are not in compliance with the FCPA and other laws governing the conduct of business with government entities (including local laws), we may be subject to criminal and civil penalties and other remedial measures, which could have an adverse impact on our business, financial condition, results of operations and cash flows. Any investigation of any potential violations of the FCPA or other anticorruption laws by U.S. or foreign authorities could harm our reputation and have an adverse impact on our business, financial condition, results of operations and cash flows.

If we identify deficiencies in our current system of internal controls or fail to remediate them, we may not be able to accurately report our financial results or prevent fraud. As a result, our business could be harmed and current and potential investors could lose confidence in our financial reporting, which could have an adverse effect on the trading price of our equity securities.

We are subject to the ongoing internal control provisions of Section 404 of the Sarbanes-Oxley Act of 2002. These provisions provide for the identification of material weaknesses or other lesser deficiencies in internal control over financial reporting, which is a process to provide reasonable assurance regarding the reliability of financial reporting for external purposes in accordance with U.S. GAAP. If we cannot provide reliable and timely financial reports, our brand, operating results, and the market value of our equity securities could be harmed. We have in the past discovered, and may in the future discover, areas of our internal controls that need improvement.

We have devoted significant resources to remediate and improve our internal controls. We have also been monitoring the effectiveness of these remediated measures. We cannot be certain that these measures will ensure adequate controls over our financial processes and reporting in the future. Any failure to implement required new or improved controls, or difficulties encountered in their implementation, could harm our operating results or cause us to fail to meet our reporting obligations.

Inadequate internal controls could also cause investors to lose confidence in our reported financial information, which could have an adverse effect on the trading price of our equity securities. Further, the impact of these events could also make it more difficult for us to attract and retain qualified persons to serve on our Board of Directors or as executive officers, which could harm our business.

We could be required to record an impairment charge as a result of changes to assumptions used in our impairment testing.

We have substantial long-lived assets recorded on our balance sheet. As of September 30, 2019, we had $37.2 million of property, plant and equipment, net, on our consolidated balance sheet. If we make changes in our business strategy or if market or other conditions adversely affect our business operations, we may be forced to record an impairment charge related to these assets, which would adversely impact our results of operations. Impairment assessment inherently involves judgment as to assumptions about expected future cash flows and the impact of market conditions on those assumptions. Future events and changes in market conditions, underlying business operations, competition or technologies may impact our assumptions as to prices, costs, holding periods, or other factors that may result in changes in our estimates of future cash flows. Although we believe the assumptions we used in testing for impairment are reasonable, we will continue to evaluate the recoverability of the carrying amount of our property, plant and equipment on an ongoing basis, and significant changes in any one of our assumptions could produce a significantly different result. In such a circumstance, we may incur substantial impairment charges, which would adversely affect our financial results. In any period where our stock price, as determined by our market capitalization, is less than our book value, this too could indicate a potential impairment and we may be required to record an impairment charge in that period.

Changes in accounting standards issued by the Financial Accounting Standards Board ("FASB") could have a material effect on our balance sheet, revenue and result of operations, and could require a significant expenditure of time, attention and resources, especially by senior management.

Our accounting and financial reporting policies conform to U.S. GAAP, which are periodically revised and/or expanded. The application of accounting principles is also subject to varying interpretations over time. Accordingly, we are required to adopt new or revised accounting standards or comply with revised interpretations that are issued from time to time by various parties, including accounting standard setters and those who interpret the standards, such as the FASB and the SEC and our independent registered public accounting firm. Such new financial accounting standards may result in significant changes that could adversely affect our financial condition and results of operations.

Compliance with regulations related to conflict minerals and other regulations with respect to our supply chains could increase costs and affect the manufacturing and sale of our products.

Public companies are required to disclose the use of tin, tantalum, tungsten and gold (collectively, "conflict minerals") mined from the Democratic Republic of the Congo and adjoining countries (the "covered countries") if a conflict mineral(s) is necessary to the functionality of a product manufactured, or contracted to be manufactured, by the company. We may determine, as part of our compliance efforts, that certain products or components we obtain from our suppliers contain conflict minerals. If we are unable to conclude that all our products are free from conflict minerals originating from covered countries, this could have a negative impact on our business, reputation and/or results of operations. We may also encounter challenges to satisfy customers who require that our products be certified as conflict free, which could place us at a competitive disadvantage if we are unable to substantiate such a claim. Compliance with these rules could also affect the sourcing and availability of some of the minerals used in the manufacture of products or components we obtain from our suppliers, including our ability to obtain products or components in sufficient quantities and/or at competitive prices. Certain of our customers are requiring additional information from us regarding the origin of our raw materials, and complying with these customer requirements may cause us to incur additional costs, such as costs related to determining the origin of any minerals used in our products. Our supply chain is complex and we may be unable to verify the origins for all metals used in our products.

In addition, the U.S. federal government has issued new policies for federal procurement focused on eradicating the practice of forced labor and human trafficking, and the United Kingdom and the State of California have issued laws that require us to disclose our policy and practices for identifying and eliminating forced labor and human trafficking in our supply chain. Several customers as well as the Electronic Industry Citizenship Coalition (EICC) have also issued expectations to eliminate these practices that may impact us. While we have a policy and management systems to identify and avoid these practices in our supply chain, we cannot guarantee that our suppliers will always be in conformance to these laws and expectations. We may face enforcement liability and reputational challenges if we are unable to sufficiently meet these expectations. Moreover, we are likely to encounter challenges with customers if we cannot satisfy their forced and trafficked labor polices and they may choose a competitor's product.

***Our business and results of operations may continue to be negatively impacted by general economic and financial market conditions and market conditions in the industries in which we operate, and such conditions may increase the other risks that affect our business*.**

In recent years, the world's financial markets have experienced significant turmoil, resulting in reductions in available credit, increased costs of credit, extreme volatility in security prices, potential changes to existing credit terms, and rating downgrades of investments. These conditions materially and adversely affected the market conditions in the industries in which we operate and caused many of our customers to reduce their spending plans, leading them to draw down their existing inventory and reduce orders for our products, which, in turn, had an adverse impact on our revenues. We cannot predict the timing, strength or duration of any economic slowdown or subsequent economic recovery, worldwide or within our industry. It is possible that economic conditions could result in further setbacks, and that these customers, or others, could as a result significantly reduce their capital expenditures, draw down their inventories, reduce production levels of existing products, defer introduction of new products or place orders and accept delivery for products for which they do not pay us due to their economic difficulties or other reasons. If any of these events occur, our business, financial condition, results of operations and cash flows may be adversely affected.

Natural disasters or other catastrophic events could have an adverse effect on our business.

Natural disasters, such as hurricanes, earthquakes, fires, and floods, could adversely affect our operations and financial performance. Such events could result in physical damage to one or more of our facilities, the temporary closure of one or more of our facilities or those of our suppliers, a temporary lack of an adequate work force in a market, a temporary or long-term disruption in the supply of products from some local and overseas suppliers, a temporary disruption in the transport of goods from overseas, and delays in the delivery of goods. Public health issues, whether occurring in the United States or abroad, could disrupt our operations, disrupt the operations of suppliers or customers, or have an adverse impact on customer demand. As a result of any of these events, we may be required to suspend operations in some or all of our locations, which could have an adverse effect on our business, financial condition, results of operations, and cash flows. These events could also reduce demand for our products or make it difficult or impossible to receive products from suppliers. Although we maintain business interruption insurance and other insurance intended to cover some or all of these risks, such insurance may be inadequate, whether because of coverage amount, policy limitations, the financial viability of the insurance companies issuing such policies, or other reasons.

We are subject to risks associated with the availability and coverage of insurance.

For certain risks, we do not maintain insurance coverage because of cost or availability. Because we retain some portion of our insurable risks, and in some cases self-insure completely, unforeseen or catastrophic losses in excess of insured limits may have an adverse effect on our business, financial condition, results of operations and cash flows.

The market price for our common stock has experienced significant price and volume volatility and is likely to continue to experience significant volatility in the future. This volatility may impair our ability to finance strategic transactions with our stock and otherwise harm our business.

Our stock price has experienced significant price and volume volatility for the past several years, and our stock price is likely to experience significant volatility in the future. The trading price of our common stock may be influenced by factors beyond our control, such as the volatility of the financial markets, uncertainty surrounding domestic and foreign economies, conditions and trends in the markets we serve, changes in the estimation of the future size and growth rate of our markets, publication of research reports and recommendations by financial analysts relating to our business, the business of our competitors or the industry in which we operate and compete, changes in market valuation or earnings of our competitors, legislation or regulatory policies, practices, or actions, sales of our common stock by our principal shareholders, and the trading volume of our common stock. The historical market prices of our common stock may not be indicative of future market prices and we may be unable to sustain or increase the value of our common stock. We have historically used equity incentive compensation as part of our overall compensation arrangements. The effectiveness of equity incentive compensation in retaining key employees may be adversely impacted by volatility in our stock price. Significant declines in our stock price may also interfere with our ability, if needed, to raise additional funds through equity financing or to finance strategic transactions with our stock. In addition, there may be increased risk of securities litigation following periods of fluctuations in our stock price. Securities class action lawsuits are often brought against companies after periods of volatility in the market price of their securities. These and other consequences of volatility in our stock price which could be exacerbated by macroeconomic conditions that affect the market generally, or our industry in particular could have the effect of diverting management's attention and could materially harm our business.

We may not pay additional dividends on our common stock and, consequently, your only opportunity to achieve a return on your investment may be an increase in the price of our common stock.

Although we paid a special dividend in 2016, we cannot guarantee that that we will pay additional dividends in the future. In addition, the terms of our loan and security agreement with our financial institution restrict our ability to pay dividends. Consequently, your only opportunity to achieve a return on any shares of our common stock may be for you to sell your shares at a profit. There is no guarantee that the market price of our common stock will increase or ever exceed the price that you paid for the shares.

We may undergo an "ownership change" within the meaning of Section 382 of the Code, which could affect our ability to offset U.S. federal income tax against our net operating losses and certain of our tax credit carryovers.

Section 382 of the Internal Revenue Code, as amended (the “Code”) contains rules that limit the ability of a company that undergoes an ownership change to utilize its net operating losses and tax credits (the “Tax Benefits”) existing as of the date of such ownership change. Under the rules, such an ownership change is generally any change in ownership of more than 50% of a company's stock within a rolling three-year period. The rules generally operate by focusing on changes in ownership among shareholders considered by the rules as owning, directly or indirectly, 5% or more of the stock of a company and any change in ownership arising from new issuances of stock by the company.

If we were to undergo one or more "ownership changes" within the meaning of Section 382 of the Code, our net operating losses and certain of our tax credits existing as of the date of each ownership change may be unavailable, in whole or in part, to offset U.S. federal income tax resulting from our operations or any gains from the disposition of any of our assets and/or business, which could result in increased U.S. federal income tax liability.

Certain provisions of New Jersey law and our governing documents may make a takeover of our Company difficult even if such takeover could be beneficial to some of our shareholders.

Certain provisions of our organizational documents and New Jersey law could discourage potential acquisition proposals, delay or prevent a change in control of the Company or limit the price that investors may be willing to pay in the future for shares of our common stock. For example, our amended and restated certificate of incorporation and amended and restated bylaws:

- provided for the classification of our Board of Directors into three classes, with staggered three-year terms and, until recent respective amendments to our certificate of incorporation and bylaws to declassify our Board of Directors that became effective in March 2018 are fully phased in beginning with our 2021 annual meeting of shareholders, the current three-year term of certain of our directors will remain in effect until their current term expires;

- provide that directors may be removed at any time, but only for cause and only by the affirmative vote of the holders of at least a majority of our outstanding shares of capital stock entitled to vote generally in the election of directors cast at a meeting of shareholders called for that purpose;

- provide that a supermajority vote of our shareholders is required to amend some portions of our amended and restated certificate of incorporation and amended and restated bylaws, including requiring approval by the holders of 80% or more of the outstanding shares of our capital stock entitled to vote generally in the election of directors for certain business combinations unless these transactions meet certain fair price criteria and procedural requirements or are approved by two-thirds of our continuing directors;

- authorize the issuance of preferred stock, without any requirement of vote or class vote of shareholders, commonly referred to as “blank check” preferred stock, which shares of preferred stock may have rights senior to those of our common stock;

- limit the persons who can call special shareholder meetings; shareholders do not have authority to call a special meeting of shareholders;
- establish advance notice requirements that must be complied with by shareholders to nominate persons for election to our Board of Directors or to propose matters that can be acted on by shareholders at shareholder meetings;
- do not provide for cumulative voting in the election of directors; and
- provide for the filling of vacancies on our Board of Directors by action of 66 2/3% of the directors and not by the shareholders.

These and other provisions in our organizational documents could allow our Board of Directors to affect the rights of our shareholders in a number of ways, including making it difficult for shareholders to replace members of the Board of Directors. Because our Board of Directors is responsible for approving the appointment of members of our management team, these provisions could in turn affect any attempt to replace the current management team. These provisions could also limit the price that investors would be willing to pay in the future for shares of our common stock. We may in the future adopt other measures that may have the effect of delaying or discouraging an unsolicited takeover, even if the takeover were at a premium price or favored by a majority of unaffiliated shareholders. Certain of these measures may be adopted without any further vote or action by our shareholders and this could depress the price of our common stock.

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The risks above are not the only risks we face. If any of the events described in our risk factors actually occur, or if additional risks and uncertainties not presently known to us or that we currently deem immaterial, materialize, then our business, financial condition, results of operations, and cash flows could be materially affected.

ITEM 1B. Unresolved Staff Comments

Not Applicable.

ITEM 2. Properties

The following chart contains certain information regarding each of our principal facilities.

Location	Function	Approximate Square Footage	Term (in calendar year)
Alhambra, California	Corporate Headquarters Manufacturing and research and development facilities	75,000	Lease covering one of six buildings expired in 2011; other leases covering five of six buildings expire in 2023 (1) and (2)
Langfang, China	Warehouse facility	1,100	Lease expired in 2019 (2)
Beijing, China	Manufacturing facility	23,200	Lease expires in 2021 (1)
Concord, California	Manufacturing and research and development facility	110,000	N/A - Owned property

Footnotes

(1) Leases have the option to be renewed by us at fixed terms.

(2) Certain facility leases which have expired are being maintained on a month-to-month basis.

ITEM 3. Legal Proceedings

See the disclosures under the caption "Legal Proceedings" in Note 13- Commitments and Contingencies in the notes to our consolidated financial statements for disclosures related to our legal proceedings, which disclosures are incorporated herein by reference.

ITEM 4. Mine Safety Disclosures

Not Applicable.

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

Our common stock is traded on the Nasdaq Global Market and is quoted under the symbol "EMKR". As of December 6, 2019, we had approximately 81 shareholders of record. Many of our shares of common stock are held by brokers and other institutions on behalf of shareholders, and we are unable to estimate the number of these shareholders.

Dividend Policy

No dividends have been declared during the two most recent fiscal years. Under the terms of our credit facility with Wells Fargo Bank, N. A., we are restricted from paying dividends that result in the liquidity of the Company being less than $25.0 million after paying the dividend if any amounts are outstanding under our credit facility. The payment of dividends, if any, in the future is at the discretion of the Board of Directors.

ITEM 6. Selected Financial Data

In the tables below, we have provided you with consolidated financial data. We derived the statement of operations data for the fiscal years ended September 30, 2019, 2018, and 2017 and the balance sheet data as of September 30, 2019 and 2018 from our audited consolidated financial statements included in Financial Statements and Supplementary Data under Item 8 within this Annual Report.

We derived the statement of operations data for the years ended September 30, 2016 and 2015 and the selected balance sheet data as of September 30, 2017, 2016, and 2015 from audited consolidated financial statements that are not included in this Annual Report after giving effect to the discontinued operations of the Photovoltaics and Digital Products Businesses. You should read this financial data together with our Management's Discussion and Analysis of Financial Condition and Results of Operations under Item 7 and Financial Statements and Supplementary Data under Item 8 within this Annual Report. Our historic results are not necessarily indicative of the results that may be expected in the future.

__Selected Financial Data__

Statements of Operations Data *(in thousands, except loss per share)*	For the Fiscal Years ended September 30,				
	2019	**2018**	**2017**	**2016**	**2015**
Revenue	$ 87,265	$ 85,617	$ 122,895	$ 91,998	$ 81,685
Gross profit	15,089	18,487	42,534	30,954	28,691
Operating (loss) income	(36,132)	(18,311)	7,741	2,939	(4,522)
(Loss) income from continuing operations	(35,984)	(17,453)	8,221	2,619	(2,272)
Income from discontinued operations	—	—	14	5,647	65,372
Net (loss) income	(35,984)	(17,453)	8,235	8,266	63,100
Net (loss) income per basic share					
Continuing operations	$ (1.29)	$ (0.64)	$ 0.31	$ 0.10	$ (0.08)
Discontinued operations	—	—	—	0.22	2.18
Net (loss) income per basic share	$ (1.29)	$ (0.64)	$ 0.31	$ 0.32	$ 2.10
Net (loss) income per diluted share					
Continuing operations	$ (1.29)	$ (0.64)	$ 0.30	$ 0.10	$ (0.08)
Discontinued operations	—	—	—	0.21	2.18
Net (loss) income per diluted share	$ (1.29)	$ (0.64)	$ 0.30	$ 0.31	$ 2.10

Balance Sheet Data *(in thousands)*	**As of September 30,**				
	2019	**2018**	**2017**	**2016**	**2015**
Cash, cash equivalents and restricted cash	$ 21,977	$ 63,195	$ 68,754	$ 64,870	$ 112,260
Working capital	41,250	88,848	103,042	92,957	127,994
Total assets	109,562	135,898	144,084	127,211	160,907
Long-term liabilities	2,097	1,891	1,667	1,635	1,774
Shareholders' equity	76,746	106,805	120,774	107,317	135,442

Working capital, calculated as current assets minus current liabilities, is a financial metric we use that represents available operating liquidity.

Significant Transactions

Significant transactions that affect the comparability of our operating results and financial condition include:

Fiscal 2019

Continuing Operations:

- On June 7, 2019, we completed the acquisition of Systron Donner Inertial, Inc. (“SDI”), a private-equity backed navigation systems provider with a scalable, chip-based platform for higher volume gyro applications utilizing Quartz MEMS technology. The total purchase price was approximately $25.0 million, consisting of (i) approximately $22.8 million in cash, subject to certain working capital adjustments and (ii) the issuance of 810,698 shares of common stock with an aggregate value of approximately $3.0 million as of the closing date. Subsequent to the closing, we calculated the working capital adjustment and determined that our aggregate purchase price should be reduced by approximately $0.7 million, which was paid in the three months ended September 30, 2019. Following the closing, we began integrating SDI into our Navigation Systems product line and have included the financial results of SDI in our condensed consolidated financial statements beginning on the acquisition date. Net revenue and net loss of SDI from the acquisition date through September 30, 2019 of $9.8 million and $0.6 million, respectively, is included in our consolidated statements of operations and comprehensive (loss) income for the fiscal year ended September 30, 2019. Acquired assets of SDI comprise 25% of the total consolidated assets as of September 30, 2019.

- We recorded a $4.7 million inventory write-down on CATV products and a $1.3 million write-downe on non-current inventory in the fiscal year ended September 30, 2019 due to the decline in sales and future demand of the inventory.

- We incurred approximately $0.8 million of merger and acquisition costs in the fiscal year ended September 30, 2019 in conjunction with the acquisition of SDI.

- We recorded an award to Phoenix Navigation Components, LLC (“Phoenix”) of attorneys’ fees and costs in the amount of approximately $3.8 million. In connection with the litigation proceedings involving Phoenix, we incurred approximately $5.7 million of legal expenses.

Fiscal 2018

Continuing Operations:

- We recorded a $1.0 million write-down on non-current inventory in the fiscal year ended September 30, 2018 due to the decline in sales and future demand of the inventory.

- As a result of the revision in the estimated amount and timing of cash flows for Asset Retirement Obligations (“ARO” or “AROs”) during the fiscal year ended September 30, 2018, the Company increased the ARO liability by $0.1 million and recorded a loss from change in estimate on ARO liability.

Fiscal 2017

Continuing Operations:

- We recorded a charge to impairments of approximately $0.5 million in the fiscal year ended September 30, 2017 in connection with the transition of our manufacturing operations in China to a new manufacturing facility. See Note 9 - Property, Plant, and Equipment, net for additional information.

- During the fiscal year ended September 30, 2017, the Company recorded charges of $2.0 million related to various reductions in workforce primarily related to the outsourcing of our wafer fabrication lab and operations assembly and the opening of our new manufacturing facility in China. See Note 10 - Accrued Expenses and Other Current Liabilities for additional information.

Fiscal 2016

Continuing Operations:

- On July 5, 2016, the Company declared a special cash dividend of $1.50 per share of the Company's common stock, for a total of $39.2 million. The dividend was paid on July 29, 2016 to shareholders of record as of the close of business on July 18, 2016.

- On September 23, 2014, Sumitomo Electric Industries, Ltd. ("SEI") filed for arbitration against EMCORE, in accordance with the terms of the Master Purchase Agreement between the parties. SEI was seeking $47.5 million from EMCORE, relating to numerous claims. On April 12, 2016, the International Court of Arbitration tribunal rejected SEI's claims. The panel ruled that EMCORE owed SEI none of the amounts SEI sought in the arbitration and that the Company was entitled to collect the $1.9 million held in escrow, which was received in June 2016 and was included in cash at September 30, 2016. The Company was also entitled to recover $2.6 million in legal fees and costs from SEI, which was received in June 2016 and has been recorded by EMCORE within operating income.

- In September 2016, the Company paid $2.9 million previously accrued related to a termination fee for terminating a prior joint venture agreement.

- During fiscal year 2016, the Company paid $6.1 million for the purchase of long-term inventory as a result of the vendor announcing it would cease manufacturing a part.

Discontinued Operations:

- As a result of the SEI arbitration tribunal ruling above, during the fiscal year ended September 30, 2016, we recognized a gain associated with the release of $3.4 million of previously deferred gain associated with the sale of assets and reversal of other liabilities of $0.4 million, resulting in a credit of $3.8 million to recognition of previously deferred gain on sale of assets within discontinued operations of the Digital Products Business.

Fiscal 2015

Continuing Operations:

- Common Stock Repurchase: In April 2015, EMCORE's Board of Directors authorized the Company to repurchase $45.0 million of shares of its common stock. On May 15, 2015, we announced the commencement of a modified "Dutch auction" tender offer to purchase for cash shares of our common stock (the "Tender Offer"). On June 15, 2015, we completed the Tender Offer and purchased 6.9 million shares of our common stock at a purchase price of $6.55 per share, for an aggregate cost of $45.0 million excluding fees and expenses. Repurchased common stock was recorded to treasury stock. The Company incurred costs of $0.7 million in connection with the Tender Offer, which were recorded to treasury stock.

- AROs**:** As a result of the revision in the estimated amount and timing of cash flows for AROs during the fiscal year ended September 30, 2015, the Company reduced ARO liability by $2.9 million with an offsetting reduction to property, plant, and equipment, net of $2.1 million, and recorded a gain from change in estimate on ARO of $0.8 million. The Company first reduced the net leasehold improvement asset to the extent of the carrying amount of the related asset initially recorded when the ARO was established. The amount of the remaining reduction to the ARO liability was recorded as a reduction to operating expenses.

Discontinued Operations:

- Photovoltaic and Digital Products Asset Sales: On December 10, 2014, SolAero Technologies Corporation (“SolAero”) purchased substantially all of the assets, and assumed substantially all of the liabilities, related to or used in connection with the Company’s photovoltaics business, including EMCORE’s subsidiaries EMCORE Solar Power, Inc. and EMCORE IRB Company, LLC (collectively, the “Photovoltaics Business”), for $149.9 million in cash, after giving effect to a $0.1 million working capital adjustment finalized and paid during the fiscal year ended September 30, 2015. On January 2, 2015, NeoPhotonics Corporation acquired certain assets, and assumed certain liabilities, of the Company’s telecommunications business (the “Digital Products Business”), for $17.0 million in cash and a notes receivable that was paid in April 2015. These asset sales are reported as discontinued operations, which require retrospective restatement of prior periods to classify the results of operations for the businesses sold as discontinued operations. No assets or liabilities that were sold from either the Photovoltaic Business or Digital Products Business remain on the consolidated balance sheet as of September 30, 2019, 2018, 2017 and 2016.

ITEM 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations

You should read the following discussion of our financial condition and results of operations in conjunction with the financial statements and the notes thereto included in Financial Statements under Item 1 within this Annual Report. The following discussion contains forward-looking statements that reflect our plans, estimates, and beliefs. Our actual results could differ materially from those discussed in the forward-looking statements. See Cautionary Statement Regarding Forward-Looking Statements.

Business Overview

EMCORE Corporation (referred to herein, together with its subsidiaries, as the “Company,” “we,” “our,” or “EMCORE”) was established in 1984 as a New Jersey corporation. The Company became publicly traded in 1997 and is listed on the Nasdaq Stock Exchange under the ticker symbol EMKR. EMCORE pioneered the linear fiber optic transmission technology that enabled the world’s first delivery of Cable TV directly on fiber, and today is a leading provider of advanced *Mixed-Signal Optics* products that enable communications systems and service providers to meet growing demand for increased bandwidth and connectivity. The *Mixed-Signal Optics* technology at the heart of our broadband communications products is shared with our fiber optic gyros and inertial sensors to provide the aerospace and defense markets with state-of-the-art navigations systems technology. With both analog and digital circuits on multiple chips, or even a single chip, the value of *Mixed-Signal* device solutions is often far greater than traditional digital applications and requires a specialized expertise held by EMCORE which is unique in the optics industry.

Recent Developments

On June 7, 2019, we completed the acquisition of SDI, a private-equity backed navigation systems provider with a scalable, chip-based platform for higher volume gyro applications utilizing Quartz MEMS technology. See Note 4 - Acquisition in the notes to our consolidated financial statements for additional information regarding this acquisition. Following the closing, we began integrating SDI into our current navigation product line and have included the financial results of SDI in our consolidated financial statements beginning on the acquisition date.

As part of the effort to streamline operations and move to a variable cost model in our Cable TV Lasers and Transmitters product lines, on October 25, 2019, we entered into an Asset Purchase Agreement (the “Purchase Agreement”) with Hytera Communications (Hong Kong) Company Limited, a limited liability company incorporated in Hong Kong (“Hytera HK”), and Shenzhen Hytera Communications Co., Ltd., a corporation formed under the laws of the P.R.C. (“Shenzhen Hytera”, and together with Hytera HK, the “Buyers”), pursuant to which the Buyers agreed to purchase from EMCORE certain CATV module and transmitter manufacturing equipment (the “Equipment”) owned by EMCORE and currently located at the manufacturing facility of EMCORE’s wholly-owned subsidiary, EMCORE Optoelectronics (Beijing) Co, Ltd., a corporation formed under the laws of the P.R.C., for an aggregate purchase price of approximately $5.54 million.

The Equipment will be transferred to the Buyers in three separate closings, which are expected to occur during the quarters ending December 31, 2019 and March 31, 2020, with payment for each portion of the equipment to be made following such transfer in an amount equal to (i) 80% of the applicable sale price within three months following the closing of the applicable sale and transfer and (ii) 20% of the applicable sale price within six months following the closing of the applicable sale and transfer. In October 2019, we received the first such payment in an amount equal to approximately $1.9 million.

Concurrently with entry into the Purchase Agreement, we entered into a Contract Manufacturing Agreement (the “Manufacturing Agreement”), dated as of October 25, 2019, with the Buyers pursuant to which the Buyers agreed to manufacture certain CATV module and transmitter products for EMCORE from a manufacturing facility located in Thailand for an initial five year term at product prices agreed to between the parties. In the Manufacturing Agreement, we agreed to pay certain shortfall penalties in the event that orders for manufactured products are below certain thresholds, which penalties shall not exceed $660,000 in any of the first of four specified 12 months periods, and which will not exceed approximately US$5.54 million in the aggregate following the fifth such 12 month period.

Additionally, we completed two other actions in the quarter ended September 30, 2019 by reducing the size of our CATV-related employee headcount and reducing the capacity of our wafer fab to one shift. These actions incurred one-time costs of $0.4 million in the quarter ended September 30, 2019 and are expected to result in annual cash savings of approximately $3.0 million beginning in the December 2019 quarter. These operational changes in CATV also fulfill a strategic objective of better positioning the CATV product lines to generate positive cash flow to help fund the other growth areas of EMCORE in Aerospace and Defense.

Critical Accounting Policies

The preparation of consolidated financial statements in conformity with U.S. GAAP requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities, as of the date of the financial statements, and the reported amounts of revenue and expenses during the reported period.

We develop estimates based on historical experience and on various assumptions about the future that are believed to be reasonable based on the best information available to us. Our reported financial position or results of operations may be materially different under changed conditions or when using different estimates and assumptions, particularly with respect to significant accounting policies. In the event that estimates or assumptions prove to differ from actual results, adjustments are made in subsequent periods to reflect more current information. A listing and description of our critical accounting policies includes the following:

Inventory

Inventory is stated at the lower of cost or net realizable value (first-in, first-out). Inventory that is expected to be used within the next 12 months is classified as current inventory. We write-down inventory once it has been determined that conditions exist that may not allow the inventory to be sold for its intended purpose or the inventory is determined to be excess or obsolete based on assumptions about future demand and market conditions. The charge related to inventory write-downs is recorded as a cost of revenue. We evaluate inventory levels at least quarterly against sales forecasts on a significant part-by-part basis, in addition to determining its overall inventory risk. We have incurred, and may in the future incur, charges to write-down our inventory. See Note 8 - Inventory in the notes to the consolidated financial statements for additional information related to our inventory.

Income Taxes

In accordance with the authoritative guidance on accounting for income taxes, we recognize income taxes using an asset and liability approach. This approach requires the recognition of taxes payable or refundable for the current year and deferred tax liabilities and assets for the future tax consequences of events that have been recognized in our consolidated financial statements or tax returns. The measurement of current and deferred taxes is based on provisions of the enacted tax law and the effects of future changes in tax laws or rates are not anticipated.

The authoritative guidance provides for recognition of deferred tax assets if the realization of such deferred tax assets is more likely than not to occur based on an evaluation of all available evidence, both positive and negative, and the relative weight of the evidence. We have determined that at this time it is more likely than not that deferred tax assets attributable to all other items will not be realized, primarily due to uncertainties related to our ability to utilize our net operating loss carryforwards before they expire. Accordingly, we have established a valuation allowance for such deferred tax assets which we do not expect to realize. If there is a change in our ability to realize our deferred tax assets for which a valuation allowance has been established, then our tax valuation allowance may decrease in the period in which we determine that realization is more likely than not. Likewise, if we determine that it is not more likely than not that deferred tax assets will be realized, then a valuation allowance may be established for such deferred tax assets and our tax provision may increase in the period in which we make the determination. See Note 12 - Income and other Taxes in the notes to the consolidated financial statements for additional information related to our income taxes.

Business Combinations

We apply significant estimates and judgments in order to determine the fair value of the identified tangible and intangible assets acquired, liabilities assumed and goodwill recognized in business combinations. The value of all assets and liabilities are recognized at fair value as of the acquisition date using a market participant approach. In measuring the fair value, we utilize a number of valuation techniques consistent with the market, income or cost approaches. To estimate fair value, we are required to make certain estimates and assumptions, including future economic and market conditions.

Revenue Recognition

We recognize revenue in accordance with the Financial Accounting Standards Board’s (“FASB”) Accounting Standards Codification (“ASC”) 606 Revenue from Contracts with Customers. The majority of our products have shipping terms that are free on board or free carrier alongside (“FCA”) shipping point, which means that we fulfill our delivery obligation and control has transferred to the customer when the goods are handed over to the freight carrier at our shipping dock. In those instances where inventory is maintained at a consigned location, revenue is recognized only when our customer pulls product for use and control has transferred to the customer. Any warranty cost and remaining obligations that are inconsequential or perfunctory are accrued when the corresponding revenue is recognized.

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The above listing is not intended to be a comprehensive list of all of our accounting policies. In many cases, U.S. GAAP specifically dictates the accounting treatment of a particular transaction. There are also areas in which management's judgment in selecting any available alternative would not produce a materially different result. For a complete discussion of our accounting policies, recently adopted accounting pronouncements, and other required U.S. GAAP disclosures, we refer you to the accompanying notes to our consolidated financial statements in this Annual Report.

Table of Contents

Results of Operations

The following table sets forth our consolidated statements of operations data expressed as a percentage of revenue:

	For the Fiscal Years ended September 30,		
	2019	2018	2017
Revenue	100.0 %	100.0 %	100.0 %
Cost of revenue	82.7	78.4	65.4
Gross profit	17.3	21.6	34.6
Operating expense:			
Selling, general, and administrative	36.8	24.8	18.1
Research and development	22.3	18.0	10.2
Impairments	—	—	0.4
Gain from change in estimate on ARO	—	0.2	—
(Gain) loss on sale of assets	(0.3)	—	(0.4)
Total operating expense	58.8	43.0	28.3
Operating (loss) income	(41.5)	(21.4)	6.3
Other income:			
Interest income, net	0.7	0.9	0.2
Foreign exchange (loss) gain	(0.5)	(0.5)	0.1
Other income	—	0.1	0.2
Total other income	0.2	0.5	0.5
(Loss) income before income tax (expense) benefit	(41.3)	(20.9)	6.8
Income tax (expense) benefit	(0.1)	0.5	(0.1)
Net (loss) income	(41.2)%	(20.4)%	6.7 %

Comparison of Financial Results for the Fiscal Years ended September 30, 2019 and 2018

(in thousands, except percentages)	For the Fiscal Years ended September 30,			
	2019	2018	$ Change	% Change
Revenue	$ 87,265	$ 85,617	$ 1,648	1.9%
Cost of revenue	72,176	67,130	5,046	7.5%
Gross profit	15,089	18,487	(3,398)	(18.4)%
Operating expense:				
Selling, general, and administrative	32,094	21,232	10,862	51.2%
Research and development	19,443	15,387	4,056	26.4%
Gain from change in estimate on ARO	(14)	145	(159)	(109.7)%
Loss on sale of assets	(302)	34	(336)	(988.2)%
Total operating expense	51,221	36,798	14,423	39.2%
Operating loss	(36,132)	(18,311)	(17,821)	(97.3)%
Other income (expense):				
Interest income, net	629	733	(104)	(14.2)%
Foreign exchange gain	(427)	(434)	7	1.6%
Total other income	202	409	(207)	(50.6)%
Loss before income tax (expense) benefit	(35,930)	(17,902)	(18,028)	(100.7)%
Income tax (expense) benefit	(54)	449	(503)	(112.0)%
Net loss	$ (35,984)	$ (17,453)	$ (18,531)	(106.2)%

Revenue

For the fiscal year ended September 30, 2019, revenue increased 1.9% compared to the prior year primarily driven by an increase in sales volume within our Chip Devices and Navigation Systems product line revenue partially offset by lower sales volume of our CATV systems portion of our Broadband product category. Included in Navigation Systems product line revenue is $9.8 million of revenue from SDI for the period of June 7, 2019 through September 30, 2019. The increase in the Chip Devices and Navigation Systems product line revenue are primarily the result of increased sales to two significant customers in the year ended September 30, 2019 compared to the prior year. The decrease in CATV sales is primarily the result of a decline in market demand in the fiscal year ended September 30, 2019 and a significant customer purchasing a large inventory accumulation in the fiscal year ended September 30, 2018.

Gross Profit

Our cost of revenue consists of raw materials, compensation expense including non-cash stock-based compensation expense, depreciation expense and other manufacturing overhead costs, expenses associated with excess and obsolete inventories, and product warranty costs. Historically, our cost of revenue as a percentage of revenue, which we refer to as our gross margin, has fluctuated significantly due to product mix, manufacturing yields and sales volumes, and inventory and specific product warranty charges.

Consolidated gross margins were 17.3% and 21.6% for the fiscal years ended September 30, 2019 and 2018, respectively.

Stock-based compensation expense within cost of revenue totaled approximately $0.5 million during each of the fiscal years ended September 30, 2019 and 2018.

For the fiscal year ended September 30, 2019, gross profit decreased by 18.4% when compared to the prior year. The decrease in gross profit for the fiscal year ended September 30, 2019 was primarily due to an increase in product costs and inventory related charges related to excess and obsolete inventory. The decrease in gross margin for the fiscal year ended September 30, 2019 was primarily due to lower revenues and higher product costs.

Selling, General and Administrative ("SG&A")

SG&A consists primarily of compensation expense including non-cash stock-based compensation expense related to executive, finance, and human resources personnel, as well as sales and marketing expenses, professional fees, legal and patent-related costs, and other corporate-related expenses.

Stock-based compensation expense within SG&A totaled approximately $1.5 million and $2.6 million for the fiscal years ended September 30, 2019 and 2018, respectively.

SG&A expense for the fiscal year ended September 30, 2019 was higher than the amount reported in the prior year primarily due to an increase in expense for professional services of $5.7 million, primarily as a result of the litigation proceedings with Phoenix the recording of $3.8 million of attorneys fees and costs arising from the arbitrator's modified partial final award in the litigation proceedings with Phoenix, the inclusion of $1.8 million of expense at SDI for the period of June 7, 2019 through September 30, 2019 and costs related to the acquisition of SDI of $0.8 million partially offset by a decrease in compensation expenses and an allowance for bad debt expenses.

As a percentage of revenue, SG&A expenses were 36.8% and 24.8% for the fiscal years ended September 30, 2019 and 2018, respectively.

Research and Development ("R&D")

R&D consists primarily of compensation expense including non-cash stock-based compensation expense, as well as engineering and prototype costs, depreciation expense, and other overhead expenses, as they relate to the design, development, and testing of our products. Our R&D costs are expensed as incurred. We believe that in order to remain competitive, we must invest significant financial resources in developing new product features and enhancements and in maintaining customer satisfaction worldwide.

Stock-based compensation expense within R&D totaled approximately $0.6 million during each of the fiscal years ended September 30, 2019 and 2018.

R&D expense for the fiscal year ended September 30, 2019 was higher than the amounts reported in the prior year primarily due to an increase in compensation costs and project spending, primarily in navigation systems and the inclusion of $1.5 million of R&D expense at SDI for the period of June 7, 2019 through September 30, 2019.

As a percentage of revenue, R&D expenses were 22.3% and 18.0% for the fiscal years ended September 30, 2019 and 2018, respectively.

(Gain) Loss from Change in Estimate on ARO

As a result of the revision in the estimated amount and timing of cash flows for ARO during the fiscal year ended September 30, 2019, the Company reduced the ARO liability by $14,000 and recorded a gain from change in estimate on ARO liability of $14,000. As a result of the revision in the estimated amount and timing of cash flows for ARO during the fiscal year ended September 30, 2018, the Company increased the ARO liability by $0.1 million and recorded a loss from change in estimate on ARO liability of $0.1 million.

Operating Loss

Operating loss represents revenue less the cost of revenue and direct operating expenses incurred. Operating loss is a measure that executive management uses to assess performance and make decisions. As a percentage of revenue, our operating loss was (41.4)% and (21.5)% for the fiscal years ended September 30, 2019 and 2018, respectively. The increase in operating loss as a percentage of revenue in the fiscal year ended September 30, 2019 compared to the prior year is primarily due to a decrease in gross profit and an increase in SG&A and R&D expense in the fiscal year ended September 30, 2019.

Other Income

Interest Income, net
During the fiscal years ended September 30, 2019 and 2018, we recorded $1.0 million and $0.7 million, respectively, of interest income earned on cash and cash equivalents balances, which was partially offset by interest expense and letter of credit fees related to our Credit Facility (as defined below). Interest income for the fiscal year ended September 30, 2019 was higher than the amount reported in the prior year due to higher interest income earned on cash and cash equivalents balances.

Foreign Exchange
Gains or losses from foreign currency transactions denominated in currencies other than the U.S. dollar, both realized and unrealized, are recorded as foreign exchange gain (loss) on our consolidated statements of operations and comprehensive (loss) income. The gain (losses) recorded relate to the change in value of the Yuan Renminbi relative to the U.S. dollar.

Income Tax Benefit (Expense)

For the fiscal year ended September 30, 2019, the Company recorded income tax expense of approximately $0.1 million. For the nine months ended September 30, 2018, the Company recorded income tax benefit of approximately $0.4 million. Income tax expense for the nine months ended September 30, 2019 is primarily comprised of state minimum tax expense. Income tax benefit for the nine months ended September 30, 2018 is primarily comprised of the effect of the Tax Act which eliminated Alternative Minimum Taxes and resulted in a refund to the Company of amounts paid in prior fiscal years.

Comparison of Financial Results for the Fiscal Years Ended September 30, 2018 and 2017

(in thousands, except percentages)	For the Fiscal Years ended September 30,			
	2018	2017	$ Change	% Change
Revenue	$ 85,617	$ 122,895	$ (37,278)	(30.3)%
Cost of revenue	67,130	80,361	(13,231)	(16.5)%
Gross profit	18,487	42,534	(24,047)	(56.5)%
Operating expense (income):				
Selling, general, and administrative	21,232	22,246	(1,014)	(4.6)%
Research and development	15,387	12,542	2,845	22.7%
Impairments	—	506	(506)	(100.0)%
Loss (gain) from change in estimate on ARO	145	(45)	190	422.2%
Loss (gain) on sale of assets	34	(456)	490	107.5%
Total operating expense	36,798	34,793	2,005	5.8%
Operating (loss) income	(18,311)	7,741	(26,052)	(336.5)%
Other income (expense):				
Interest income, net	733	245	488	199.2%
Foreign exchange (loss) gain	(434)	82	(516)	(629.3)%
Other income	110	316	(206)	(65.2)%
Total other income	409	643	(234)	(36.4)%
(Loss) income from continuing operations before income tax benefit (expense)	(17,902)	8,384	(26,286)	(313.5)%
Income tax benefit (expense)	449	(163)	612	375.5%
(Loss) income from continuing operations	(17,453)	8,221	(25,674)	(312.3)%
Income from discontinued operations, net of tax	—	14	(14)	(100.0)%
Net (loss) income	$ (17,453)	$ 8,235	$ (25,688)	(311.9)%

Revenue

For the fiscal year ended September 30, 2018, revenue decreased 30.3% compared to the prior year driven by lower sales volume of our CATV components and RFoG, products primarily to U.S. customers, partially offset by increases in revenue from our Chip Devices and Navigation Systems product lines. The decrease in CATV components was primarily the result of a significant customer experiencing a large inventory accumulation due to the consolidation of contract manufacturers' inventory in the U.S.

Gross Profit

Our cost of revenue consists of raw materials, compensation expense including non-cash stock-based compensation expense, depreciation expense and other manufacturing overhead costs, expenses associated with excess and obsolete inventories, and product warranty costs. Historically, our cost of revenue as a percentage of revenue, which we refer to as our gross margin, has fluctuated significantly due to product mix, manufacturing yields and sales volumes, and inventory and specific product warranty charges.

Consolidated gross margins were 21.6% and 34.6% for the fiscal years ended September 30, 2018 and 2017, respectively.

Stock-based compensation expense within cost of revenue totaled approximately $0.5 million during each of the fiscal years ended September 30, 2018 and 2017.

For the fiscal year ended September 30, 2018, gross profit decreased by 56.5% when compared to the prior year. The decrease in gross profit for the fiscal year ended September 30, 2018 was primarily due to lower sales and production volumes, resulting in lower operating leverage due to higher fixed manufacturing labor and expenses and higher wafer fabrication expenses. The decrease in gross margin for the fiscal year ended September 30, 2018 was primarily due to lower revenue. During the fiscal year ended September 30, 2018, we experienced higher inventory related charges related to excess and obsolete inventory.

Selling, General and Administrative (“SG&A”)

SG&A consists primarily of compensation expense including non-cash stock-based compensation expense related to executive, finance, and human resources personnel, as well as sales and marketing expenses, professional fees, legal and patent-related costs, and other corporate-related expenses.

Stock-based compensation expense within SG&A totaled approximately $2.6 million during each of the fiscal years ended September 30, 2018 and 2017.

SG&A expense for the fiscal year ended September 30, 2018 was slightly lower than the amount reported in the prior year primarily due to lower compensation costs and severance expenses partially offset by an increase in expense for professional services, an increase in the allowance for bad debts and the costs incurred in connection with the closing of our Pennsylvania facility.

As a percentage of revenue, SG&A expenses were 24.8% and 18.1% for fiscal years ended September 30, 2018 and 2017, respectively. The increase in SG&A expense as a percentage of revenue in the fiscal year ended September 30, 2018 compared to the prior year is due to the decrease in revenues in the fiscal year ended September 30, 2018.

Research and Development (“R&D”)

R&D consists primarily of compensation expense including non-cash stock-based compensation expense, as well as engineering and prototype costs, depreciation expense, and other overhead expenses, as they related to the design, development, and testing of our products. Our R&D costs are expensed as incurred. We believe that in order to remain competitive, we must invest significant financial resources in developing new product features and enhancements and in maintaining customer satisfaction worldwide.

Stock-based compensation expense within R&D totaled approximately $0.6 million and $0.5 million during the fiscal years ended September 30, 2018 and 2017, respectively.

R&D expense for the fiscal year ended September 30, 2018 was higher than the amounts reported in the same period in 2017 primarily due to an increase in compensation costs and project spending, primarily in navigation systems.

As a percentage of revenue, R&D expenses were 18.0% and 10.2% for the fiscal years ended September 30, 2018 and 2017, respectively. The increase in R&D expense as a percentage of revenue in the fiscal year ended September 30, 2018 compared to the prior year is due to the decrease in revenues and higher R&D expense in the fiscal year ended September 30, 2018.

Impairments

In March 2017, in connection with our opening of a new manufacturing facility in China, we identified equipment with a net book value of approximately $0.6 million that would no longer be utilized after the planned move later in fiscal year 2017. After taking into consideration the costs of disposal and estimated net funds from the sale of the equipment of approximately $0.1 million, we recorded a charge to impairments of approximately $0.5 million in the fiscal year ended September 30, 2017. See Note 9 - Property, Plant and Equipment, net in the notes to the consolidated financial statements for additional information.

Loss (Gain) from Change in Estimate on ARO

As a result of the revision in the estimated amount and timing of cash flows for ARO during the fiscal year ended September 30, 2018, the Company increased the ARO liability by $0.1 million and recorded a loss from change in estimate on ARO liability of $0.1 million. As a result of the revision in the estimated amount and timing of cash flows for ARO during the fiscal year ended September 30, 2017, the Company reduced the ARO liability by $45,000 and recorded a gain from change in estimate on ARO liability of $45,000. See Note 13 - Commitments and Contingencies in the notes to the consolidated financial statements for additional information.

Operating (Loss) Income

Operating (loss) income represents revenue less the cost of revenue and direct operating expenses incurred. Operating (loss) income is a measure of profit and loss that executive management uses to assess performance and make decisions. As a percentage of revenue, our operating (loss) income was (21.5)% and 6.3% for the fiscal years ended September 30, 2018 and 2017, respectively. The decrease in operating income as a percentage of revenue in the fiscal year ended September 30, 2018 compared to the prior year is primarily due to the decline in gross profit in the fiscal year ended September 30, 2018.

Other Income (Expense)

Interest Income, net
During the fiscal years ended September 30, 2018 and 2017, we recorded $0.7 million and $0.4 million, respectively, of interest income earned on cash and cash equivalents balances, which was partially offset by interest expense and letter of credit fees related to our Credit Facility (as defined below). Interest income for the fiscal year ended September 30, 2018 was higher than the amount reported in the prior year due to higher interest income earned on cash and cash equivalents balances.

Foreign Exchange
Gains or losses from foreign currency transactions denominated in currencies other than the U.S. dollar, both realized and unrealized, are recorded as foreign exchange gain (loss) on our consolidated statements of operations and comprehensive (loss) income. The gain (losses) recorded relate to the change in value of the Yuan Renminbi relative to the U.S. dollar.

Income Tax Benefit (Expense)

For the fiscal year ended September 30, 2018, the Company recorded income tax benefit from continuing operations of approximately $0.4 million, and $0 of income tax benefit within income from discontinued operations. The income tax benefit is primarily comprised of the effect of recent changes in tax laws in December 2017 that eliminates the Alternative Minimum Tax (“AMT”) and will result in a refund to the Company of amounts paid in prior fiscal years and the fiscal year 2018 operating loss. See Note 12 - Income and other Taxes in the notes to the consolidated financial statements for additional disclosures. For the fiscal year ended September 30, 2017, the Company recorded income tax expense from continuing operations of approximately $0.2 million.

Liquidity and Capital Resources

Other than the fiscal years ended September 30, 2018 and 2017, in recent years we have historically consumed cash from operations and, in most periods, we have incurred operating losses from continuing operations. We have managed our liquidity position through the sale of assets and cost reduction initiatives, as well as, from time to time in prior periods, borrowings from our Credit Facility (defined below) and capital markets transactions.

As of September 30, 2019, cash and cash equivalents totaled $21.6 million and net working capital totaled approximately $41.3 million. Net working capital, calculated as current assets minus current liabilities, is a financial metric we use which represents available operating liquidity. With respect to measures related to liquidity:

- Credit Facility: On November 11, 2010, we entered into a Credit and Security Agreement (as amended to date, th“Credit Facility”) with Wells Fargo Bank, N.A. (“Wells Fargo”). The Credit Facility currently provides us with a revolving credit line of up to $15.0 million that can be used for working capital requirements, letters of credit, acquisitions, and other general corporate purposes subject to requirements, (a) that the Company have (i) liquidity of at least $7.5 million, and (ii) for certain specific uses, liquidity of at least $25.0 million after such use and (b) that the Company maintain excess availability of at least $1.0 million. The Credit Facility has a maturity date expiring in November 2021 and is secured by the Company's assets and is subject to a borrowing base formula based on the Company's eligible accounts receivable, inventory, and machinery and equipment accounts. See Note 11 - Credit Facilities in the notes to the consolidated financial statements for additional disclosures. As of December 6, 2019, there was an outstanding balance under this Credit Facility of $3.2 million, $0.5 million reserved for one outstanding stand-by letter of credit and $1.3 million available for borrowing.

The Company has a history of operating losses and negative cash flows from operations. We believe that our existing balances of cash and cash equivalents, cash flows from operations and amounts expected to be available under our Credit Facility will provide us with sufficient financial resources to meet our cash requirements for operations, working capital, and capital expenditures for at least the next twelve months from the issuance date of these financial statements. We have taken a number of actions to continue to support our operations and meet our obligations, including headcount reductions and other cost reductions. In addition, should we require more capital than what is generated by our operations, we could engage in additional sales or other monetization of certain fixed assets and real estate, additional cost reductions, or elect to raise capital in the U.S. through debt or equity issuances. These alternatives could result in higher effective tax rates, increased interest expense, and/or dilution of our earnings.

Cash Flow

Net Cash (Used In) Provided By Operating Activities

Operating Activities *(in thousands, except percentages)*	For the Fiscal Years ended September 30,			Fiscal 2019 vs Fiscal 2018		Fiscal 2018 vs Fiscal 2017	
	2019	**2018**	**2017**	**$ Change**	**% Change**	**$ Change**	**% Change**
Net cash (used in) provided by operating activities (net of acquired assets and assumed liabilities)	$ (15,151)	$ 1,470	$ 11,701	$ (16,621)	(1,130.7)%	$ (10,231)	(87.4)%

Fiscal 2019:
For the fiscal year ended September 30, 2019, our operating activities used cash of $15.2 million, primarily due to our net loss of $36.0 million, partially offset by a gain on disposal of equipment of $0.3 million, changes in our operating assets and liabilities (or working capital components, which includes non-current inventory) of $10.7 million, depreciation and amortization expense of $7.1 million, stock-based compensation expense of $2.6 million, warranty provision of $0.2 million and bad debt provision of $0.1 million. The change in our operating assets and liabilities was primarily the result of a decrease in accounts receivable of $4.0 million and an increase in accrued expenses and other liabilities of $5.0 million, partially offset by a decrease in inventory of $6.5 million and other assets of $0.2 million and a decrease in accounts payable of $4.5 million.

Fiscal 2018:
For the fiscal year ended September 30, 2018, our operating activities provided cash of $1.5 million primarily due to changes in our operating assets and liabilities (or working capital components, which includes non-current inventory) of $8.2 million, depreciation and amortization expense of $5.6 million, stock-based compensation expense of $3.6 million, provision for doubtful accounts of $0.6 million, warranty provision of $0.4 million and loss on disposal of equipment of $34,000 partially offset by our net loss of $17.5 million. The change in our operating assets and liabilities was primarily the result of a decrease in accounts receivable of $2.4 million, inventory of $5.1 million, other assets of $0.6 million and an increase in accounts payable of $0.5 million partially offset by a decrease in accrued expenses and other liabilities of $0.4 million.

Fiscal 2017:
For the fiscal year ended September 30, 2017, our operating activities provided cash of $11.7 million primarily due to our net income of $8.2 million, depreciation, amortization and accretion expense of $3.8 million, stock-based compensation expense of $3.6 million, impairment charge of $0.5 million and warranty provision of $0.6 million, partially offset by a change in our operating assets and liabilities (or working capital components, which includes non-current inventory) of $4.5 million. The change in our operating assets and liabilities was primarily the result of an increase in accounts receivable of $3.9 million, inventory of $0.1 million and other assets of $4.5 million, and a decrease in accrued expenses and other liabilities of $0.2 million partially offset by an increase in accounts payable of approximately $2.1 million.

Working Capital Components:

Accounts Receivable: We generally expect the level of accounts receivable at any given quarter end to reflect the level of sales in that quarter. Our accounts receivable balances have fluctuated historically due to the timing of account collections, timing of product shipments, and/or change in customer credit terms.

Inventory: We generally expect the level of inventory at any given quarter end to reflect the change in our expectations of forecasted sales during the quarter. Our inventory balances have fluctuated historically due to the timing of customer orders and product shipments, changes in our internal forecasts related to customer demand, as well as adjustments related to excess and obsolete inventory and the purchase of non-current inventory.

Accounts Payable: The fluctuation of our accounts payable balances is primarily driven by changes in inventory purchases as well as changes related to the timing of actual payments to vendors.

Accrued Expenses: Our largest accrued expense typically relates to compensation. Historically, fluctuations of our accrued expense accounts have primarily related to changes in the timing of actual compensation payments, receipt or application of advanced payments, adjustments to our warranty accrual, and accruals related to professional fees.

Net Cash Used In Investing Activities

Investing Activities *(in thousands, except percentages)*	**For the Fiscal Years ended September 30,**			**Fiscal 2019 vs Fiscal 2018**		**Fiscal 2018 vs Fiscal 2017**	
	2019	**2018**	**2017**	**$ Change**	**% Change**	**$ Change**	**% Change**
Net cash used in investing activities	$ (31,803)	$ (6,501)	$ (9,126)	$ (25,302)	(389.2)%	$ 2,625	28.8%

Fiscal 2019:
For the fiscal year ended September 30, 2019, our investing activities used $31.8 million of cash, incuding $21.5 million for the acquisition of SDI, net of cash acquired, and capital-related expenditures of $10.8 million primarily related to investment in our wafer fabrication facility partially offset by proceeds from the disposal of equipment of $0.5 million.

Fiscal 2018:
For the fiscal year ended September 30, 2018, our investing activities used $6.5 million of cash for capital related expenditures of $6.6 million, primarily related to investment in our wafer fabrication facility, partially offset by the receipt of proceeds from the disposal of equipment of $0.1 million.

Fiscal 2017:
For the fiscal year ended September 30, 2017, our investing activities used $9.1 million of cash primarily for capital related expenditures of $9.6 million, partially offset by the receipt of proceeds from the disposal of equipment of $0.5 million.

Net Cash Provided By (Used In) Financing Activities

Financing Activities *(in thousands, except percentages)*	For the Fiscal Years ended September 30,					Fiscal 2018 vs Fiscal 2017	
	2019	2018	2017	$ Change	% Change	$ Change	% Change
Net cash provided by (used in) financing activities	$ 5,799	$ (487)	$ 1,306	$ 6,286	1,290.8%	$ (1,793)	(137.3)%

Fiscal 2019:
For the fiscal year ended September 30, 2019, our financing activities provided cash of $5.8 million, primarily from $5.5 million of proceeds related to borrowings from our bank credit facility and stock plan transactions of $0.5 million, partially offset by tax withholding paid on behalf of employees for stock-based awards of $0.2 million.

Fiscal 2018:
For the fiscal year ended September 30, 2018, our financing activities used cash of $0.5 million, primarily for tax withholding paid on behalf of employees for stock-based awards of $1.3 million, partially offset by proceeds from stock plan transactions of $0.8 million.

Fiscal 2017:
For the fiscal year ended September 30, 2017, our financing activities provided cash of $1.3 million from proceeds from stock transactions.

Contractual Obligations and Commitments

Our contractual obligations and commitments for the remainder of fiscal 2019 and over the next five fiscal years are summarized in the table below (and are presented as of September 30, 2019):

(in thousands)	Total	Less than a year	1 to 3 years	4 to 5 years	Over 5 years
Purchase obligations	$ 19,532	$ 9,636	$ 9,816	$ 80	$ —
Asset retirement obligations	2,125	—	—	59	2,066
Operating lease obligations	5,509	988	1,663	1,508	1,350
Total contractual obligations and commitments	$ 27,166	$ 10,624	$ 11,479	$ 1,647	$ 3,416

Interest payments are not included in the contractual obligations and commitments table above since they are insignificant to our consolidated results of operations.

The contractual obligations and commitments table above also excludes unrecognized tax benefits, because we are unable to reasonably estimate the period during which this obligation may be incurred, if at all. As of September 30, 2019, we had unrecognized tax benefits of $0.4 million.

Purchase Obligations
Our purchase obligations represent an estimate of all open purchase orders and contractual obligations in the ordinary course of business for which we have not received the goods or services as of September 30, 2019. Although open purchase orders are considered enforceable and legally binding, the terms generally allow us the option to cancel, reschedule and adjust our requirements based on our business needs prior to the delivery of goods or performance of services.

The purchase obligations of $19.5 million set forth above include, as of September 30, 2019, $1.0 million that the Company has committed for the purchase and installation of capital equipment. In addition, we expect to incur, during the fiscal year ending September 30, 2020, an additional $1.0 million to complete the purchase and installation of capital equipment, which we expect to fund via cash on hand.

Asset Retirement Obligations
We have known conditional ARO conditions, such as certain asset decommissioning and restoration of rented facilities to be performed in the future. Our ARO includes assumptions related to renewal option periods where we expect to extend facility lease terms. Revisions in estimated liabilities can result from revisions of estimated inflation rates, escalating retirement costs, and changes in the estimated timing of settling the ARO. See Note 13 - Commitments and Contingencies in the notes to the consolidated financial statements for additional information related to our AROs.

Operating Leases
Operating leases include non-cancelable terms and exclude renewal option periods, property taxes, insurance and maintenance expenses on leased properties. See Note 13 - Commitments and Contingencies in the notes to the consolidated financial statements for additional information related to our operating lease obligations.

Off-Balance Sheet Arrangements

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

ITEM 7A. Quantitative and Qualitative Disclosures about Market Risks

We are exposed to financial market risks, including changes in currency exchange rates and interest rates. We do not use derivative financial instruments for speculative purposes.

Foreign Currency Exchange Risks

The United States dollar is the reporting currency for our consolidated financial statements. The functional currency for our China subsidiary is the Yuan Renminbi.

We recognize translation adjustments due to the effect of changes in the value of the Yuan Renminbi relative to the U.S. dollar associated with our operations in China. The assets and liabilities of our foreign operations are translated from their respective functional currencies into U.S. dollars at the rates in effect at the consolidated balance sheet dates, and the revenue and expense amounts are translated at the average rate during the applicable periods reflected on the consolidated statements of operations and comprehensive (loss) income. Foreign currency translation adjustments are recorded as accumulated other comprehensive (loss) income.

Gains and losses from foreign currency transactions denominated in currencies other than the U.S. dollar, both realized and unrealized, are recorded as foreign exchange gain (loss) on our consolidated statements of operations and comprehensive (loss) income.

During the normal course of business, we are exposed to market risks associated with fluctuations in foreign currency exchange rates due to the Yuan Renminbi. To reduce the impact of these risks on our earnings and to increase the predictability of cash flows, we use natural offsets in receipts and disbursements within the applicable currency as the primary means of reducing the risk.

Some of our foreign suppliers may adjust their prices (in U.S. dollars) from time to time to reflect currency exchange fluctuations, and such price changes could impact our future financial condition or results of operations. We do not currently hedge our foreign currency exposure.

Interest Rate Risks

We monitor our interest rate risk on cash balances primarily through cash flow forecasting. Cash that is surplus to immediate requirements is invested in short-term deposits with banks accessible with short notice and invested in money market accounts. We believe our current interest rate risk is immaterial.

On November 11, 2010, we entered into a Credit and Security Agreement (as amended, the “Credit Facility”) with Wells Fargo Bank, N.A. The Credit Facility is secured by the Company's assets and is subject to a borrowing base formula based on the Company's eligible accounts receivable, inventory, and machinery and equipment accounts.

On July 27, 2017, we entered into a Ninth Amendment of the Credit Facility which adjusted the interest rate to LIBOR plus 1.75%. On November 7, 2018, we entered into a Tenth Amendment of the Credit Facility which extended the maturity date of the facility to November 2021. The Credit Facility currently provides us with a revolving credit line of up to $15.0 million, subject to a borrowing base formula, that can be used for working capital requirements, letters of credit, acquisitions, and other general corporate purpose subject to a requirement, for certain specific uses, that the Company have liquidity of at least $25.0 million after such use.

Based on the LIBOR rate loans outstanding under our credit facility during the fiscal year ended September 30, 2019, a hypothetical 50 basis points increase in interest rates would have resulted in an insignificant amount of additional interest expense.

Inflation Risks

Inflationary factors, such as increases in material costs and operating expenses, may adversely affect our results of operations and cash flows. Although we do not believe that inflation has had a material impact on our financial position or results of operations to date, an increase in the rate of inflation in the future may have an adverse effect on the levels of gross profit and operating expenses as a percentage of revenue if the sales prices for our products do not proportionately increase with these increases in expenses.

Credit Market Conditions

The U.S. and global capital markets periodically experience turbulent conditions, particularly in the credit markets, which can result in tightening of lending standards, reduced availability of credit, and reductions in certain asset values. This could impact our ability to obtain additional funding through financing or asset sales.

ITEM 8. Financial Statements and Supplementary Data

EMCORE CORPORATION
Consolidated Statements of Operations and Comprehensive (Loss) Income
For the Fiscal Years ended September 30, 2019, 2018 and 2017
(in thousands, except per share data)

	For the Fiscal Year ended September 30,		
	2019	**2018**	**2017**
Revenue	$ 87,265	$ 85,617	$ 122,895
Cost of revenue	72,176	67,130	80,361
Gross profit	15,089	18,487	42,534
Operating expense:			
Selling, general, and administrative	32,094	21,232	22,246
Research and development	19,443	15,387	12,542
Impairments	—	—	506
(Gain) loss from change in estimate on ARO obligation	(14)	145	(45)
(Gain) loss on sale of assets	(302)	34	(456)
Total operating expense	51,221	36,798	34,793
Operating loss	(36,132)	(18,311)	7,741
Other income:			
Interest income, net	629	733	245
Foreign exchange (loss) gain	(427)	(434)	82
Other income	—	110	316
Total other (loss) income	202	409	643
Loss before income tax (expense) benefit	(35,930)	(17,902)	8,384
Income tax (expense) benefit	(54)	449	(163)
(Loss) income from continuing operations	(35,984)	(17,453)	8,221
Income from discontinued operations, net of tax	—	—	14
Net loss	$ (35,984)	$ (17,453)	$ 8,235
Foreign exchange translation adjustment	65	324	(18)
Comprehensive (loss) income	$ (35,919)	$ (17,129)	$ 8,217
Per share data:			
Net (loss) income per basic share:			
Continuing operations	$ (1.29)	$ (0.64)	$ 0.31
Discontinued operations	—	—	0.00
Net loss per basic share	$ (1.29)	$ (0.64)	$ 0.31
Net (loss) income per diluted share:			
Continuing operations	$ (1.29)	$ (0.64)	$ 0.30
Discontinued operations	—	—	0.00
Net (loss) income per diluted share	$ (1.29)	$ (0.64)	$ 0.30
Weighted-average number of basic and diluted shares outstanding	27,983	27,266	26,659
Weighted-average number of diluted shares outstanding	27,983	27,266	27,544

The accompanying notes are an integral part of these consolidated financial statements.

EMCORE CORPORATION
Consolidated Balance Sheets
As of September 30, 2019 and 2018
(in thousands)

	As of September 30,	
	2019	**2018**
ASSETS		
Current assets:		
Cash and cash equivalents	$ 21,574	$ 63,117
Restricted cash	403	78
Accounts receivable, net of allowance of $148 and $548, respectively	18,497	19,275
Contract assets	1,055	—
Inventory	24,051	20,850
Prepaid expenses and other current assets	6,389	6,098
Total current assets	71,969	109,418
Property, plant, and equipment, net	37,223	18,216
Goodwill	69	—
Intangible assets, net	239	—
Non-current inventory	—	1,433
Other non-current assets	62	199
Total assets	$ 109,562	$ 129,266
LIABILITIES and SHAREHOLDERS' EQUITY		
Current liabilities:		
Borrowings from credit facility	$ 5,497	$ —
Accounts payable	10,701	12,997
Accrued expenses and other current liabilities	14,521	7,573
Total current liabilities	30,719	20,570
Asset retirement obligations	1,890	1,809
Other long-term liabilities	207	82
Total liabilities	32,816	22,461
Commitments and contingencies (Note 13)		
Shareholders' equity:		
Common stock, no par value, 50,000 shares authorized; 35,803 shares issued and 28,893 shares outstanding as of September 30, 2019; 34,487 shares issued and 27,577 shares outstanding as of September 30, 2018	739,926	734,066
Treasury stock at cost; 6,910 shares	(47,721)	(47,721)
Accumulated other comprehensive income	950	885
Accumulated deficit	(616,409)	(580,425)
Total shareholders' equity	76,746	106,805
Total liabilities and shareholders' equity	$ 109,562	$ 129,266

The accompanying notes are an integral part of these consolidated financial statements.

EMCORE CORPORATION
Consolidated Statements of Shareholders' Equity
For the Fiscal Years ended September 30, 2019, 2018 and 2017
(in thousands)

	For the Fiscal Year ended September 30,		
	2019	**2018**	**2017**
Shares of Common Stock			
Balance, beginning of period	27,577	27,028	26,244
Stock-based compensation	307	372	432
Stock option exercises	1	6	158
Issuance of common stock for acquisition	811	—	—
Issuance of common stock - Board of Directors	—	—	61
Issuance of common stock - ESPP	197	171	133
Balance, end of period	28,893	27,577	27,028
Value of Common Stock			
Balance, beginning of period	$ 734,066	$ 730,906	725,666
Stock-based compensation	2,607	3,648	3,602
Stock option exercises	1	28	534
Tax withholding paid on behalf of employees for stock-based awards	(203)	(1,257)	—
Issuance of common stock for acquisition	2,951	—	—
Issuance of common stock - Board of Directors	—	—	331
Issuance of common stock - ESPP	504	741	773
Balance, end of period	739,926	734,066	730,906
Treasury stock, beginning and ending of period	(47,721)	(47,721)	(47,721)
Accumulated Other Comprehensive Income			
Balance, beginning of period	885	561	579
Translation adjustment	65	324	(18)
Balance, end of period	950	885	561
Accumulated Deficit			—
Balance, beginning of period	(580,425)	(562,972)	(571,207)
Net loss	(35,984)	(17,453)	8,235
Balance, end of period	**(616,409)**	**(580,425)**	**(562,972)**
Total Shareholders' Equity	**$ 76,746**	**$ 106,805**	**$ 120,774**

The accompanying notes are an integral part of these consolidated financial statements..

EMCORE CORPORATION
Consolidated Statements of Cash Flows
For the Fiscal Years ended September 30, 2019, 2018 and 2017
(in thousands)

	For the Fiscal Year ended September 30,		
	2019	**2018**	**2017**
Cash flows from operating activities:			
Net loss	$ (35,984)	$ (17,453)	$ 8,235
Adjustments to reconcile net loss to net cash provided by operating activities:			
Depreciation and amortization expense	7,142	5,617	3,757
Stock-based compensation expense	2,607	3,648	3,602
Provision adjustments related to doubtful accounts	62	599	23
Provision adjustments related to product warranty	186	431	573
Impairments of equipment	—	—	506
Net (gain) loss on disposal of equipment	(302)	34	(456)
Other	464	412	(50)
Total non-cash adjustments	10,159	10,741	7,955
Changes in operating assets and liabilities, net of acquired assets and assumed liabilities:			
Accounts receivable and contract assets	3,980	2,372	(3,859)
Inventory	6,486	5,067	(140)
Prepaid expenses and other assets	(238)	784	(2,397)
Accounts payable	(4,539)	477	2,095
Accrued expenses and other current liabilities	4,985	(518)	(188)
Total change in operating assets and liabilities	10,674	8,182	(4,489)
Net cash (used in) provided by operating activities	(15,151)	1,470	11,701
Cash flows from investing activities:			
Purchases of equipment	(10,790)	(6,583)	(9,600)
Acquisition of business, net of cash acquired	(21,483)	—	—
Proceeds from disposal of property, plant and equipment	470	82	474
Net cash used in investing activities	(31,803)	(6,501)	(9,126)
Cash flows from financing activities:			
Proceeds from borrowings of credit facilities	5,497	—	—
Proceeds from exercise of equity awards	505	770	1,306
Taxes paid related to net share settlement of equity awards	(203)	(1,257)	—
Net cash provided by (used in) financing activities	5,799	(487)	1,306
Effect of exchange rate changes provided by foreign currency	(63)	(41)	3
Net (decrease) increase in cash, cash equivalents and restricted cash	(41,218)	(5,559)	3,884
Cash, cash equivalents and restricted cash at beginning of period	63,195	68,754	64,870
Cash, cash equivalents and restricted cash at end of period	$ 21,977	$ 63,195	$ 68,754
SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION			
Cash paid during the period for interest	$ 126	$ 63	$ 71
Cash paid during the period for income taxes	$ 68	$ 131	$ 114
NON-CASH INVESTING AND FINANCING ACTIVITIES			
Changes in accounts payable related to purchases of equipment	$ (180)	$ 755	$ (861)
Issuance of common stock to Board of Directors	$ —	$ —	$ 331

The accompanying notes are an integral part of these consolidated financial statements.

EMCORE Corporation
Notes to our Consolidated Financial Statements

NOTE 1. Description of Business

Business Overview

EMCORE Corporation (referred to herein, together with its subsidiaries, as the “Company,” “we,” “our,” or “EMCORE”) was established in 1984 as a New Jersey corporation. The Company became publicly traded in 1997 and is listed on the Nasdaq stock exchange under the ticker symbol EMKR. EMCORE pioneered the linear fiber optic transmission technology that enabled the world’s first delivery of Cable TV directly on fiber, and today is a leading provider of advanced *Mixed-Signal Optics* products that enable communications systems and service providers to meet growing demand for increased bandwidth and connectivity. The *Mixed-Signal Optics* technology at the heart of our broadband communications products is shared with our fiber optic gyros and inertial sensors to provide the aerospace and defense markets with state-of-the-art navigation systems technology. With both analog and digital circuits on multiple chips, or even a single chip, the value of *Mixed-Signal* device solutions are often far greater than traditional digital applications and requires a specialized expertise held by EMCORE which is unique in the optics industry.

We currently have one reporting segment: Fiber Optics. This segment is comprised of three product lines: Broadband (which includes Cable TV (“CATV”) systems and components, radio frequency over glass products, satellite/microwave communications products and wireless communication products), Chip Devices and Navigation Systems.

NOTE 2. Summary of Significant Accounting Policies

Principles of Consolidation: Our consolidated financial statements have been prepared in accordance with U.S. GAAP and include the assets, liabilities, shareholders' equity, and operating results of the Company and its wholly owned subsidiaries. All significant intercompany accounts and transactions have been eliminated in consolidation. We are not the primary beneficiary of, nor do we hold a significant variable interest in, any variable interest entity.

The Company has a history of operating losses and negative cash flows from operations. The Company has taken a number of actions to continue to support its operations and meet its obligations, including headcount reductions and cost reductions. In addition, we expect to generate additional liquidity through the monetization of certain fixed assets and real estate. The Company believes that its existing liquidity will be sufficient to meet anticipated cash needs for at least the next 12 months from the issuance date of these financial statements.

The consolidated financial statements included herein have been prepared on a going concern basis, which contemplates continuity of operations and the realization of assets and the repayment of liabilities in the ordinary course of business. Management evaluated the significance of the Company’s operating loss and determined that the Company’s current operating plan and sources of capital would be sufficient to alleviate concerns about the Company’s ability to continue as a going concern.

The Company recorded adjustments to decrease “prepaid expenses and other current assets” and “accrued expenses and other current liabilities” by $6.6 million as of September 30, 2018. The adjustments also impacted the changes in operating assets and liabilities in the consolidated statements of cash flows. The adjustments were made to appropriately derecognize receivables and payables for value added tax that had settled. These adjustments had no impact on net loss or cash provided by operating activities.

Use of Estimates: The preparation of consolidated financial statements in conformity with U.S. GAAP requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities, as of the date of the financial statements, and the reported amounts of revenue and expenses during the reported period. Such estimates include accounts receivable; inventories; goodwill; long-lived assets; product warranty liabilities; legal contingencies; and income taxes.

We develop estimates based on historical experience and on various assumptions about the future that are believed to be reasonable based on the best information available to us. Our reported financial position or results of operations may be materially different under changed conditions or when using different estimates and assumptions, particularly with respect to significant accounting policies. In the event that estimates or assumptions prove to differ from actual results, adjustments are made in subsequent periods to reflect more current information.

Concentration of Credit Risk: Financial instruments that may subject us to concentrations of credit risk consist primarily of cash and cash equivalents and accounts receivable. Our cash and cash equivalents are held in safekeeping primarily with Wells Fargo. When necessary, we perform credit evaluations on our customers' financial condition and occasionally we request deposits in advance of shipping product to our customers. These financial evaluations require significant judgment and are based on a variety of factors including, but not limited to, current economic trends, historical payment patterns, bad debt write-off experience, and financial review of the particular customer.

Cash and Cash Equivalents: Cash and cash equivalents consists primarily of bank deposits and highly liquid short-term investments with a maturity of three months or less at the time of purchase.

Restricted Cash: Restricted cash represents recently deposited cash that is temporarily restricted by our bank in accordance with the terms of the outstanding credit facility.

Accounts Receivable: We regularly evaluate the collectability of our accounts receivable and maintain allowances for doubtful accounts for estimated losses resulting from the inability of our customers to meet their financial obligations to us. The allowance is based on the age of receivables and a specific identification of receivables considered at risk of collection. We classify charges associated with the allowance for doubtful accounts as selling, general, and administrative expense.

Inventory: Inventory is stated at the lower of cost or net realizable value (first-in, first-out). Inventory that is expected to be used within the next 12 months is classified as current inventory. We write-down inventory once it has been determined that conditions exist that may not allow the inventory to be sold for its intended purpose or the inventory is determined to be excess or obsolete based on assumptions about future demand and market conditions. The charge related to inventory write-downs is recorded as a cost of revenue. We evaluate inventory levels at least quarterly against sales forecasts on a significant part-by-part basis, in addition to determining its overall inventory risk. We have incurred, and may in the future incur charges to write-down our inventory. See Note 8 - Inventory in the notes to the consolidated financial statements for additional information related to our inventory.

Property, Plant, and Equipment: Our property, plant, and equipment are recorded at cost. Plant and equipment are depreciated on a straight-line basis over the following estimated useful lives of the assets:

Description	**Estimated Useful Life**
Building	twenty years
Equipment	three to ten years
Furniture and fixtures	five years
Computer hardware and software	five to seven years
Leasehold improvements	three to six years

Leasehold improvements are amortized over the lesser of the asset life or the lease term. Expenditures for repairs and maintenance are charged to expense as incurred. The costs for major renewals and improvements are capitalized and depreciated over their estimated useful lives of the related asset. The cost and related accumulated depreciation of the assets are removed from the accounts upon disposition and any resulting gain or loss is reflected in the consolidated statement of operations and comprehensive (loss) income.

Valuation of Long-lived Assets: Long-lived assets consist primarily of property, plant, and equipment, net. Since our long-lived assets are subject to amortization, we review these assets for impairment in accordance with the provisions of Accounting Standards Codification ("ASC") 360, *Property, Plant, and Equipment.* We review long-lived assets for impairment whenever events or changes in circumstances indicate that its carrying amount may not be recoverable. Our impairment testing of long-lived assets consists of determining whether the carrying amount of the long-lived asset (asset group) is recoverable, in other words, whether the sum of the future undiscounted cash flows expected to result from the use and eventual disposition of the asset (asset group) exceeds its carrying amount. The determination of the existence of impairment involves judgments that are subjective in nature and may require the use of estimates in forecasting future results and cash flows related to an asset or group of assets. In making this determination, we use certain assumptions, including estimates of future cash flows expected to be generated by these assets, which are based on additional assumptions such as asset utilization, the length of service that assets will be used in our operations, and estimated salvage values.

Asset Retirement and Environmental Obligations: Pursuant to ASC 410, *Asset Retirement and Environmental Obligations*, an asset retirement obligation (“ARO” or “AROs”) is recorded when there is a legal obligation associated with the retirement of a tangible long-lived asset and the fair value of the liability can reasonably be estimated. Upon initial recognition of an ARO, a company increases the carrying amount of the long-lived asset by the same amount as the liability. Over time, the liabilities are accreted for the change in their present value through charges to operations costs. The initial capitalized costs are depleted over the useful lives of the related assets through charges to depreciation, and/or amortization. If the fair value of the estimated ARO changes, an adjustment is recorded to both the ARO and the asset retirement cost. Revisions in estimated liabilities can result from revisions of estimated inflation rates, escalating retirement costs, and changes in the estimated timing of settling ARO liabilities.

We have known asset retirement conditions, such as certain asset decommissioning and restoration of rented facilities to be performed in the future.

Business Combinations

The Company uses the acquisition method of accounting for business combinations and recognizes assets acquired and liabilities assumed at their fair values on the date acquired. Goodwill represents the excess of the purchase price over the fair value of the net assets. The fair values of the assets and liabilities acquired are determined based upon the Company’s valuation using a combination of market, income or cost approaches. In certain circumstances, the allocations of the purchase price are based upon preliminary estimates and assumptions and subject to revision when we receive final information, including appraisals and other analysis. Accordingly, the measurement period for such purchase price allocations will end when the information, or the facts and circumstances, becomes available, but will not exceed twelve months. We will recognize measurement-period adjustments during the period of resolution, including the effect on earnings of any amounts that would have been recorded in previous periods if the accounting had been completed at the acquisition date.

Fair Value of Financial Instruments: We determine the fair value of our financial instruments in accordance with ASC 820, *Fair Value Measurements and Disclosures.*

Revenue Recognition

To determine the proper revenue recognition, we perform the following five steps: (i) identify the contract(s) with a customer; (ii) identify the performance obligations in the contract; (iii) determine the transaction price; (iv) allocate the transaction price to the performance obligations in the contract; and (v) recognize revenue when (or as) we satisfy a performance obligation. We only apply the five-step model to contracts when it is probable that we will collect the consideration we are entitled to in exchange for the goods or services we transfer to the customer.

The vast majority of our revenues are from product sales to our customers, pursuant to purchase orders with short lead times. Revenues from product sales are recognized when the customer obtains control of our product, which occurs at a point in time. The Company has elected to account for shipping and handling activities as a fulfillment cost as permitted by the standard. When we perform shipping and handling activities after the transfer of control to the customer (e.g. when control transfers prior to delivery), they are considered fulfillment activities, and accordingly, the costs are accrued when the related revenue is recognized. We expense incremental costs of obtaining a contract as and when incurred if the expected amortization period of the asset that we would have recognized is one year or less.

In certain instances, inventory is maintained by our customers at consigned locations. Revenues from consigned sales are recognized when the customer obtains control of our product, which occurs at a point in time. This is typically when the customer pulls product for use.

We use a number of wholesale distributors around the world and recognize revenue when the wholesale distributor obtains control of our product, which occurs at a point in time, typically upon shipment. Our wholesale distributors are contractually obligated to pay us on standard commercial terms, consistent with our end-use customers. We do not sell to wholesale distributors on consignment and do not give wholesale distributors a right of return.

In certain instances, prior to customers accepting product that is manufactured at one of our contract manufacturers, these customers require that they first qualify the product and manufacturing processes at our contract manufacturer (e.g. customer acceptance clause). The customers’ qualification process determines whether the product manufactured at our contract manufacturer achieves their quality, performance, and reliability standards. After a customer completes the initial qualification process, we receive approval to ship qualified product to that customer. Revenues are recognized when the customer obtains control of the qualified product, which occurs at a point in time, typically upon shipment.

To a lesser extent, we enter into other types of contracts including non-recurring engineering contracts. We recognize revenue for these arrangements over time or at a point in time depending on our evaluation of when the customer obtains control of the promised goods or services. For contracts that include multiple performance obligations, we allocate revenue to each performance obligation based on estimates of the relative standalone selling price that we would charge the customer for each promised product or service. Revenue from products and services transferred to customers over time accounted for 4%, 1%, and 1% of the Company’s revenue for the years ended September 30, 2019, 2018, and 2017, respectively.

Receivables, Net - Receivables, net, include amounts billed and currently due from customers. The amounts due are stated at their net estimated realizable value. Payments are generally due within 90 days or less of invoicing and do not include a significant financing component. We maintain an allowance for doubtful accounts to provide for the estimated amount of receivables that will not be collected. The allowance is based upon an assessment of customer creditworthiness, historical payment experience, the age of outstanding receivables and collateral to the extent applicable. Receivables, net, totaled $18.5 million and $19.3 million at September 30, 2019 and September 30, 2018, respectively. A contract asset is recognized when the Company has recognized revenue, but not issued an invoice for payment. Contract assets are classified as current assets and transferred to receivables when the entitlement to payment becomes unconditional. The Company’s contract assets are generally converted to trade account receivables within 90 days, at which time the Company is entitled to payment of the fixed price upon delivery of the finished product subject to customer payment terms.

Remaining Performance Obligations - Remaining performance obligations represent the transaction price of firm orders for long-term contracts which control has not transferred to the customer. As of September 30, 2019, the aggregate amount of the transaction price allocated to remaining performance obligations was $1.7 million. The Company expects to recognize revenue on approximately 100% of the remaining performance obligations over the next twelve months.

Product Warranty Reserves - We provide our customers with warranty claims for certain products and warranty-related services are not considered a separate performance obligation. Pursuant to ASC 450, *Contingencies*, we make estimates of product warranty expense using historical experience rates and accrue estimated warranty expense as a cost of revenue. We estimate the costs of our warranty obligations based on historical experience of known product failure rates and anticipated rates of warranty claims, use of materials to repair or replace defective products, and service delivery costs incurred in correcting the product issues. In addition, from time to time, specific warranty accruals may be made if unforeseen technical problems arise.

Disaggregation of Revenue - Revenue is classified based on the product line of business. For additional information on the disaggregated revenues by geographical region, see Note 15 - Geographical Information in the notes to the consolidated financial statements.

Revenue is also classified by major product category and is presented below:

	For the Fiscal Years ended September 30,					
(in thousands)	**2019**	**% of Revenue**	**2018**	**% of Revenue**	**2017**	**% of Revenue**
Broadband	$ 53,233	61%	$ 68,418	80%	$ 109,633	89%
Chips	10,828	12%	10,050	12%	9,170	8%
Navigation	23,204	27%	7,149	8%	4,092	3%
Total revenue	$ 87,265	100%	$ 85,617	100%	$ 122,895	100%

NOTE 3. Recent Accounting Pronouncements

(a) New Accounting Updates Recently Adopted

- In May 2014, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2014-09, *Revenue from Contracts with Customers (Topic 606)*, which replaces numerous requirements in U.S. GAAP, including industry-specific requirements, and provides companies with a single revenue recognition model for recognizing revenue from contracts with customers. Under the new standard, recognition of revenue occurs when the seller satisfies a performance obligation by transferring to the customer promised goods or services in an amount that reflects the consideration the entity expects to receive for those goods or services. Effective October 1, 2018, we adopted the requirements of Topic 606 using the modified retrospective method. The adoption of Topic 606 did not have a material impact on the Company's consolidated financial statements and related disclosures.

- In May 2017, the FASB issued ASU 2017-09, *Compensation — Stock Compensation (Topic 718): Scope of Modification Accounting*. ASU 2017-09 clarifies when changes to the terms or conditions of a share-based payment award must be accounted for as modifications. The new guidance is intended to reduce diversity in practice and result in fewer changes to the terms of an award being accounted for as a modification. Under ASU 2017-09, an entity will not apply modification accounting to a share-based payment award if the award's fair value, vesting conditions and classification as an equity or liability instrument are the same immediately before and after the change. ASU 2017-09 will be applied prospectively to awards modified on or after the adoption date. The new standard was effective for our fiscal year beginning October 1, 2018. The adoption of ASU 2017-09 did not have an impact on the Company's consolidated financial statements and related disclosures.

- In January 2016, the FASB issued ASU 2016-01, *Financial Instruments-Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilitie*s. This ASU amends certain aspects of recognition, measurement, presentation and disclosure of financial instruments, and supersedes the guidance to classify equity securities with readily determinable fair values into different categories (that is, trading or available-for-sale) and requires equity securities to be measured at fair value with changes in the fair value recognized through net income. This new standard was effective for our fiscal year beginning October 1, 2018. The adoption of ASU 2016-01 did not have an impact on our consolidated financial statements and related disclosures.

(b) Recent Accounting Standards or Updates Not Yet Effective

- In June 2016, the FASB issued ASU 2016-13 *Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*, which changes the way entities measure credit losses for most financial assets and certain other instruments that are not measured at fair value through net earnings. The new standard is effective for annual periods beginning after December 15, 2019, including interim periods within those annual periods. The new standard will be effective for our fiscal year beginning October 1, 2020 and early adoption is permitted. The Company is currently evaluating the new guidance to determine the impact it may have on its consolidated financial statements and related disclosures.

- In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)*. ASU 2016-02 introduces a lessee model that requires recognition of assets and liabilities arising from qualified leases on the consolidated balance sheets and disclosure of qualitative and quantitative information about lease transactions. This guidance is effective for fiscal years beginning after December 15, 2018 and interim periods within those years. We are in the process of implementing changes to our systems and processes in conjunction with our review of lease agreements. Topic 842 will be effective for our fiscal year beginning October 1, 2019 and we expect to elect certain available transitional practical expedients.

  The Company will utilize the modified retrospective method and will recognize any cumulative effect adjustment in accumulated deficit at the beginning of the period of adoption. The Company is in the process of gathering lease data, reviewing its lease portfolio, and completing an impact assessment with respect to the adoption of the provisions of the new standard. The Company does not expect the adoption of this new guidance to have a significant impact on its consolidated statements of operations or its consolidated statements of cash flows.

NOTE 4. Acquisition

On June 7, 2019, we completed the acquisition of Systron Donner Inertial, Inc. ("SDI"), a private-equity backed navigation systems provider with a scalable, chip-based platform for higher volume gyro applications utilizing Quartz MEMS technology. The total purchase price was approximately $25.0 million, consisting of (i) approximately $22.0 million in cash after working capital adjustments and (ii) the issuance of approximately 811 thousand shares of common stock with an aggregate value of approximately $3.0 million as of the closing date.

Following the closing, we began integrating SDI into our current navigation product line and have included the financial results of SDI in our consolidated financial statements beginning on the acquisition date. Net revenue and net loss of SDI from the acquisition date of $9.8 million and $0.6 million, respectively, is included in our consolidated statements of operations and comprehensive (loss) income for the fiscal year ended September 30, 2019.

Preliminary Purchase Price Allocation
The total purchase price was allocated to the assets acquired and liabilities assumed based on their estimated fair values as of the acquisition date.

As the Company finalizes the fair value of assets acquired and liabilities assumed, additional purchase price adjustments may be recorded during the measurement period (a period not to exceed 12 months from the date of acquisition). As of September 30, 2019, the Company had not finalized the determination of fair values allocated to equipment, deferred taxes and goodwill. Any changes in the fair values of the assets acquired and liabilities assumed during the measurement period may result in a material adjustment to goodwill.

The table below represents the purchase price allocation to the assets acquired and liabilities assumed of SDI based on their estimated fair values as of the acquisition date. The fair values assigned to assets acquired and liabilities assumed are based on management's best estimates and assumptions at the acquisition date.

(in thousands)	Amount	Weighted Average Useful Life (years)
Purchase Price	$ 24,978	
Developed technology	250	7
Cash acquired	541	
Inventories	8,522	
Accounts receivable	4,291	
Other assets	355	
Land and building	12,890	
Equipment	2,913	
Net liabilities assumed	(4,853)	
Goodwill	$ 69	

Identifiable intangible assets - The estimated fair value of the developed technology was determined based on the expected future cost savings resulting from ownership of the asset. The present value of the expected future cash flows for the developed technology intangible asset was determined based on discount rates which incorporate a risk premium to take into account the risks inherent in those expected cash flows. The expected cash flows were estimated using available historical data adjusted based on the expectations of market participants.

Tangible assets acquired:

Inventories
Finished goods were valued at estimated selling price less costs of disposal and a reasonable profit allowance for the selling effort. Raw materials were valued at estimated replacement cost.

Property, plant and equipment
The property, plant and equipment acquired were valued using either the replacement cost or market approach, as appropriate, as of the acquisition date.

Goodwill
Goodwill represents the excess of the preliminary purchase price over the fair value of the assets acquired and liabilities assumed. The goodwill recognized is primarily attributable to the benefits the Company expects to derive from deepening the Company's expertise in navigation systems products.

For the fiscal year ended September 30, 2019, the Company incurred transaction costs of approximately $0.8 million, in connection with the SDI acquisition, which were expensed as incurred and included in selling, general and administrative expenses within the consolidated statements of operations.

Unaudited Pro Forma Financial Information
The following unaudited pro forma financial information presented for the fiscal years ended September 30, 2019 and 2018 does not purport to be indicative of the results of operations that would have been achieved had the acquisition been consummated on October 1, 2017, nor of the results which may occur in the future. The pro forma amounts are based upon available information and certain assumptions that the Company believes are reasonable.

(in thousands, except per share data)	For the Fiscal Years ended September 30,	
	2019	**2018**
Revenue	$ 107,199	$ 113,398
Net loss	$ (42,013)	$ (18,136)
Net loss per basic and diluted share	$ (1.50)	$ (0.67)
Weighted-average number of basic and diluted shares outstanding	27,983	27,266

NOTE 5. Cash, Cash Equivalents and Restricted Cash

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported within the consolidated balance sheets that sum to the total of the same amounts shown in the statements of consolidated cash flows:

	As of September 30,		
(in thousands)	**2019**	**2018**	**2017**
Cash	$ 4,338	$ 2,965	$ 8,054
Cash equivalents	$ 17,236	$ 60,152	$ 60,279
Restricted cash	403	78	421
Total cash, cash equivalents and restricted cash	$ 21,977	63,195	68,754

The Company's restricted cash includes cash balances which are legally or contractually restricted to use. The Company's restricted cash is included in current assets as of September 30, 2019, 2018 and 2017.

[Table of Contents](#)

NOTE 6. Fair Value Accounting

ASC Topic 820 ("ASC 820"), *Fair Value Measurements*, establishes a valuation hierarchy for disclosure of the inputs to valuation techniques used to measure fair value. This standard describes a fair value hierarchy based on three levels of inputs, of which the first two are considered observable and the last unobservable, that may be used to measure fair value:

- Level 1 inputs are unadjusted quoted prices in active markets for identical assets or liabilities.
- Level 2 inputs are quoted prices for similar assets and liabilities in active markets or inputs that are observable for the assets or liabilities, either directly or indirectly, through market corroboration, for substantially the full term of the financial instrument.
- Level 3 inputs are unobservable inputs based on our own assumptions used to measure assets or liabilities at fair value.

Classification of an asset or liability within this hierarchy is determined based on the lowest level input that is significant to the fair value measurement.

Valuation techniques used to measure fair value under ASC 820 must maximize the use of observable inputs and minimize the use of unobservable inputs.

Cash consists primarily of bank deposits or highly liquid short-term investments with a maturity of three months or less at the time of purchase. Restricted cash represents temporarily restricted deposits held as compensating balances against short-term borrowing arrangements. Cash, cash equivalents and restricted cash are based on Level 1 measurements.

The carrying amounts of cash and cash equivalents, restricted cash, accounts receivable, other current assets, and accounts payable approximate fair value because of the short maturity of these instruments. See Note 4 Acquisition for discussion of the fair value measurement of assets acquired and liabilities assumed in the SDI acquisition.

NOTE 7. Accounts Receivable

The components of accounts receivable consisted of the following:

	As of	
(in thousands)	**September 30, 2019**	**September 30, 2018**
Accounts receivable, gross	$ 18,645	$ 19,823
Allowance for doubtful accounts	(148)	(548)
Accounts receivable, net	$ 18,497	$ 19,275

The allowance for doubtful accounts is based on the age of receivables and a specific identification of receivables considered at risk of collection.

The following table summarizes changes in the allowance for doubtful accounts for the fiscal years ended September 30, 2019, 2018 and 2017.

Allowance for Doubtful Accounts *(in thousands)*	**For the Fiscal Years ended September 30,**		
	2019	**2018**	**2017**
Balance at beginning of period	$ 548	$ 22	$ 36
Provision adjustment - expense, net of recoveries	62	599	23
Write-offs and other adjustments - deductions to receivable balances	(462)	(73)	(37)
Balance at end of period	$ 148	$ 548	$ 22

NOTE 8. Inventory

The components of inventory consisted of the following:

(in thousands)	As of September 30, 2019	As of September 30, 2018
Raw materials	$ 11,510	$ 11,857
Work in-process	8,176	5,402
Finished goods	4,365	5,024
Inventory balance at end of period	$ 24,051	$ 22,283
Current portion	$ 24,051	$ 20,850
Non-Current portion	$ —	$ 1,433

The non-current inventory balance of $0 and $1.4 million as of September 30, 2019 and 2018, respectively, is comprised entirely of raw materials which we acquired as part of a last time purchase as a result of the vendor announcing it would cease manufacturing a part. During the fiscal years ended September 30, 2019 and 2018, we recorded a $1.3 million and $1.0 million, write-down, respectively, on non-current inventory due to the decline in sales and future demand of the inventory. There was no write-down recorded on non-current inventory in the fiscal year ended September 30, 2017.

NOTE 9. Property, Plant, and Equipment, net

The components of property, plant, and equipment, net consisted of the following:

(in thousands)	As of September 30, 2019	As of September 30, 2018
Land	$ 3,484	$ —
Building and improvements	9,405	—
Equipment	42,308	36,625
Furniture and fixtures	1,109	1,109
Computer hardware and software	3,554	2,928
Leasehold improvements	2,676	2,049
Construction in progress	9,330	3,648
Property, plant, and equipment, gross	$ 71,866	$ 46,359
Accumulated depreciation	(34,643)	(28,143)
Property, plant, and equipment, net	$ 37,223	$ 18,216

Depreciation expense totaled $7.1 million, $5.6 million and $3.7 million during the fiscal years ended September 30, 2019, 2018 and 2017, respectively.

NOTE 10. Accrued Expenses and Other Current Liabilities

The components of accrued expenses and other current liabilities consisted of the following:

	As of	
(in thousands)	September 30, 2019	September 30, 2018
Compensation	$ 5,185	$ 3,065
Warranty	654	642
Legal expenses and other professional fees	4,407	604
Contract liabilities	541	390
Income and other taxes	1,135	961
Severance and restructuring accruals	172	82
Other	2,427	1,829
Accrued expenses and other current liabilities	$ 14,521	$ 7,573

Warranty: The following table summarizes the changes in our product warranty accrual accounts:

Product Warranty Accruals	For the fiscal year ended September 30,		
(in thousands)	2019	2018	2018
Balance at beginning of period	$ 642	$ 684	$ 871
Provision for product warranty - expense	186	431	573
Warranty liability assumed in acquisition liability	80	—	—
Utilization of warranty accrual	(254)	(473)	(760)
Balance at end of period	$ 654	$ 642	$ 684

Severance and restructuring accruals: On December 4, 2018, the Company and Jikun Kim, the Company's former Chief Financial Officer, entered into a Separation and General Release Agreement (the “Separation Agreement”) pursuant to which the Company and Mr. Kim agreed that he would cease service with the Company effective as of December 31, 2018 (the “Separation Date”). The Separation Agreement provided for, among other things, the continuation of his base salary for a period of two months following the Separation Date and a lump sum payment of $22,875 in lieu of any cash bonus payment under the Company’s Fiscal Year 2018 Bonus Plan, in each case subject to his execution and non-revocation of a general release agreement releasing the Company from any liability or obligation to him and compliance with certain confidentiality, non-solicitation and other restrictive covenants as provided in the Separation Agreement. Mr. Kim’s outstanding equity awards that remained unvested as of the Separation Date were cancelled and terminated. The Company recorded a charge of approximately $0.1 million in the fiscal year ended September 30, 2019 related to this Separation Agreement.

In an effort to better align our current and future business operations related to our CATV product lines, in August 2019 the Company reduced its workforce by approximately 40 individuals and recorded a charge for severance for the affected employees in the amount of $0.5 million in the fiscal year ended September 30, 2019.

Our severance and restructuring-related accruals specifically relate to the Separation Agreement described above, the reduction in force and non-cancelable obligations associated with an abandoned leased facility. Expense related to severance and restructuring accruals is included in selling, general, and administrative expense on our consolidated statements of operations and comprehensive (loss) income. The following table summarizes the changes in the severance and restructuring accrual account:

(in thousands)	Severance-related accruals	Restructuring-related accruals	Total
Balance as of September 30, 2018	$ 7	$ 75	$ 82
Expense - charged to accrual	531	—	531
Payments and accrual adjustments	(366)	(75)	(441)
Balance as of September 30, 2019	$ 172	$ —	$ 172

NOTE 11. Credit Facilities

On November 11, 2010, we entered into a Credit and Security Agreement (as amended to date, the "Credit Facility") with Wells Fargo Bank, N.A. The Credit Facility is secured by the Company's assets and is subject to a borrowing base formula based on the Company's eligible accounts receivable, inventory, and machinery and equipment accounts.

The Credit Facility matures in November 2021 and currently provides us with a revolving credit line of up to $15.0 million at an interest rate equal to LIBOR plus 1.75%, subject to a borrowing base formula, that can be used for working capital requirements, letters of credit, acquisitions, and other general corporate purpose subject to a requirement, for certain specific uses, that the Company have liquidity of at least $25.0 million after such use. The Credit Facility requires us to maintain (a) liquidity of at least $7.5 million and (b) excess availability of at least $1.0 million.

As of September 30, 2019, there was $5.5 million outstanding under this Credit Facility with an interest rate of 3.8% and the Company was in compliance with all financial covenants. Also, as of September 30, 2019, the Credit Facility had approximately $0.5 million reserved for one outstanding stand-by letter of credit and $0 available for borrowing. As of December 6, 2019, there was an outstanding balance under this Credit Facility of $3.2 million, $0.5 million reserved for one outstanding stand-by letter of credit and $1.3 million available for borrowing.

NOTE 12. Income and Other Taxes

The Company's income (loss) from continuing operations before income taxes consisted of the following:

Income (loss) from continuing operations before income taxes (in thousands)	For the Fiscal Years ended September 30, 2019	2018	2017
Domestic	$ (35,100)	$ (16,752)	$ 10,632
Foreign	(830)	(1,150)	(2,248)
Income (loss) from continuing operations before income taxes	$ (35,930)	$ (17,902)	$ 8,384

The Company's income tax expense (benefit) consisted of the following:

Income tax (benefit) expense	**For the Fiscal Years Ended September 30,**		
(in thousands)	**2019**	**2018**	**2017**
Federal:			
Current	$ —	$ (502)	$ 135
Deferred	—	—	—
	—	(502)	135
State:			
Current	54	53	28
Deferred	—	—	—
	54	53	28
Foreign:			
Current	—	—	—
Deferred	—	—	—
	—	—	—
Total income tax (benefit) expense	$ 54	$ (449)	$ 163

EMCORE Corporation is incorporated in the state of New Jersey. A reconciliation of the provision for income taxes, with the amount computed by applying the statutory U.S. federal and state income tax rates to continuing operations income before provision for income taxes is as follows:

Provision for Income Taxes	**For the Fiscal Years Ended September 30,**		
(in thousands)	**2019**	**2018**	**2017**
Income tax (benefit) expense computed at U.S. federal statutory rate	$ (7,540)	$ (4,346)	$ 2,841
State tax expense benefit, net of U.S. federal effect	(906)	(168)	414
Foreign tax rate differential	(28)	36	229
Effect due to change in tax rate	(183)	57,988	2,528
Shortfall (windfall) from stock based compensation	248	681	(150)
Other	223	216	126
State net operating loss carryforward adjustment	139	(305)	933
Change in valuation allowance	8,101	(54,551)	(6,758)
Income tax expense (benefit)	$ 54	$ (449)	$ 163
Effective tax rate	0.2%	(2.5)%	1.9%

Significant components of our deferred tax assets are as follows:

Deferred Tax Assets *(in thousands)*	**As of September 30** 2019	2018
Deferred tax assets:		
Federal net operating loss carryforwards	$ 99,298	$ 91,639
Foreign net operating loss carryforwards	1,271	1,301
Income tax credit carryforwards	2,671	2,671
Inventory reserves	3,535	2,065
Accounts receivable reserves	50	123
Accrued warranty reserve	153	144
State net operating loss carryforwards	6,174	4,624
Stock compensation	704	728
Deferred compensation	404	200
Fixed assets and intangibles	(2,693)	(33)
Other	2,255	838
Total deferred tax assets	113,822	104,300
Valuation allowance	(113,891)	(104,300)
Net deferred tax liabilities	$ (69)	$ —

For the fiscal years ended September 30, 2019, 2018 and 2017, the Company recorded income tax (expense) benefit of approximately $0.1 million, $(0.4) million and $0.2 million, respectively. Income tax expense for the fiscal years ended September 30, 2019 is primarily comprised of state minimum tax expense. Income tax benefit for the fiscal year ended September 30, 2018 is primarily comprised of the effect of the December 22, 2017 “Tax Act” which eliminated AMT and resulted in a refund to the Company of amounts paid in prior fiscal years, state minimum taxes, and foreign tax expense. for the fiscal year ended September 30, 2017, income tax expense is primarily comprised of estimated alternative minimum tax.

For the fiscal years ended September 30, 2019, 2018 and 2017, the effective tax rate on operations was 0.2%, (2.5)% and 1.9%, respectively. The lower tax rate for the fiscal year ended September 30, 2019 is primarily due to the operating loss and state minimum tax expense. The higher beneficial tax rate for the fiscal year ended September 30, 2018 was primarily due to the effect of the Tax Act, which resulted in a credit to the Company on future tax payments for past AMT amounts paid and the current period operating loss. The higher tax rate for fiscal year 2017 was primarily due to higher alternative minimum tax as a result of the increase in net income. Income tax expense is comprised of estimated alternative minimum tax and foreign tax expense. The Company uses some estimates to forecast permanent differences between book and tax accounting.

We have not provided for income taxes on non-U.S. subsidiaries' undistributed earnings as of September 30, 2019 because we plan to indefinitely reinvest the unremitted earnings of our non-U.S. subsidiaries and all of our non-U.S. subsidiaries historically have negative earnings and profits.

All deferred tax assets have a full valuation allowance at September 30, 2019. However, on a quarterly basis, the Company will evaluate the positive and negative evidence to assess whether the more likely than not criteria, has been satisfied in determining whether there will be further adjustments to the valuation allowance.

During the fiscal years ended September 30, 2019 and 2018, there were no material increases or decreases in unrecognized tax benefits.

As of September 30, 2019, the Company had net operating loss carryforwards for U.S. federal income tax purposes of approximately $472.8 million which begin to expire in 2022. As of September 30, 2019, the Company had foreign net operating loss carryforwards of $5.1 million which begin to expire in 2021, as well as state net operating loss carryforwards of approximately $71.2 million which begin to expire in 2021. As of September 30, 2019, the Company also had tax credits (primarily foreign income and U.S. research and development tax credits) of approximately $2.7 million. The research credits will begin to expire in 2020. Utilization of net operating loss and tax credit carryforwards are subject to a substantial annual limitation due to the ownership change limitations set forth in Internal Revenue Code Section 382 and similar state provisions. The Company prepared an Internal Revenue Code 382 analysis to determine the annual limitations on the Company's consolidated net operating loss carryforwards. As a result of the $472.8 million of U.S. net operating loss carryforwards, approximately $230.5 million is subject to an annual limitation and $242.3 million of the net operating losses are not subject to an annual limitation. Such annual limitations could result in the expiration of the net operating loss and tax credit carryforwards before utilization.

A reconciliation of the beginning and ending amount of unrecognized gross tax benefits is as follows:

Unrecognized Gross Tax Benefit *(in thousands)*		
Balance as of September 30, 2017	$	419
Adjustments based on tax positions related to the current year		—
Adjustments based on tax positions of prior years		—
Balance as of September 30, 2018		419
Adjustments based on tax positions related to the current year		—
Adjustments based on tax positions of prior years		—
Balance as of September 30, 2019	$	419

As of September 30, 2019 and September 30, 2018, we had approximately $0.5 million and $0.4 million, respectively, of interest and penalties accrued as tax liabilities on our balance sheet. We believe that it is reasonably possible that none of the uncertain tax positions will be paid or settled within the next 12 months. Interest that is accrued on tax liabilities is recorded within interest expense on the condensed consolidated statements of operations.

NOTE 13. Commitments and Contingencies

Leases: Estimated future minimum lease payments under non-cancelable operating leases with an initial or remaining term of one year or more are $1.0 million, $0.8 million, $0.8 million, $0.9 million, $0.7 million and $1.4 million for the fiscal years ended September 30, 2020, 2021, 2022, 2023, 2024, and 2025 and beyond, respectively.

Operating Lease Obligations: We lease certain facilities and equipment under non-cancelable operating leases. Operating lease amounts exclude property taxes, insurance, and maintenance expenses on leased properties. Our facility leases typically provide for rental adjustments for increases in base rent (up to specific limits), property taxes, insurance, and general property maintenance that would be recorded as rent expense. Option periods have been included in the computation of rent expense where such options are likely to be exercised due to significant economic incentive. Rent expense was approximately $1.3 million, $1.2 million and $1.4 million for the fiscal years ended September 30, 2019, 2018 and 2017, respectively. There are no off-balance sheet arrangements other than our operating leases.

Asset Retirement Obligation: We have known conditional AROs such as certain asset decommissioning and restoration of rented facilities to be performed in the future. Our ARO includes assumptions related to renewal option periods for those facilities where we expect to extend lease terms. The Company recognizes its estimate of the fair value of its ARO in the period incurred in long-term liabilities. The fair value of the ARO is also capitalized as property, plant and equipment.

In future periods, the ARO is accreted for the change in its present value and capitalized costs are depreciated over the useful life of the related assets. If the fair value of the estimated ARO changes, an adjustment will be recorded to both the ARO and the asset retirement capitalized cost. Revisions in estimated liabilities can result from revisions of estimated inflation rates, changes in estimated retirement costs, and changes in the estimated timing of settling the ARO. The fair value of our ARO was estimated by discounting projected cash flows over the estimated life of the related assets using credit adjusted risk-free rates which ranged from 1.20% to 4.20%.

During the fiscal year ended September 30, 2019, in connection with the Company extending the lease term of the Alhambra facility, the lease and related obligations, including ARO, were revised, resulting in an increase of the estimated ARO obligation by the Company. As a result of the lease extension, the Company increased its ARO associated with the Alhambra facility by $0.1 million.

During the fiscal year ended September 30, 2018, in connection with the Company extending the lease term of the Alhambra facility, the lease and related obligations, including ARO, were revised, resulting in an increase of the estimated ARO obligation by the Company. As a result of the lease extension, the Company increased its ARO associated with the Alhambra facility by $0.1 million.

During the fiscal year ended September 30, 2017, in connection with the Company moving to a new manufacturing facility in China, the lease and related obligations, including ARO, at the former China facility was terminated, resulting in no payment by the Company. As a result of this agreement, the Company reduced its ARO associated with the former China facility by $45,000.

Accretion expense of $0.1 million was recorded during the fiscal years ended September 30, 2019, 2018 and 2017.

EMCORE leases its primary facility in Alhambra, California covering six buildings where manufacturing, research and development, and general and administrative work is performed. In March 2019, amendments to leases for five of the six buildings were signed, extending the terms of the leases for these buildings for an additional three years through September 2023, plus a three year EMCORE option to extend the leases through September 2026. Management has determined that there is a significant economic incentive to exercise the options and the lease period will include the option periods for accounting purposes. In connection with the lease agreement, the Company has recorded an ARO liability of $1.9 million and $1.8 million at September 30, 2019 and September 30, 2018, respectively. The lease related to the sixth building expired in 2011, and this building is being occupied on a month-to-month basis.

The Company's ARO consists of legal requirements to return the existing leased facilities to their original state and certain environmental work to be performed due to the presence of a manufacturing fabrication operation and significant changes to the facilities over the past thirty years.

In May 2016 (and retroactively effective on February 1, 2016), the Company entered into a five year lease agreement for facilities in Beijing, China where certain manufacturing and administrative work is currently being performed. In connection with the lease agreement, the Company has recorded an ARO liability in the amount of $0.1 million at September 30, 2019 and September 30, 2018.

In February 2019, the lease and related obligations, including ARO, at our former facility in Ivyland, Pennsylvania was terminated, resulting in no payment by the Company. As a result of this termination, the Company reduced its ARO associated with the former Pennsylvania facility by $40,000 and recorded a gain on the termination in the three and nine months ended September 30, 2019.

The following table summarizes ARO activity:

Asset Retirement Obligations *(in thousands)*	**September 30, 2019**
Balance at September 30, 2018	$ 1,809
Accretion expense	55
Revision in estimated cash flows	26
Balance at September 30, 2019	$ 1,890

Indemnifications: We have agreed to indemnify certain customers against claims of infringement of intellectual property rights of others in our sales contracts with these customers. Historically, we have not paid any claims under these customer indemnification obligations. We enter into indemnification agreements with each of our directors and executive officers pursuant to which we agree to indemnify them for certain potential expenses and liabilities arising from their status as a director or executive officer of the Company. We maintain director and officer insurance, which may cover certain liabilities arising from our obligation to indemnify our directors and executive officers in certain circumstances. It is not possible to determine the aggregate maximum potential loss under these indemnification agreements due to the limited history of prior indemnification claims and the unique facts and circumstances involved in each particular claim.

Legal Proceedings: We are subject to various legal proceedings, claims, and litigation, either asserted or unasserted, that arise in the ordinary course of business. Except as described below, the outcome of these matters is currently not determinable and we are unable to estimate a range of loss, should a loss occur, from these proceedings. The ultimate outcome of legal proceedings involves judgments, estimates and inherent uncertainties and the results of these matters cannot be predicted with certainty. Professional legal fees are expensed when incurred. We accrue for contingent losses when such losses are probable and reasonably estimable. In the event that estimates or assumptions prove to differ from actual results, adjustments are made in subsequent periods to reflect more current information. Should we fail to prevail in any legal matter or should several legal matters be resolved against the Company in the same reporting period, then the financial results of that particular reporting period could be materially affected.

a) Intellectual Property Lawsuits

We protect our proprietary technology by applying for patents where appropriate and, in other cases, by preserving the technology, related know-how and information as trade secrets. The success and competitive position of our product lines are impacted by our ability to obtain intellectual property protection for our research and development efforts. We have, from time to time, exchanged correspondence with third parties regarding the assertion of patent or other intellectual property rights in connection with certain of our products and processes.

b) Phoenix Navigation Components, LLC Legal Proceedings

On June 12, 2018, Phoenix commenced an arbitration against EMCORE with the American Arbitration Association (“AAA”) in New York. On August 31, 2018, Phoenix filed a First Amended Demand for Arbitration, asserting the following claims: breach of contract, breach of the covenant of good faith and fair dealing, misappropriation of trade secrets (under the Defend Trade Secrets Act, 18 U.S.C. § 1836, and New York law), conversion, unjust enrichment, correction of inventorship relating to U.S. Patent No. 8,773,665, and declaratory relief, relating to EMCORE’s termination of certain agreements entered into between EMCORE and Phoenix related to the purported license of certain intellectual property related to fiber optic gyroscope technology and disputed royalty payments related thereto. On September 14, 2018, EMCORE filed an Answering Statement and Counterclaim, denying all of Phoenix’s claims and asserting counterclaims for breach of the implied covenant of good faith and fair dealing and declaratory relief.

On June 21, 2019, an interim award (the “Interim Award”) was issued in connection with all claims in the AAA proceeding other than the claims related to correction of inventorship and declaratory relief relating to U.S. Patent No. 8,773,665 (the “Patent Claims”). While Phoenix ultimately sought $21.2 million in total damages, plus attorneys’ fees and costs, in the Interim Award, the arbitrator found in the Interim Award that (i) Phoenix's claim for breach of the covenant of good faith and fair dealing was denied; (ii) Phoenix's claim for breach of the agreements entered with EMCORE for failure to provide funding for non-recurring engineering was denied; (iii) Phoenix's claim for unjust enrichment was denied; (iv) Phoenix's claim for conversion was granted, but damages for that claim duplicate the damages on the breach of contract and misappropriation of trade secret claims described below and no incremental damages were awarded based on the granting of this claim; (v) EMCORE's request for a declaration that, as between EMCORE and Phoenix, EMCORE owns its proprietary IOC and transceiver was granted.

The arbitrator also found in the Interim Award that (i) EMCORE breached certain license agreements entered into with Phoenix by failing to make royalty payments due and failing to provide required accountings, (ii) Phoenix and its members are no longer subject to prior exclusivity restrictions; (iii) EMCORE's claim for breach of the covenant of good faith and fair dealing was denied; and (iv) the proceedings for the Patent Claims and EMCORE's counterclaim with respect thereto would be established by a future proceeding.

Further, out of the original 97 trade secret subpart claims by Phoenix, the arbitrator found in the Interim Award that EMCORE had misappropriated a total of five trade secret subparts (the “Deemed Trade Secrets”), and found that at least one Deemed Trade Secret was being used in seven EMCORE products (the “EMCORE Products”). The arbitrator found that as a result of the foregoing, royalties of 7.5% of the sale price are owed, to the extent not previously paid, on (i) sales through July 16, 2018 on all fiber optic gyroscopes sold by EMCORE, and (ii) sales from July 16, 2018 through May 31, 2019 of the EMCORE Products whether standalone or incorporated into a larger product, in each case together with interest at the New York statutory rate of 9% simple interest. In addition, the arbitrator found in the Interim Award that Phoenix was the prevailing party, and Phoenix was awarded attorneys' fees and costs in the amount of approximately $3.7 million, which amount was reduced 10% from Phoenix’s attorneys’ fees request.

In the Interim Award, the arbitrator further determined that EMCORE shall pay Phoenix a royalty of 7.5% of the sale price on (i) future customer payments for certain EMCORE product contracts previously entered into and (ii) customer payments for future sales of any product using any Deemed Trade Secret, in each case payable in a single lump sum within one month of completion of the calendar quarter in which payment has been received from the customer, and shall concurrently submit to Phoenix a written report that sets forth the calculation of the amount of the royalty payment in a form similar to previous royalty reports, provided that following the first $1 million of royalty payments on the EMP-1 product only, inclusive of payments made to date, EMCORE will pay to Phoenix a royalty of 2.25% of the sale price (net of any warranty work, returns, rebates, discounts or credits). EMCORE is required to continue to make royalty payments in this manner until such time as it has in good faith determined, and can so document, that it has completely ceased use of the Deemed Trade Secrets, and at such time, EMCORE shall provide Phoenix written notice of same by certified letter, return receipt requested.

On October 1, 2019, the arbitrator issued a Modified Partial Final Award, which incorporated by reference the terms of the Interim Award and ordered and awarded, among other items, (i) an award to Phoenix of attorneys’ fees and costs in the amount of approximately $3.8 million, (ii) an award to Phoenix of $1.0 million in damages owing for unpaid royalties through June 30, 2019, of which $0.6 million remained to be paid as of the issuance of the Modified Partial Final Award; (iii) an award to Phoenix of $0.1 million in pre-judgment interest, calculated at the New York statutory rate of 9% simple interest, and (iv) an order that EMCORE make the payments in the foregoing items (i), (ii) and (iii) on or before October 14, 2019. On October 10, 2019, EMCORE made the foregoing payments to Phoenix in an aggregate amount equal to approximately $4.5 million. This amount was accrued as of September 30, 2019.

The Patent Claims were not determined in the Interim Award or the Modified Partial Final Award and remain pending. We believe that the Patent Claims are without merit and we intend to vigorously defend ourselves against them.

During the fiscal year ended September 30, 2019, we recorded the award and settlement to Phoenix of attorneys’ fees and costs in the amount of approximately $3.8 million, and our legal expenses of approximately $5.7 million within selling, general and administrative expense on the consolidated statement of operations and comprehensive (loss) income.

On June 21, 2018, Phoenix Navigation Components, LLC commenced a special proceeding against EMCORE in the New York Supreme Court, Commercial Division, Index No. 653128/2018. As part of the special proceeding, Phoenix filed an application for a preliminary injunction in aid of arbitration pursuant to CLPR 7502(c), in connection with the AAA arbitration proceeding in New York. On August 6, 2018, Phoenix’s application was resolved pursuant to a stipulation between EMCORE and Phoenix. This special proceeding remains open pending entry of judgment pursuant to the AAA arbitration.

NOTE 14. Equity

Equity Plans

We provide long-term incentives to eligible officers, directors, and employees in the form of equity-based awards. We maintain four equity incentive compensation plans, collectively described below as our “Equity Plans”:

- the 2000 Stock Option Plan,
- the 2010 Equity Incentive Plan (“2010 Plan”),
- the 2012 Equity Incentive Plan (“2012 Plan”), and
- the 2019 Equity Incentive Plan (“2019 Plan”).

We issue new shares of common stock to satisfy awards issued under our Equity Plans.

Stock Options

Most of our stock options vest and become exercisable over a four to five year period and have a contractual life of 10 years. Certain stock options awarded are intended to qualify as incentive stock options pursuant to Section 422A of the Internal Revenue Code.

The following table summarizes stock option activity under the Equity Plans for the fiscal year ended September 30, 2019:

	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (in years)	Aggregate Intrinsic Value (*) (in thousands)
Outstanding as of September 30, 2018	69,980	$4.74		
Granted	—	—		
Exercised	(208)	$3.97		—
Forfeited	(2,199)	$4.16		
Expired	(15,719)	$3.97		
Outstanding as of September 30, 2019	51,854	$5.00	4.79	$ 0
Exercisable as of September 30, 2019	41,200	$5.07	4.43	$ 0
Vested and expected to vest as of September 30, 2019	51,854	$5.00	4.79	$ 0

(*) Intrinsic value for stock options represents the “in-the-money” portion or the positive variance between a stock option's exercise price and the underlying stock price. For the fiscal year ended September 30, 2018, the intrinsic value of options exercised was $23,000.

As of September 30, 2019, there was approximately $20,000 of unrecognized stock-based compensation expense related to non-vested stock options granted under the Equity Plans which is expected to be recognized over an estimated weighted average life of 1.1 years.

Valuation Assumptions

There were no stock option grants for the fiscal years ended September 30, 2019 and 2018.

Time-Based Restricted Stock

Time-based restricted stock units (“RSUs”) and restricted stock awards (“RSAs”) granted to employees under the 2010 Plan, 2012 Plan or 2019 Plan typically vest over 3 to 4 years and are subject to forfeiture if employment terminates prior to the vesting or lapse of the restrictions, as applicable. RSUs are not considered issued or outstanding common stock until they vest. RSAs are considered issued and outstanding on the grant date and are subject to forfeiture if specified vesting conditions are not satisfied.

Table of Contents

The following table summarizes the activity related to RSUs and RSAs subject to time-based vesting requirements for the fiscal year ended September 30, 2019:

Restricted Stock Activity	Restricted Stock Units		Restricted Stock Awards	
	Number of Shares	Weighted Average Grant Date Fair Value	Number of Shares	Weighted Average Grant Date Fair Value
Non-vested as of September 30, 2018	1,011,621	$6.04	8,154	$8.20
Granted	752,416	$3.68	—	$0.00
Vested	(321,335)	$5.94	—	$0.00
Forfeited	(443,455)	$5.22	—	$0.00
Non-vested as of September 30, 2019	999,247	$4.66	8,154	$8.20

As of September 30, 2019, there was approximately $3.7 million of remaining unamortized stock-based compensation expense associated with RSUs, which will be expensed over a weighted average remaining service period of approximately 2.9 years. The 1.0 million outstanding non-vested and expected to vest RSUs have an aggregate intrinsic value of approximately $3.1 million and a weighted average remaining contractual term of 2.9 years. For the fiscal years ended September 30, 2019, 2018, and 2017, the intrinsic value of RSUs vested was approximately $1.4 million, $2.3 million and $3.4 million, respectively. For the fiscal year ended September 30, 2018 and 2017, the weighted average grant date fair value of RSUs granted was $5.80 and $8.20 per share.

As of September 30, 2019, there was approximately $23,000 of remaining unamortized stock-based compensation expense associated with RSAs, which will be expensed over a weighted average remaining service period of approximately 1.0 years.

Performance Stock

Performance based restricted stock units ("PSUs") and performance based shares of restricted stock ("PRSAs") granted to employees under the 2012 Plan or 2019 Plan typically vest over 1 to 3 years and are subject to forfeiture in whole, if employment terminates, or in whole or in part, if specified vesting conditions are not satisfied, in each case prior to vesting. PSUs are not considered issued or outstanding common stock until they vest. PRSAs are considered issued and outstanding on the grant date (at 200% of the target number of shares) and are subject to forfeiture if specified vesting conditions are not satisfied. PSUs and PRSAs that are granted to our executive officers and key employees are provided as long-term incentive compensation that is based on relative total shareholder return, which measures our performance against the Russell Microcap Index.

The following table summarizes the activity related to PSUs and PRSAs for the fiscal year ended September 30, 2019:

Performance Stock Activity	Performance Stock Units		Performance Stock Awards	
	Number of Shares (at Target)	Weighted Average Grant Date Fair Value	Number of Shares (at Target)	Weighted Average Grant Date Fair Value
Non-vested as of September 30, 2018	397,777	$8.48	33,333	$12.25
Granted	280,000	$5.19	—	$0.00
Vested	(30,874)	$7.14	—	$0.00
Forfeited	(175,079)	$7.36	—	$0.00
Non-vested as of September 30, 2019	471,824	$7.03	33,333	$12.25

As of September 30, 2019, there was approximately $1.7 million of remaining unamortized stock-based compensation expense associated with PSUs, which will be expensed over a weighted average remaining service period of approximately 1.9 years. The 0.5 million outstanding non-vested and expected to vest PSUs have an aggregate intrinsic value of approximately $1.4 million and a weighted average remaining contractual term of 1.8 years. For the fiscal years ended September 30, 2019 and 2018, the intrinsic value of PSUs vested was approximately $0.2 million and $1.4 million, respectively. There were no PSUs vested in the fiscal year ended September 30, 2017. For the fiscal year ended September 30, 2018, the weighted average grant date fair value of PSUs granted was $7.62.

As of September 30, 2019, there was approximately $9,000 of remaining unamortized stock-based compensation expense associated with PRSAs, which will be expensed over a weighted average remaining service period of approximately 0.05 years.

Stock-based compensation

The effect of recording stock-based compensation expense was as follows:

Stock-based Compensation Expense - by award type	**For the Fiscal Years ended September 30,**		
(in thousands)	**2019**	**2018**	**2017**
Employee stock options	$ 25	$ 32	$ 45
Restricted stock units and awards	1,495	1,742	1,643
Performance stock units and awards	685	1,343	1,367
Employee stock purchase plan	180	276	300
Outside director equity awards and fees in common stock	221	255	247
Total stock-based compensation expense	$ 2,606	$ 3,648	$ 3,602

Stock-based Compensation Expense - by expense type	**For the Fiscal Years ended September 30,**		
(in thousands)	**2019**	**2018**	**2017**
Cost of revenue	$ 482	$ 450	$ 492
Selling, general, and administrative	1,478	2,584	2,605
Research and development	646	614	505
Total stock-based compensation expense	$ 2,606	$ 3,648	$ 3,602

Stock-based compensation within selling, general and administrative expense was lower for the fiscal year ended September 30, 2019 due to the reversal of previously recognized expense associated with the forfeiture of unvested RSUs and PSUs of our former CFO Jikun Kim.

Capital Stock

Our authorized capital stock consists of 50 million shares of common stock, no par value, and 5,882,352 shares of preferred stock, $0.0001 par value. As of September 30, 2019, we had 35.8 million and 28.9 million shares of common stock issued and outstanding, respectively. There were no shares of preferred stock issued or outstanding as of September 30, 2019 and 2018.

401(k) Plan

We have a savings plan that qualifies as a deferred salary arrangement under Section 401(k) of the Internal Revenue Code. Under this savings plan, participating employees may defer a portion of their pretax earnings, up to the Internal Revenue Service annual contribution limit. Since June 2015, all employer contributions are made in cash. Our matching contribution in cash for each of the fiscal years ended September 30, 2019, 2018 and 2017 was approximately $0.6 million, $0.5 million and $0.5 million respectively.

(Loss) Income Per Share
The following table sets forth the computation of basic and diluted net loss per share:

Basic and Diluted Net Loss Per Share	**For the Fiscal Years ended September 30,**		
(in thousands, except per share)	**2019**	**2018**	**2017**
Numerator:			
(Loss) income from continuing operations	$ (35,984)	$ (17,453)	$ 8,221
Undistributed (loss) earnings allocated to common shareholders for basic and diluted net (loss) income per share	(35,984)	(17,453)	8,235
Denominator:			
Denominator for basic and fully diluted net (loss) income per share - weighted average shares outstanding	27,983	27,266	26,659
Dilutive options outstanding, unvested stock units, unvested stock awards and ESPP	—	—	885
Denominator for diluted net (loss) income per share - adjusted weighted average shares outstanding	27,983	27,266	27,544
Net (loss) income per basic and fully diluted share	$ (1.29)	$ (0.64)	$ 0.31
Weighted average antidilutive options, unvested restricted stock units and awards, unvested performance stock units and ESPP shares excluded from the computation	810	949	398
Average market price of common stock	$ 3.91	$ 5.87	$ 8.92

For diluted (loss) income per share, the denominator includes all outstanding common shares and all potential dilutive common shares to be issued. The anti-dilutive stock options and unvested stock were excluded from the computation of diluted net loss per share for the fiscal years ended September 30, 2019 and 2018 due to the Company incurring a net loss for the period. For the fiscal year ended September 30, 2017, we excluded 0.4 million of weighted average outstanding stock options, RSUs and PSUs from the calculation of diluted net income per share because their effect would have been anti-dilutive.

Employee Stock Purchase Plan
We maintain an Employee Stock Purchase Plan (“ESPP”) that provides employees an opportunity to purchase common stock through payroll deductions. The ESPP is a 6-month duration plan with new participation periods beginning on approximately February 25 and August 26 of each year. The purchase price is set at 85% of the average high and low market price of our common stock on either the first or last trading day of the participation period, whichever is lower, and annual contributions are limited to the lower of 10% of an employee's compensation or $25,000.

Per the amended ESPP and after giving effect to the special dividend paid in July 2016, the total number of shares of common stock on which options may be granted under the ESPP were 3,515,574 shares. We issue new shares of common stock to satisfy the issuance of shares under this stock-based compensation plan. Common stock issued under the ESPP during the fiscal years ended September 30, 2019, 2018 and 2017 totaled 197,000, 171,000 and 133,000 shares, respectively. As of September 30, 2019, the total amount of common stock issued under the ESPP totaled 2,971,843 shares and the total shares remaining available for issuance under the ESPP totaled 543,731.

Future Issuances

As of September 30, 2019, we had common stock reserved for the following future issuances:

Future Issuances	Number of Common Stock Shares Available for Future Issuances
Exercise of outstanding stock options	51,854
Unvested restricted stock units and awards	1,007,401
Unvested performance stock units and awards (at 200% maximum payout)	1,010,314
Purchases under the employee stock purchase plan	543,731
Issuance of stock-based awards under the Equity Plans	2,753,829
Purchases under the officer and director share purchase plan	88,741
Total reserved	5,455,870

NOTE 15. Geographical Information

We evaluate our reportable segment pursuant to ASC 280, *Segment Reporting.* The Company's Chief Executive Officer is the chief operating decision maker and he assesses the performance of the operating segment and allocates resources to the segment based on its business prospects, competitive factors, net revenue, operating results, and other non-U.S. GAAP financial ratios. Based on this evaluation, the Company operates as a single reportable segment, Fiber Optics.

Revenue: The following tables set forth revenue by geographic region with revenue assigned to geographic regions based on our customers' billing address.

Revenue by Geographic Region	For the Fiscal Years ended September 30,		
(in thousands)	2019	2018	2017
United States and Canada	$ 68,607	$ 69,543	$ 98,520
Asia	11,637	10,386	16,713
Europe	6,209	5,422	7,015
Other	812	266	647
Total revenue	$ 87,265	$ 85,617	$ 122,895

Significant Customers: Significant customers are defined as customers representing greater than 10% of our consolidated revenue. Revenue from three, two and three of our significant customers represented an aggregate of 55%, 60% and 71% of our consolidated revenue for the fiscal years ended September 30, 2019, 2018 and 2017, respectively.

Long-lived Assets: Long-lived assets consist of land, building and property, plant, and equipment. As of September 30, 2019 and September 30, 2018, approximately 85% and 49%, respectively, of our long-lived assets were located in the United States. The remaining long-lived assets are primarily located in China.

NOTE 16. Subsequent Event

As part of the effort to streamline operations and move to a variable cost model in our Cable TV Lasers and Transmitters product line, on October 25, 2019, we entered into an Asset Purchase Agreement (the “Purchase Agreement”) with Hytera Communications (Hong Kong) Company Limited, a limited liability company incorporated in Hong Kong (“Hytera HK”), and Shenzhen Hytera Communications Co., Ltd., a corporation formed under the laws of the P.R.C. (“Shenzhen Hytera”, and together with Hytera HK, the “Buyers”), pursuant to which the Buyers agreed to purchase from us certain CATV module and transmitter manufacturing equipment (the “Equipment”) owned by us and currently located at the manufacturing facility of our wholly-owned subsidiary, EMCORE Optoelectronics (Beijing) Co, Ltd., a corporation formed under the laws of the P.R.C., for an aggregate purchase price of approximately $5.54 million.

The Equipment will be transferred to the Buyers in three separate closings, which are expected to occur during the quarters ending December 31, 2019 and March 31, 2020, with payment for each portion of the equipment to be made following such transfer in an amount equal to (i) 80% of the applicable sale price within three months following the closing of the applicable sale and transfer and (ii) 20% of the applicable sale price within six months following the closing of the applicable sale and transfer. In October 2019, we received the first such payment in an amount equal to approximately $1.9 million. The Buyers will assume all liabilities arising out of or relating to the Buyers’ ownership or operation of the Equipment on or after the applicable closing, other than certain excluded liabilities specified in the Purchase Agreement. The closings of the foregoing transfers are subject to the satisfaction or waiver by us and the Buyers, as applicable, of certain closing conditions. The Purchase Agreement also contains customary representations, warranties and covenants of EMCORE and each of the Buyers.

Concurrently with entry into the Purchase Agreement, we entered into a Contract Manufacturing Agreement (the “Manufacturing Agreement”), dated as of October 25, 2019, with the Buyers pursuant to which the Buyers agreed to manufacture certain CATV module and transmitter products for us from a manufacturing facility located in Thailand for an initial five year term at product prices agreed to between the parties. In the Manufacturing Agreement, we agreed to pay certain shortfall penalties in the event that orders for manufactured products are below certain thresholds, which penalties shall not exceed $660,000 in any of the first of four specified 12 months periods, and which will not exceed approximately $5.54 million in the aggregate following the fifth such 12 month period.

NOTE 17. Selected Quarterly Financial Information (unaudited)

The following tables present our unaudited consolidated results of operations for the eight most recently ended quarters. We believe that all necessary adjustments, consisting only of normal recurring adjustments, have been included in the amounts below to present fairly the selected quarterly information when read in conjunction with the consolidated financial statements and notes included elsewhere in this Annual Report. Our results from operations vary substantially from quarter to quarter. Accordingly, the operating results for a quarter are not necessarily indicative of results for any subsequent quarter or for the full year. We have experienced and expect to continue to experience significant fluctuations in quarterly results.

EMCORE CORPORATION
Quarterly Consolidated Statements of Operations
For the Fiscal Year ended September 30, 2019
(in thousands, except income per share)
(unaudited)

	For the Three Months ended			
	December 31, 2018	March 31, 2019	June 30, 2019	September 30, 2019
Revenue	$ 24,001	$ 21,745	$ 17,219	$ 24,300
Cost of revenue	18,193	15,936	13,515	24,532
Gross profit	5,808	5,809	3,704	(232)
Operating expense (income):				
Selling, general, and administrative	7,593	6,996	9,288	8,217
Research and development	4,019	4,360	4,629	6,435
Gain from change in estimate on ARO obligation	—	(40)	—	26
Gain on sale of assets	—	—	—	(302)
Total operating expense	11,612	11,316	13,917	14,376
Operating loss	(5,804)	(5,507)	(10,213)	(14,608)
Other income (expense):				
Interest income, net	267	224	99	39
Foreign exchange gain (loss)	14	304	(349)	(396)
Other income	—	—	—	—
Total other income (expense)	281	528	(250)	(357)
Loss from operations before income tax expense	(5,523)	(4,979)	(10,463)	(14,965)
Income tax expense	(15)	(15)	(14)	(10)
Net loss	$ (5,538)	$ (4,994)	$ (10,477)	$ (14,975)
Per share data:				
Net loss per basic and diluted share	$ (0.20)	$ (0.18)	$ (0.37)	$ (0.52)
Weighted-average number of basic and diluted shares outstanding	27,534	27,652	28,005	28,734

EMCORE CORPORATION
Quarterly Consolidated Statements of Operations
For the Fiscal Year ended September 30, 2018
(in thousands, except income per share)
(unaudited)

	For the Three Months ended			
	December 31, 2017	March 31, 2018	June 30, 2018	September 30, 2018
Revenue	$ 24,036	$ 18,623	$ 17,717	$ 25,241
Cost of revenue	16,122	13,676	16,519	20,813
Gross profit	7,914	4,947	1,198	4,428
Operating expense (income):				
Selling, general, and administrative	4,819	5,644	5,237	5,532
Research and development	3,800	3,300	3,915	4,372
Loss from change in estimate on ARO obligation	—	—	—	145
Loss (gain) on sale of assets	107	(68)	—	(5)
Total operating expense	8,726	8,876	9,152	10,044
Operating loss	(812)	(3,929)	(7,954)	(5,616)
Other income (expense):				
Interest income, net	111	163	216	243
Foreign exchange gain (loss)	286	526	(676)	(570)
Other income	—	—	—	110
Total other income (expense)	397	689	(460)	(217)
Loss from operations before income tax benefit (expense)	(415)	(3,240)	(8,414)	(5,833)
Income tax benefit (expense)	333	169	—	(53)
Net loss	$ (82)	$ (3,071)	$ (8,414)	$ (5,886)
Per share data:				
Net loss per basic and diluted share	$ (0.00)	$ (0.11)	$ (0.31)	$ (0.21)
Weighted-average number of basic and diluted shares outstanding	27,032	27,197	27,387	27,424

Report of Independent Registered Public Accounting Firm

To the Shareholders and Board of Directors
EMCORE Corporation:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of EMCORE Corporation and subsidiaries (the Company) as of September 30, 2019 and 2018, the related consolidated statements of operations and comprehensive (loss) income, shareholders' equity, and cash flows for each of the years in the three–year period ended September 30, 2019, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of September 30, 2019 and 2018, and the results of their operations and their cash flows for each of the years in the three–year period ended September 30, 2019, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of September 30, 2019, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated December 10, 2019 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ KPMG LLP

We have served as the Company's auditor since 2010.

Irvine, California
December 10, 2019

ITEM 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

ITEM 9A. Controls and Procedures

On June 7, 2019, we completed the acquisition of SDI. The acquired business constituted approximately 25% of the total assets and 11% of the total revenue included in the consolidated financial statements of the Company as of and for the year ended September 30, 2019. We are in the process of evaluating the existing controls and procedures of the acquired business and integrating the acquired business into our system of internal control over financial reporting. In accordance with SEC staff guidance permitting a company to exclude an acquired business from management's assessment of the effectiveness of internal control over financial reporting for the year in which the acquisition is completed, we have excluded the below assessment of our disclosure controls and procedures the disclosure controls and procedures of the acquired business that are subsumed by internal control over financial reporting and we have excluded the acquired business from our assessment of the effectiveness of our internal control over financial reporting as of September 30, 2019.

a. Evaluation of Disclosure Controls and Procedures

Our management, with the participation of its Chief Executive Officer (Principal Executive Officer) and Chief Financial Officer (Principal Financial Officer and Accounting Officer), evaluated the effectiveness of the Company's disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) promulgated under the Securities Exchange Act of 1934, as amended) (the "Exchange Act")) as of the end of the period covered by this Annual Report on Form 10-K. Based upon this evaluation, our Chief Executive Officer and our Chief Financial Officer concluded that our disclosure controls and procedures were effective as of the end of the period covered by this report.

b. Management's Annual Report on Internal Controls over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such is defined in Rules 13a-15(f) and 15d-15(f) promulgated under the Exchange Act. Under the supervision of our Chief Executive Officer and Chief Financial Officer and with the participation of our management, we conducted an evaluation of the effectiveness of our internal control over financial reporting as of September 30, 2019 based on the framework in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). Based on that evaluation, our management concluded that our internal control over financial reporting was effective as of September 30, 2019.

As indicated above, the evaluation of the effectiveness of our internal control over financial reporting as of September 30, 2019 excluded the business of SDI that we acquired in June 2019. SDI accounted for approximately 25% of the total assets and 11% of the total revenue included in the consolidated financial statements of the Company as of and for the year ended September 30, 2019.

We acquired SDI on June 7, 2019. Management excluded from its evaluation of the effectiveness of our internal control over financial reporting as of September 30, 2019 the acquired entity's internal control over financial reporting associated with 25% of total assets and 11% of total revenue included in our consolidated financial statements as of and for the year ended September 30, 2019.

c. Changes in Internal Control over Financial Reporting

There were no changes in the Company's internal control over financial reporting (as defined in Rule 13a-15(f) and 15d-15(f) promulgated under the Exchange Act) during the quarter ended September 30, 2019 that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

d. Limitations on Effectiveness of Controls and Procedures

Our management, including our Chief Executive Officer and Chief Financial Officer, does not expect that our disclosure controls or our internal controls over financial reporting will prevent or detect all errors 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. Further, 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. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, within the Company have been detected. These inherent limitations include the realities that judgments in decision-making can be faulty, and that breakdowns can occur because of simple error or mistake. Controls can also be circumvented by individual acts, by collusion of two or more people, or by management override of the controls. The design of any system of controls is based, in part, upon 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. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with associated policies or procedures. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

The effectiveness of our internal control over financial reporting as of September 30, 2019 has been audited by KPMG LLP, our independent registered public accounting firm, as stated in their report which is included as follows.

ITEM 9B. Other Information

Not Applicable.

Report of Independent Registered Public Accounting Firm

To the Shareholders and Board of Directors
EMCORE Corporation:

Opinion on Internal Control Over Financial Reporting
We have audited EMCORE Corporation and subsidiaries' (the Company) internal control over financial reporting as of September 30, 2019, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of September 30, 2019, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

The Company acquired Systron Donner Inertial, Inc. (SDI) during 2019, and management excluded from its assessment of the effectiveness of the Company's internal control over financial reporting as of September 30, 2019, SDI's internal control over financial reporting associated with 25% of total assets and 11% of total revenue included in the consolidated financial statements of the Company as of and for the year ended September 30, 2019. Our audit of internal control over financial reporting of the Company also excluded an evaluation of the internal control over financial reporting of SDI.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of September 30, 2019 and 2018, the related consolidated statements of operations and comprehensive (loss) income, shareholders' equity, and cash flows for each of the years in the three-year period ended September 30, 2019, and the related notes (collectively, the consolidated financial statements), and our report dated December 10, 2019 expressed an unqualified opinion on those consolidated financial statements.

Basis for Opinion
The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Annual Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting
A company's internal control over financial reporting is a process designed 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. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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

/s/ KPMG LLP

Irvine, California
December 10, 2019

PART III.

ITEM 10. Directors, Executive Officers and Corporate Governance

Information regarding our executive officers and directors required by this Item is incorporated by reference to the section entitled “Proposal I: Election of Directors - Directors and Executive Officers” that will be included in our Definitive Proxy Statement in connection with our Annual Meeting of Stockholders (Proxy Statement), which will be filed with the SEC within 120 days after the fiscal year ended September 30, 2019. Information required by Item 405 of Regulation S-K is incorporated by reference to the section entitled “Ownership of Securities - Section 16(a) Beneficial Ownership Reporting Compliance” in the Proxy Statement referenced above. Information required by Items 407(c)(3), (d)(4) and (d)(5) of Regulation S-K is incorporated by reference to the Section entitled “Proposal 1: Election of Directors - Governance of the Company - Board Committees” in the Proxy Statement.

We have adopted a code of ethics entitled the “EMCORE Corporation Code of Business Conduct and Ethics,” which is applicable to all employees, officers, and directors of the Company. The full text of our Code of Business Conduct and Ethics is included with the Corporate Governance information available on our website (www.emcore.com). We intend to disclose any changes in or waivers from our code of ethics for our directors and executive officers to the extent disclosure is required by the applicable rules of the SEC and Nasdaq Stock Market LLC by posting such information on our website or by filing a Current Report on Form 8-K.

ITEM 11. Executive Compensation

Information required by this Item is incorporated by reference to the sections entitled “Proposal I: Election of Directors - Director Compensation for Fiscal Year 2019,” “Compensation Discussion and Analysis,” “Executive Compensation,” “Executive Compensation - Compensation Committee Report” and “Executive Compensation - Compensation Committee Interlocks and Insider Participation” in the Proxy Statement.

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

Information regarding security ownership of certain beneficial owners and management is incorporated by reference to the section entitled “Ownership of Securities - Security Ownership of Certain Beneficial Owners and Management” in the Proxy Statement.

Information regarding our equity compensation plans is incorporated by reference to the section entitled “Ownership of Securities - Equity Compensation Plan Information” in the Proxy Statement.

ITEM 13. Certain Relationships, Related Transactions and Director Independence

Information required by this Item is incorporated by reference to the sections entitled “Proposal I: Election of Directors - Governance of the Company - Related Person Transaction Approval Policy” and “Proposal I -: Election of Directors - Governance of the Company - Director Independence” in the Proxy Statement.

ITEM 14. Principal Accounting Fees and Services

Information required by this Item is incorporated by reference to the section entitled “Proposal II: Ratification of the Appointment of Independent Registered Public Accounting Firm - Fiscal Years 2019 & 2018 Auditor Fees and Services” in the Proxy Statement.

Part IV.

ITEM 15. Exhibits and Financial Statement Schedules

(a)(1) Financial Statements

Included in Part II, Item 8 of this Annual Report on Form 10-K:

- Consolidated Statements of Operations and Comprehensive (Loss) Income for the fiscal years ended September 30, 2019, 2018, and 2017
- Consolidated Balance Sheets as of September 30, 2019 and 2018
- Consolidated Statements of Shareholders' Equity for the fiscal years ended September 30, 2019, 2018, and 2017
- Consolidated Statements of Cash Flows for the fiscal years ended September 30, 2019, 2018, and 2017
- Notes to Consolidated Financial Statements
- Report of Independent Registered Public Accounting Firm

(a)(2) Financial Statement Schedules

The applicable financial statement schedules required under this Item 15(a)(2) are presented in our consolidated financial statements and notes thereto under Item 8 of this Annual Report on Form 10-K.

2.1	Purchase and Sale Agreement, dated as of June 7, 2019 by and among EMCORE Corporation, The Resilience Fund IV, L.P., The Resilience Fund IV-A, L.P., Aerospace Newco Holdings, Inc. and Ember Acquisition Sub, Inc. (incorporated by reference to Exhibit 2.1 to the Company’s Current Report on Form 8-K filed on June 10, 2019).
2.2	Asset Purchase Agreement, dated as of October 25, 2019 by and among EMCORE Corporation, Hytera Communications (Hong Kong) Company Limited and Shenzen Hytera Communications Co., Ltd. (incorporated by reference to Exhibit 2.1 to the Company’s Current Report on Form 8-K filed on October 30, 2019).
3.1	Restated Certificate of Incorporation, dated April 4, 2008, (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K filed on April 4, 2008).
3.2	Certificate of Amendment of Restated Certificate of Incorporation, dated February 15, 2012 (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K filed on February 16, 2012).
3.3	Certificate of Amendment of Restated Certificate of Incorporation of EMCORE Corporation, dated September 18, 2014 (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K filed on September 18, 2014).
3.4	Certificate of Designation Establishing the Series A Junior Participating Preferred Stock and Fixing the Powers, Designations, Preferences and Relative, Participating, Optional and Other Special Rights, and the Qualifications, Limitations and Restrictions, of the Series A Junior Participating Preferred Stock, dated September 18, 2014 (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K filed on September 18, 2014).
3.5	Certificate of Amendment to the Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K filed with the SEC on March 20, 2018).
3.6	By-Laws of EMCORE Corporation, as amended through March 19, 2018 (incorporated by reference to Exhibit 3.2 to the Company's Current Report on Form 8-K filed with the SEC on March 20, 2018).
4.1	Specimen Certificate for Shares of Common Stock (incorporated by reference to Exhibit 4.1 to the Company's Annual Report on Form 10-K filed on December 6, 2017).
4.2**	Description of EMCORE Corporation Capital Stock
10.1	Stipulation of Compromise and Settlement, dated as of November 28, 2007, executed by the Company and the other defendants and the plaintiffs in the Federal Court Action and the State Court Actions (incorporated by reference to Exhibit 10.19 to the Company’s Annual Report on Form 10-K filed on December 31, 2007).
10.2†	Directors Compensation Policy (Effective March 17, 2017) (incorporated by reference to Exhibit 10.2 to the Company’s Quarterly Report on Form 10-Q filed on May 4, 2017).
10.3†	Officer and Director Share Purchase Plan (incorporated by reference to Exhibit 10.1 to the Company’s Current Report on Form 8-K filed on January 27, 2011).
10.4†	2010 Equity Incentive Plan, as amended and restated on June 14, 2011 (incorporated by reference to Exhibit 10.1 to the Company’s Current Report on Form 8-K filed on June 16, 2011).
10.5†	Form of award agreement under 2010 Equity Incentive Plan (Incorporated by reference to Exhibit 10.7 to the Company's Annual Report on Form 10-K filed on December 14, 2015).

10.6†	2012 Equity Incentive Plan, as amended and restated on January 19, 2017 (incorporated by reference to Exhibit 10.7 to the Company's Annual Report on Form 10-K filed on December 6, 2017).
10.7†	Form of Restricted Stock Unit Award Agreement under the 2012 Equity Incentive Plan (incorporated by reference to Exhibit 10.9 to the Company's Annual Report on Form 10-K filed on December 14, 2015).
10.8†	Form of time-based Restricted Stock Unit Award Agreement under the 2012 Equity Incentive Plan (as of October 2016) (incorporated by reference to Exhibit 10.9 to the Company's Annual Report on Form 10-K filed on December 7, 2016).
10.9†	Form of Performance-Based Restricted Stock Award Agreement under the 2012 Equity Incentive Plan (for executive officers) (as of December 2017) (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q filed on February 6, 2018).
10.10†	Form of Performance-Based Restricted Stock Award Agreement under the 2012 Equity Incentive Plan (for non-executive officers) (as of October 2016) (incorporated by reference to Exhibit 10.11 to the Company's Annual Report on Form 10-K filed on December 6, 2017).
10.11†	Restricted Stock and Restricted Stock Unit Award Agreement under the 2012 Equity Incentive Plan entered into between the Company and Jeffrey Rittichier, with a grant date of October 18, 2016 (incorporated by reference to Exhibit 10.12 to the Company's Annual Report on Form 10-K filed on December 6, 2017).
10.12†	Performance-Based Restricted Stock and Restricted Stock Unit Award Agreement under the 2012 Equity Incentive Plan entered into between the Company and Jeffrey Rittichier, with a grant date of October 18, 2016 (incorporated by reference to Exhibit 10.13 to the Company's Annual Report on Form 10-K filed on December 6, 2017).
10.13†	EMCORE Corporation 2000 Employee Stock Purchase Plan, as amended March 5, 2014 (incorporated by reference to Exhibit B to the Company's Proxy Statement filed on January 28, 2014).
10.14†	Form of Indemnification Agreement entered into with directors and executive officers (incorporated by reference to Exhibit 10.1 of the Company's Current Report on Form 8-K filed on December 14, 2012).
10.15†	Employment Agreement, dated December 10, 2014, by and between EMCORE Corporation and Jeff Rittichier (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on December 11, 2014).
10.16†	EMCORE Corporation Fiscal 2019 Bonus Plan (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on December 19, 2018).
10.17†	EMCORE Corporation 2019 Equity Incentive Plan (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on March 27, 2019).
10.18†	Form of Time-Based Restricted Stock Unit Award under the EMCORE Corporation 2019 Equity Incentive Plan (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed on March 27, 2019).
10.19†	Form of Performance-Based Restricted Stock Unit Award under the EMCORE Corporation 2019 Equity Incentive Plan (incorporated by reference to Exhibit 10.3 to the Company's Current Report on Form 8-K filed on March 27, 2019).
10.20	Form of Lock-up Agreement (incorporated by reference to Exhibit 10.1 to the Company’s Current Report on Form 8-K filed on June 10, 2019).
10.21†	Employment Agreement, dated August 7, 2019, by and between EMCORE Corporation and Tom Minichiello (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on August 12, 2019).
10.22	Contract Manufacturing Agreement, dated as of October 25, 2019, by and among EMCORE Corporation, Hytera Communications (Hong Kong) Company Limited and Shenzhen Hytera Communications Co., Ltd. (incorporated by reference to Exhibit 10.1 to the Company’s Current Report on Form 8-K filed on October 30, 2019).
21.1**	Subsidiaries of the Company.
23.1**	Consent of KPMG LLP, independent registered public accounting firm.
24.1	Power of Attorney (see the signature page of this Annual Report on Form 10-K).
31.1**	Certificate of Chief Executive Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2**	Certificate of Chief Financial Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1***	Certificate of Chief Executive Officer Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

32.2***	Certificate of Chief Financial Officer Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

101.INS**	XBRL Instance Document.
101.SCH**	XBRL Taxonomy Extension Schema Document.
101.CAL**	XBRL Taxonomy Extension Calculation Linkbase Document.
101.LAB**	XBRL Taxonomy Extension Label Linkbase Document.
101.PRE**	XBRL Taxonomy Extension Presentation Linkbase Document.
101.DEF**	XBRL Taxonomy Extension Definition Linkbase Document.

† *Management contract or compensatory plan*

** *Filed herewith*

*** *Furnished herewith*

ITEM 16. Form 10-K Summary

None.

SIGNATURES

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.

EMCORE CORPORATION

Date:	**December 10, 2019**	By:	**/s/ Jeffrey Rittichier** Jeffrey Rittichier Chief Executive Officer (Principal Executive Officer)
Date:	**December 10, 2019**	By:	**/s/ Tom Minichiello** Tom Minichiello Chief Financial Officer (Principal Financial and Accounting Officer)

Each person whose signature appears below constitutes and appoints and hereby authorizes Jeffrey Rittichier such person's true and lawful attorney-in-fact, with full power of substitution or resubstitution, for such person and in his name, place and stead, in any and all capacities, to sign on such person's behalf, individually and in each capacity stated below, any and all amendments to this Form 10-K, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission granting unto said attorney-in-fact, full power and authority to do and perform each and every act and thing requisite or necessary to be done in and about the premises, as fully to all intents and purposes as such person might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact, or their substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant in the capacities indicated, on December 10, 2019.

Signature	Title
/s/ Jeffrey Rittichier Jeffrey Rittichier	Chief Executive Officer and Director (Principal Executive Officer)
/s/ Tom Minichiello Tom Minichiello	Chief Financial Officer (Principal Financial and Accounting Officer)
/s/ Stephen L. Domenik Stephen L. Domenik	Director
/s/ Gerald J. Fine, Ph.D. Gerald J. Fine, Ph.D.	Chairman of the Board
/s/ Bruce Grooms Bruce Grooms	Director
/s/ Noel Heiks Noel Heiks	Director
/s/ Rex S. Jackson Rex S. Jackson	Director

Exhibit 4.2

DESCRIPTION OF CAPITAL STOCK OF EMCORE CORPORATION

The following is a summary of the material provisions of our Restated Certificate of Incorporation, as amended (our "Certificate of Incorporation"), and By-Laws (our "Bylaws"), insofar as they relate to the material terms of our capital stock. This summary is qualified in its entirety by reference to the full text of our Certificate of Incorporation and Bylaws, which are included as exhibits to our Annual Report on Form 10-K for the year ended September 30, 2019 and filed with the Securities and Exchange Commission on December 10, 2019, 2019. Additionally, the New Jersey Business Corporation Act (the "NJBCA") may also affect the terms of our capital stock.

Authorized Capitalization

Our authorized capital stock consists of:

- 50,000,000 shares of common stock, no par value ("Common Stock"); and
- 5,882,352 shares of preferred stock, par value $0.0001 per share ("Preferred Stock").

As of September 30, 2019, approximately 35.8 million shares of our Common Stock were issued, approximately 28.9 million shares of our Common Stock were issued and outstanding, and no shares of Preferred Stock were issued or outstanding.

Common Stock

Subject to the relative rights, limitations and preferences of the holders of any then outstanding Preferred Stock, holders of our Common Stock will be entitled to certain rights, including (i) to share ratably in dividends if, when and as declared by our Board of Directors (our "Board") out of funds legally available therefor and (ii) in the event of our liquidation, dissolution or winding up, to share ratably in the distribution of assets legally available therefor, after payment of debts and expenses. Each outstanding share of our Common Stock will entitle the holder to one vote on all matters submitted to a vote of the shareholders, including the election of directors, and the holders of shares of our Common Stock will possess the exclusive voting power. The holders of our Common Stock will not have cumulative voting rights in the election of directors or preemptive rights to subscribe for additional shares of our capital stock.

Holders of shares of our Common Stock will have no preference, conversion, exchange, sinking fund, redemption or appraisal rights. All outstanding shares of Common Stock are fully paid and nonassessable.

Preferred Stock

Under the terms of our Certificate of Incorporation, our Board has the authority, without any requirement of vote or class vote of shareholders, to issue up to 5,882,352 shares of Preferred Stock, in one or more classes or series, and to establish and designate in any such class or series of Preferred Stock such priorities, powers, preferences and relative, participating, optional or other special rights and qualifications, limitations and restrictions as it shall determine.

As of September 30, 2019, we have no outstanding shares of Preferred Stock. All shares of Preferred Stock will be, if and when issued, fully paid and nonassessable.

Anti-Takeover Effects of Our Certificate of Incorporation and Bylaw Provisions and the NJBCA

Certain provisions of our Certificate of Incorporation and Bylaws, as well as certain provisions of the NJBCA, may make it more difficult to acquire control of us by means of a tender offer, open market purchase, proxy contest or otherwise. These provisions, summarized below, are expected to discourage certain types of coercive takeover practices and takeover bids that our Board may consider inadequate and to encourage persons seeking to acquire control of our company to first negotiate with our Board. We believe that the benefits of increased protection of our ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure our company outweigh the disadvantages of discouraging takeover or acquisition proposals because, among other things, negotiation of these proposals could result in an improvement of their terms. For additional information, we refer you to the provisions of our Certificate of Incorporation, our Bylaws and the applicable sections of the NJBCA.

Certain Provisions of our Certificate of Incorporation and Bylaws

Certain provisions contained in our Certificate of Incorporation and Bylaws could have an anti-takeover effect. These provisions:

- provided for the classification of our Board into three classes, with staggered three-year terms and, until recent respective amendments to our Certificate of Incorporation and Bylaws to declassify our Board that became effective in March 2018 are fully phased in beginning with our 2021 annual meeting of shareholders, the current three-year term of certain of our directors will remain in effect until their current term expires;

- authorize the issuance by our Board of Preferred Stock, without any requirement of vote or class vote of shareholders, commonly referred to as “blank check” preferred stock, which shares of Preferred Stock may have rights senior to those of our Common Stock;

- do not provide for cumulative voting by shareholders in the election of directors. Under cumulative voting, a minority stockholder holding a sufficient percentage of a class of shares may be able to ensure the election of one or more directors;

- provide that directors may be removed at any time, but only for cause and only by the affirmative vote of the holders of at least a majority of our outstanding shares of capital stock entitled to vote generally in the election of directors cast at a meeting of the shareholders called for that purpose;

- provide that a supermajority vote of our shareholders is required to amend some portions of our Certificate of Incorporation and Bylaws, including requiring approval by the holders of 80% or more of the outstanding shares of our capital stock entitled to vote generally in the election of directors for certain business combinations unless these transactions meet certain fair price criteria and procedural requirements or are approved by two-thirds of our continuing directors;

- limit the persons who can call special shareholder meetings; shareholders do not have authority to call a special meeting of shareholders;

- establish advance notice requirements that must be complied with by shareholders to nominate persons for election to our Board or to propose matters that can be acted on by shareholders at shareholder meetings;

- provide for the filling of vacancies on our Board by action of 66 2/3% of the directors and not by the shareholders; and

- provide that the authorized number of directors may be changed only by resolution of the Board.

New Jersey Shareholders Protection Act

We are subject to NJBCA Section 14A-10A, which is also known the New Jersey Shareholders Protection Act, a type of anti-takeover statute designed to protect shareholders against coercive, unfair or inadequate tender offers and other abusive tactics and to encourage any person contemplating a business combination with us to negotiate with our Board for the fair and equitable treatment of all shareholders. Subject to certain qualifications and exceptions, the statute prohibits an interested stockholder of a corporation from effecting a business combination with the corporation for a period of five years unless the corporation's board of directors approved the combination prior to the shareholder becoming an interested shareholder. In addition, but not in limitation of the five-year restriction, if applicable, corporations covered by the New Jersey statute may not engage at any time in a business combination with any interested shareholder of that corporation unless the combination is approved by the board of directors prior to the interested shareholder's stock acquisition date, the combination receives the approval of two-thirds of the voting stock of the corporation not beneficially owned by the interested shareholder or the combination meets minimum financial terms specified by the statute.

An "interested stockholder" is defined to include any beneficial owner of 10% or more of the voting power of the outstanding voting stock of the corporation and any affiliate or associate of the corporation who within the prior five year period has at any time owned 10% or more of the voting power of the then outstanding stock of the corporation.

The term "business combination" is defined broadly to include, among other things:

- the merger or consolidation of the corporation with the interested stockholder or any corporation that is or after the merger or consolidation would be an affiliate or associate of the interested stockholder,
- the sale, lease, exchange, mortgage, pledge, transfer or other disposition to an interested stockholder or any affiliate or associate of the interested stockholder of 10% or more of the corporation's assets, or
- the issuance or transfer to an interested stockholder or any affiliate or associate of the interested stockholder of 5% or more of the aggregate market value of the stock of the corporation.

The effect of the statute is to protect non-tendering, post-acquisition minority shareholders from mergers in which they will be "squeezed out" after the merger, by prohibiting transactions in which an acquirer could favor itself at the expense of minority shareholders. The statute generally applies to corporations that are organized under New Jersey law, and have a class of stock registered or traded on a national securities exchange or registered with the SEC pursuant to Section 12(g) of the Securities Exchange Act of 1934, as amended.

Listing

Our Common Stock is listed on The Nasdaq Global Select Market under the trading symbol "EMKR."

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is American Stock Transfer & Trust Company, LLC.

Exhibit 21.1

EMCORE Corporation Subsidiaries*

Corona Optical Systems, Inc., A Delaware corporation
EMCORE Hong Kong, Limited, a Hong Kong corporation
Langfang EMCORE Optoelectronics Company, Limited, a Chinese corporation
EMCORE Optoelectronics (Beijing) Company, Limited
Aerospace Newco Holdings, Inc., a Delaware corporation
Systron Donner Inertial, Inc., a Delaware corporation

*As of December 10, 2019

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

The Board of Directors
EMCORE Corporation:

We consent to the incorporation by reference in the registration statement Nos. 333-160368, 333-37306, 333-60816, 333-118076, 333-132317, 333-160360, 333-132318, 333-159769, 333-27507, 333-36445, 333-118074, 333-39547, 333-45827, 333-171929, 333-175777, 333-185699, 333-185698, 333-189451, 333-197179, 333-211192, and 333-230709 on Form S-8 of EMCORE Corporation of our reports dated December 10, 2019, with respect to the consolidated balance sheets of EMCORE Corporation as of September 30, 2019 and 2018, and the related consolidated statements of operations and comprehensive (loss) income, shareholders' equity, and cash flows for each of the years in the three-year period ended September 30, 2019, and the related notes (collectively, the consolidated financial statements), and the effectiveness of internal control over financial reporting as of September 30, 2019, which reports appear in the September 30, 2019 annual report on Form 10-K of EMCORE Corporation.

/s/ KPMG LLP

Irvine, California
December 10, 2019

Exhibit 31.1

EMCORE CORPORATION
CERTIFICATION PURSUANT TO SECTION 302
OF THE SARBANES-OXLEY ACT OF 2002

I, Jeffrey Rittichier, certify that:

1. I have reviewed this Annual Report on Form 10-K of EMCORE Corporation ("Report");

2. Based on my knowledge, this Report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this Report;

3. Based on my knowledge, the financial statements, and other financial information included in this Report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this Report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

    a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this Report is being prepared;

    b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

    c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this Report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this Report based on such evaluation; and

    d. Disclosed in this Report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

    a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

    b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: **December 10, 2019**	By: **/s/ Jeffrey Rittichier**
	Jeffrey Rittichier
	Chief Executive Officer
	(Principal Executive Officer)

Exhibit 31.2

EMCORE CORPORATION
CERTIFICATION PURSUANT TO SECTION 302
OF THE SARBANES-OXLEY ACT OF 2002

I, Tom Minichiello, certify that:

1. I have reviewed this Annual Report on Form 10-K of EMCORE Corporation ("Report");

2. Based on my knowledge, this Report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this Report;

3. Based on my knowledge, the financial statements, and other financial information included in this Report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this Report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

    a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this Report is being prepared;

    b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

    c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this Report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this Report based on such evaluation; and

    d. Disclosed in this Report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

    a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

    b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: **December 10, 2019**	By: **/s/ Tom Minichiello**
	Tom Minichiello
	Chief Financial Officer
	(Principal Financial and Accounting Officer)

Exhibit 32.1

STATEMENT REQUIRED BY 18 U.S.C. §1350, AS ADOPTED
PURSUANT TO §906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K of EMCORE Corporation (the "Company") for the quarterly period ended September 30, 2019, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Jeffrey Rittichier, Chief Executive Officer (Principal 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:

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.

Date: **December 10, 2019**	By: **/s/ Jeffrey Rittichier**
	Jeffrey Rittichier
	Chief Executive Officer
	(Principal Executive Officer)

The foregoing certification is being furnished pursuant to 18 U.S.C. Section 1350. It is not being filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, and it is not to be incorporated by reference into any filing of the Company, regardless of any general incorporation language in such filings.

Exhibit 32.2

STATEMENT REQUIRED BY 18 U.S.C. §1350, AS ADOPTED
PURSUANT TO §906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K of EMCORE Corporation (the "Company") for the quarterly period ended September 30, 2019, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Tom Minichiello, Chief Financial Officer (Principal Financial and Accounting 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:

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.

Date: **December 10, 2019**

By: **/s/ Tom Minichiello**
Tom Minichiello
Chief Financial Officer
(Principal Financial and Accounting Officer)

The foregoing certification is being furnished pursuant to 18 U.S.C. Section 1350. It is not being filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, and it is not to be incorporated by reference into any filing of the Company, regardless of any general incorporation language in such filings.