

VICOR CORP  
Form 10-K  
March 07, 2017  
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**UNITED STATES SECURITIES AND EXCHANGE COMMISSION**

**Washington, D.C. 20549**

**Form 10-K**

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

**For the fiscal year ended December 31, 2016**

**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 0-18277**

**VICOR CORPORATION**

*(Exact name of registrant as specified in its charter)*

**Delaware**

*(State or other jurisdiction of*

*incorporation or organization)*

**25 Frontage Road, Andover, Massachusetts**

*(Address of principal executive offices)*

**04-2742817**

*(IRS employer*

*identification no.)*

**01810**

*(Zip code)*

**Registrant's telephone number, including area code:**

**(978) 470-2900**

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

**Common Stock, \$.01 par value**

*(Title of Class)*

**The NASDAQ Stock Market LLC**

*(Name of Each Exchange on Which Registered)*

**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 Section 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 and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

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

Large Accelerated Filer Accelerated Filer Non-accelerated Filer Smaller Reporting Company  
(Do not check if a smaller reporting company)

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 the voting and non-voting common equity of the registrant held by non-affiliates (for this purpose, persons and entities other than executive officers and directors) of the registrant, as of the registrant's most recently completed second fiscal quarter (June 30, 2016) was approximately \$163,529,000.

<i>Title of Each Class</i>	<i>Number of Shares of Common Stock Outstanding as of February 28, 2017</i>
Class A Common Stock	27,321,277
Class B Common Stock	11,758,218

**DOCUMENTS INCORPORATED BY REFERENCE**

Portions of the Company's definitive proxy statement (the Definitive Proxy Statement) to be filed with the Securities and Exchange Commission pursuant to Regulation 14A and relating to the Company's 2017 annual meeting of stockholders are incorporated by reference into Part III.



**Table of Contents****PART I**

In this Annual Report on Form 10-K, unless the context indicates otherwise, references to Vicor®, the Company, our company, we, us, our, and similar references, refer to Vicor Corporation and subsidiaries.

This Annual Report on Form 10-K contains 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 ). The words believes, expects, anticipates, intend, estimate, plans, assumes, may, will, continue, prospective, project, and other similar expressions identify forward-looking statements. Forward-looking statements also include statements regarding: the transition of our business strategically and organizationally from serving a large number of relatively low volume customers across diversified markets and geographies to serving a small number of relatively large volume customers, typically concentrated in computing and communications; the level of customer orders overall and, in particular, from large customers and the delivery lead times associated therewith; the financial and operational impact of customer changes to shipping schedules; the derivation of a portion of our sales in each quarter from orders booked in the same quarter; our ongoing development of power conversion architectures, switching topologies, packaging technologies, and products; our plans to invest in expanded manufacturing capacity and the timing and location thereof; our continued success depending in part on our ability to attract and retain qualified personnel; our belief cash generated from operations and the total of our cash and cash equivalents will be sufficient to fund operations for the foreseeable future; our belief that we have limited exposure to currency risks; our intentions regarding the declaration and payment of cash dividends; our intentions regarding protecting our rights under our patents; and our expectation that no current litigation or claims will have a material adverse impact on our financial position or results of operations. These statements are based upon our current expectations and estimates as to the prospective events and circumstances that may or may not be within our control and as to which there can be no assurance. Actual results could differ materially from those implied by forward-looking statements as a result of various factors, including our ability to: develop and market new products and technologies cost effectively and on a timely basis; leverage our new technologies in standard products to promote market acceptance of our approach to power system architecture; leverage design wins into increased product sales; continue to meet requirements of key customers and prospects; enter into licensing agreements increasing our market opportunity and accelerating market penetration; realize significant royalties under such licensing agreements; achieve sustainable bookings rates for our products across served markets and geographies; improve manufacturing and operating efficiencies; successfully enforce our intellectual property rights; successfully defend outstanding litigation; hire and retain key personnel; and maintain an effective system of internal controls over financial reporting. These and other factors that may influence actual results are described in this Annual Report on Form 10-K, including but not limited to those described under Part I, Item 1 Business, under Part I, Item 1A Risk Factors, under Part I, Item 3 Legal Proceedings, and under Part II, Item 7 Management's Discussion and Analysis of Financial Condition and Results of Operations . The discussion of our business contained herein, including the identification and assessment of factors that may influence actual results, may not be exhaustive. Therefore, the information presented should be read together with other documents we file with the U.S. Securities and Exchange Commission ( SEC ) from time to time, including Forms 10-Q and 8-K, which may supplement, modify, supersede, or update the factors discussed in this Annual Report on Form 10-K. We do not undertake any obligation to update any forward-looking statements as a result of future events or developments, except as required by law.

**ITEM 1. BUSINESS****Overview**

Vicor Corporation designs, develops, manufactures, and markets modular power components and power systems for converting, regulating, and controlling electric current. We consider power components analogous to building blocks, and our strategy is based largely on products, performing distinct functions, that can be flexibly combined to enable a complete power system. We serve customers with applications for which the high

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conversion efficiency (i.e., the ratio of output power in watts to the power consumed by the device) and high power density (i.e., the amount of power in watts divided by the volume of the device) of our products are well suited. We also offer a range of higher value-added standard products (our Configurable product line) and custom system design and manufacturing capabilities. Both our Configurable products and custom systems leverage the superior performance of our modular power components.

In the market segments we serve, we position the Company as a vendor of power components that can be utilized individually, given their market-leading performance, or combined, given their level of integration, to create highly-differentiated power management solutions. We articulate this positioning through our Power Component Design Methodology, which is our approach to providing our customers the modular products, design tools, and support to enable the rapid design of comprehensive power conversion and management systems.

Our website, [www.vicorpower.com](http://www.vicorpower.com), sets forth detailed information describing our Power Component Design Methodology, all of our products, the applications for which they may be used, and our suite of design tools. The information contained on our website is not a part of, nor incorporated by reference into, this Annual Report on Form 10-K and shall not be deemed filed under the Exchange Act.

We are headquartered in Andover, Massachusetts, where our manufacturing facility is located. We conduct business primarily through the activities of our Brick Business Unit ( BBU ), established in 2005, and our two operating subsidiaries, Picor Corporation, established in 2001, and VI Chip Corporation, established in 2007. Picor Corporation relocated its headquarters from North Smithfield, Rhode Island, to Lincoln, Rhode Island in January 2017. Picor Corporation also has personnel based in Andover, Massachusetts. VI Chip Corporation is headquartered in Andover, Massachusetts, where its manufacturing facilities are co-located with those of the BBU.

Our Vicor Custom Power™ locations are geographically distributed across the United States and all are incorporated in Delaware. In March 2016, we acquired 100% ownership of certain operating assets and cash of our consolidated subsidiary, Converpower Corporation, in which we held a 49% ownership interest. In December 2015, we completed the statutory merger of one Vicor Custom Power subsidiary, Mission Power Solutions, Inc., with and into another subsidiary, Northwest Power, Inc., after which we closed the Mission Power Solutions location. Also in December 2015, we sold our 49% ownership interest in Aegis Power Systems, Inc. to Aegis Power Systems, thereby ending our formal relationship with the subsidiary. The consolidated financial statements presented herein reflect these transactions.

Internationally, we conduct business through subsidiaries incorporated in or branch offices established in individual countries. Vicor Japan Company, Ltd. ( VJCL ), our majority-owned Japanese subsidiary, which is engaged in sales and customer support activities exclusively for the Japanese market, is headquartered in Tokyo, Japan. Vicor B.V., a wholly-owned subsidiary incorporated in the Netherlands, serves as our European distribution center. We have established individual subsidiaries or branch offices to conduct the activities of Technical Support Centers ( TSCs ) located outside of the United States.

VLT, Inc., incorporated in California, is our wholly-owned licensing subsidiary. VICR Securities Corporation, incorporated in Massachusetts, is a subsidiary established to hold certain investment securities.

Our subsidiaries and their legal domicile are set forth in Exhibit 21.1 to this Annual Report on Form 10-K. The activities of all of the above named entities are consolidated in the financial statements presented herein.

We were incorporated in Delaware in 1981. Shares of our Common Stock were listed on the NASDAQ National Market System in April 1990 under the ticker symbol VICR, and we completed an initial public offering of our shares

in May 1991.

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### **Market Background and Our Strategy**

In electrically-powered devices utilizing alternating current ( AC ) voltage from a primary AC source (for example, a wall outlet), a power system converts AC voltage into the stable direct current ( DC ) voltage necessary to power subsystems and/or individual applications and devices (known as loads ). In many electronic devices, this DC voltage may be further converted to one or more higher or lower voltages required by a range of loads. In equipment utilizing DC voltage from a primary DC source (for example, a battery), the initial DC voltage similarly may require further conversion to one or more voltages. Because numerous applications requiring different DC voltages and varied power ratings may exist within an electronic device, and system power architectures themselves vary, we offer an extensive range of products and accessories in numerous application-specific configurations. We believe our product offering is among the most comprehensive in the market segments we serve.

Since the Company was founded, our product strategy has been driven by innovations in design, largely enabled by our focus on the development of differentiated technologies, often implemented in proprietary semiconductor circuitry. Many of our products incorporate patented or proprietary implementations of high-frequency switching topologies, which enable the design of converter modules much smaller and more efficient than conventional alternatives. Emphasizing the superior power density and performance advantages of this technology, our primary product strategy since our founding has been to offer a comprehensive range of component-level building blocks to configure a power system specific to a customer's needs.

Our strategy, competitive positioning, and product offerings, all based on highly differentiated product performance, have anticipated the evolution of system power architectures. As system designs advanced along with the demands of the loads powered, the inherent limitations of historically accepted system power architectures have caused designers to seek out improved solutions.

In 1984, we introduced a significant enhancement of the standardized DC-DC converter: the fully-encapsulated brick module. Our innovative, patented technology utilized our implementation of zero current soft switching topology to deliver unprecedentedly high switching frequencies and, in turn, unprecedented power density. Superior conversion efficiency, overall performance improvements, and full encapsulation (which provided shielding from environmental influences) contributed to significant enhancement of thermal performance characteristics, an important competitive advantage. Such thermal performance enhancement has been critical to the differentiation of our power converters, as the by-product of voltage conversion is heat, which must be dissipated in order to assure the performance of the converter itself and the overall system to which it is delivering power.

The brick module integrated transformation, regulation, isolation, filtering, and/or input protection into a single device, thereby driving the adoption of the Distributed Power Architecture ( DPA ). The dominant system power architecture up until that time, the Centralized Power Architecture ( CPA ), generates all system voltages centrally and distributes these voltages to loads using individual distribution buses (i.e., a conductive circuit, generally made of copper). CPA became expensive and impractical for electronic systems increasingly characterized by widely distributed loads requiring lower voltages, higher currents, and higher speeds. DPA, enabled by the brick concept, allows the distribution of one DC voltage system-wide and downstream conversion of that voltage, with a brick, at a specific load. This approach allows electricity to be distributed through a complex system in the most efficient manner, at a uniform higher voltage (typically 48 volts), thereby dramatically reducing distribution and conversion losses, lowering copper consumption, and significantly increasing design flexibility. With patented advances in switching topology and converter design, Vicor became a leading vendor of brick DC-DC converters in the 1980s and 1990s, particularly within the telecommunications infrastructure segment of the market.



With the advent of enterprise computing in the 1990s, the limitations of DPA became apparent, as the number of different loads on a system board increased beyond the level for which DPA and bricks were well-suited. The Intermediate Bus Architecture ( IBA ), a multi-stage extension of DPA, addressed the space

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constraints, performance requirements, and cost challenges of highly complex system boards by further separating the functions of DC conversion carried out by the brick, which in IBA is replaced by an isolated bus converter delivering a stepped-down (i.e., reduced), unregulated voltage to a non-isolated point-of-load regulator. For computing and, later, networking applications, IBA was more scalable and cost-efficient, as numerous brick DC-DC converters on a system board were replaced by one brick DC-DC converter, providing one system-wide distributed voltage, accompanied by numerous, lower-cost bus converters providing an intermediate bus voltage, typically from 5 to 14 volts, to point-of-load regulators.

Two significant industry changes coincided with the broad adoption of IBA in the late 1990s and the early 2000s. The first change was the significant decline of the telecommunications infrastructure segment that represented our primary focus, while the second change was a pronounced shift toward product commoditization, primarily driven by globalization. These two changes had an interrelated impact on our strategy, as the primary driver of IBA adoption was initial cost reduction, not system conversion efficiency. As such, IBA was broadly implemented using 12 volt distribution, not the more efficient 48 volt distribution, our core competency.

Unwilling to pursue rapidly commoditized market opportunities, notably in IBA, and unwilling to relocate our manufacturing to lower-cost countries, we shifted our strategy and operations in the 2000s to emphasize mass customization, using highly automated, efficient, domestic manufacturing to serve customers with product design and performance requirements, across a wide range of worldwide market segments, that could not be met by high-volume oriented competitors. We focused on applications, largely implementations of DPA, for which our brick DC-DC converters were well-suited, in market segments such as aerospace and defense electronics, industrial automation and equipment, instrumentation and test equipment, and transportation (e.g., rail). This strategy has been the basis upon which the BBU has competed since this strategic and operational shift. The customers served range from independent manufacturers of highly specialized electronic devices to larger original equipment manufacturers ( OEMs ) and their contract manufacturers.

During the 2000s, we embarked on a long-term strategy based on our belief that our competitors' products and existing system power architectures, notably IBA, would not meet evolving market requirements, notably system conversion efficiency. Over the last decade, we have invested significantly in the development of new power component technologies and product concepts addressing two meaningful market trends, the first toward higher required conversion efficiencies, and the second toward higher currents, more and diverse on-board voltages, and the higher performance demands of numerous complex loads. Reflecting the versatile, building block approach of our Power Component Design Methodology, in 2003 we introduced our Factorized Power Architecture™ ( FPA ), an innovative, component-based approach to flexible, rapid system design, based on separate components optimized to perform a specific function. We continue to believe FPA represents a compelling architectural alternative to other architectural implementations, as it offers superior conversion efficiency, higher power density, improved system responsiveness, and an attractive total cost of ownership, while offering design flexibility. FPA increases total system conversion efficiency by separating power conversion stages, reducing the number of stages required (i.e., duplicated functions requiring separate components), reducing system distribution losses, and reducing power dissipation at the point-of-load.

To support implementation of FPA, we introduced our initial range of VI Chip modules exploiting our proprietary expertise in soft switching topologies and control, power semiconductors, materials, and packaging: the PRM® (Pre-Regulator Module), a non-isolated buck-boost regulator; the BCM® (Bus Converter Module), an isolated, fixed ratio intermediate bus voltage converter; and the VTM® (Voltage Transformation Module), an isolated current multiplier (i.e., voltage converter). The VTM and BCM utilize on our Sine Amplitude Converter™ switching topology, a patented fixed-frequency implementation of zero current / zero voltage soft switching, while the PRM is based on our proprietary implementation of zero voltage soft switching ( ZVS ), which is optimized for buck-boost

voltage regulation. All three products incorporate technologies for which we have been issued patents or have patent applications pending.

Beginning in 2011, we began to shift our strategic focus toward higher-volume opportunities with global OEMs and their contract manufacturers, as FPA and VI Chip modules offered superior power density, conversion

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efficiency, and thermal management characteristics for board-based, rack-mounted point-of-load applications, notably for microprocessors requiring tightly regulated high currents. FPA and our first-generation VI Chip modules were adopted by customers for use in demanding applications, most notably supercomputing, sophisticated test instrumentation, and defense electronics. However, broader adoption was inhibited by cost considerations and, to a lesser extent, a narrow product range.

In response, we undertook development of a substantially improved product platform, which we introduced in 2013. Our ChiP platform (ChiP is an acronym for Converter housed in Package) specifically was designed to be a scalable, leveragable module format with lower manufacturing costs. ChiPs are offered in the same functional families as the earlier VI Chip modules, using the same advanced switching topologies, but, because of the format's design flexibility and improved manufacturability, we are able to offer much broader ranges of performance specifications within existing and new functional families. Because ChiPs were designed to be manufactured with lower costs, we are able to profitably sell ChiPs and ChiP-based solutions at competitive prices, on a cents-per-watt basis, comparable to prices of alternative commodity products. While our first-generation VI Chip modules were designed to facilitate FPA implementations, ChiP modules support all known power distribution architectures, including FPA, thereby expanding our addressable market opportunity (i.e., the range of customer applications across which our products can be used).

At the same time, our Picor subsidiary undertook development of a high-performance family of point-of-load regulators, in SiP (System in Package LGA package) format, to be integrated into our expanded product portfolio, truly enabling comprehensive power management solutions to point(s)-of-load. These Cool-Power® point-of-load regulators have been designed to meet the requirements of high-volume OEMs for cost-effectiveness, design flexibility, and high performance.

In 2014, we introduced the VIA packaging concept (VIA is an acronym for Vicor Integrated Adaptor™), a rugged, double-sided package for ChiP modules integrating complementary components, circuitry, and superior thermal management. In 2016, we completed the installation of our first dedicated manufacturing line exclusively for the VIA packaging concept. The VIA package provides customers an advanced, turn-key solution for their demanding power needs, cost-effectively accelerating design cycles and time-to-market, while providing superior power density. The VIA package is particularly differentiated by the flexibility it provides designers, as it offers substantial thermal advantages, and its form factor allows a broad range of installation options. We consider the VIA package to be strategically important, as it has been designed to be used in the widest range of power system architectures and applications, as well as serving as the packaging platform for our line of ChiP-based AC-DC front end converters, a critical element of our comprehensive product portfolio enabling highly-differentiated power management solutions from the AC or DC source to the point(s)-of-load. The VIA package enables us to target applications ranging from those addressed by our legacy brick products to the most challenging emerging applications.

With the introduction of innovative new products, we began executing a transitional go-to-market strategy based on our Power Component Design Methodology, exploiting our historical strengths, while addressing both the realities of today's power conversion marketplace and our vision of its long-term direction. This strategy involves maintaining a profitable legacy business in bricks and brick-based system solutions, while investing in and transitioning to a new, advanced product portfolio based largely on the ChiP platform, targeting high growth opportunities.

Today, we target well-defined applications for which the high conversion efficiency and high power density of our products are well suited within the following industrial and military market segments: aerospace and aviation; defense electronics; enterprise and high performance computing (including large scale datacenters and supercomputers); industrial automation, instrumentation, and test equipment; medical diagnostics; telecommunications and network equipment and infrastructure; and vehicles and transportation infrastructure. With our new, advanced products, we

also are pursuing opportunities in emerging market segments, including: autonomous vehicles; hybrid and electric vehicles; commercial solid state lighting; and 380 volt DC-based facility infrastructure (also referred to as HVDC (for high voltage DC distribution) or micro-grids ).

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Our competitive positioning has been, and will continue to be, supported by our long-standing commitment to research and development of power conversion technologies, advanced packaging and manufacturing, and innovative approaches to solving customer problems. We incurred approximately \$41,848,000, \$41,472,000, and \$41,479,000 in research and development expenses in 2016, 2015, and 2014, respectively, representing approximately 20.9%, 18.8%, and 18.4% of revenues in 2016, 2015, and 2014, respectively.

As stated, our strategy involves maintaining high levels of customer engagement and support, which has resulted in significant expansion of our sales and application engineering infrastructure over historical levels, notably in high growth regions of the world such as China, Korea, and India. We incurred approximately \$37,967,000, \$37,336,000, and \$38,056,000 in marketing and sales expenses in 2016, 2015, and 2014, respectively, representing approximately 19.0%, 17.0%, and 16.9% of revenues in 2016, 2015, and 2014, respectively.

We intend to maintain spending in support of research and development and marketing and sales at levels, on an absolute basis, consistent with prior periods. If we successfully execute our strategy, we believe our revenue should increase and, if so, the percentages of revenue represented by spending on research and development and marketing and sales should decline.

## **Competition**

Despite significant consolidation of our competitors, the growth of large-scale, low-cost competitors, and increased application overlap with vendors of solutions based on semiconductors and discrete components, the global merchant market for AC-DC and DC-DC power conversion solutions remains fragmented, with over 1,000 merchant vendors. The market is made up of many large, diversified manufacturers, as well as many smaller manufacturers focused on specialized products or narrowly defined market segments or geographies. The overall market, including those segments in which we compete, is characterized by rapid commoditization and intense price competition.

Although numerous third party industry studies estimate the total global merchant market for AC-DC and DC-DC switching power supplies to exceed \$20 billion of annual revenue, representing approximately two-thirds of the total annual consumption of switching power supplies (i.e., the sum of merchant and captive volumes consumed), the Company competes in smaller, well-defined industrial and military market segments. We believe AC-DC power supplies represent more than 85% of the total merchant market, reflecting a wide range of battery charging applications, primarily in the consumer, mobile device, and office computing segments (commodity segments in which we do not compete, together representing more than 50% of the total merchant market). Based on our own assessment of the segments in which we do compete, we estimate our aggregate addressable market opportunity within the AC-DC portion of the merchant market approaches \$1 billion annually, while we estimate our aggregate addressable market opportunity within the DC-DC portion of the merchant market exceeds \$3 billion annually.

Despite our relative position in the overall merchant market, our small historical presence in the AC-DC portion of the merchant market, and the competitive presence of numerous, far larger vendors in the market segments we serve, we believe we are consistently among the largest volume vendors of solutions for the conversion, regulation, and control of DC-DC current, particularly in the market segments we serve. However, numerous competitors in these market segments have significantly greater financial and marketing resources and longer operating histories than we do.

The competitive characteristics of market segments we serve with our transitional go-to-market strategy may vary. Generally, competition is based on product price, product performance, design flexibility (i.e., ease of use), and product availability. We seek to position ourselves with customers across all market segments served in a manner that reduces our vulnerability to commoditization. As we shift our strategy to focus more on higher volume OEM opportunities, we are emphasizing what we believe are our sustainable competitive advantages: the differentiation of

our products superior performance and power densities; a compelling value proposition based

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on lower total cost of ownership enabled by superior power conversion efficiencies; and the advantageous design flexibility enabled by our products and tools. The BBU, given its history, continues to compete on the basis of differentiated responsiveness to individual customer requirements enabled by our mass customization capabilities, largely with brick DC-DC converters. However, the BBU is pursuing opportunities for which our new products are appropriate, particularly with VIA packaged ChiPs.

Our VI Chip and Picor subsidiaries, given our focus on higher-volume OEM opportunities with our new, innovative products, seek to build customer awareness and acceptance of our products and value propositions through the high levels of customer engagement and support described above. VI Chip and Picor are pursuing applications with these OEMs and their contract manufacturers in market segments for which the advantages of our new products are most compelling. In particular, we are marketing FPA, enabled by our new products, as an alternative to IBA and other distributed architectures, primarily in enterprise computing (notably for large-scale datacenter and supercomputing applications). A complement to this customer-specific effort is the ongoing development of collaborative relationships with influential suppliers to our OEM customers.

## **Our Products**

Reflecting our Power Component Design Methodology, we offer a comprehensive range of individual, highly integrated building blocks enabling design of a power system specific to a customer's needs. Since introducing and popularizing the encapsulated brick package format during the 1980s, our product focus has been on high performance DC-DC switching converters providing the transformation, regulation, isolation, filtering, and/or input protection necessary to power and protect sophisticated electronic loads. With the development of FPA, VI Chip modules, Picor point-of-load regulators, and, most recently, ChiP modules and the VIA packaging platform, we believe we offer the most advanced range of high-performance power components in the industry. A secondary and highly complementary product strategy has been to vertically integrate our component-level building blocks into complete power systems representing turnkey AC-DC and DC-DC solutions for our customers' power needs.

Reflecting our history and direction, we broadly categorize our products as either legacy or advanced, generally based on design, performance, and form factor considerations, as well as the range of applications for which the products are appropriate.

### ***Legacy Products***

The following product groups include those that historically generated the majority of our revenue. Some of our brick product lines have been in production for over a decade, reflecting the long-established relationships we have with many customers and the long-standing suitability of our products to their demanding applications. Their generally long lifecycles and well-established share of targeted market segments provide the competitive foundation and organizational resources for our transitional go-to-market strategy.

#### ***Bricks (Modular DC-DC Converters and Complementary Components)***

We offer brick modules as DC-DC converters, as well as complementary components providing AC line rectification, input filtering, power factor correction, and transient protection. All of our brick modules are encapsulated with a dielectric, thermally-conductive material, thereby providing electrical insulation, thermal conductivity, and environmental protection of the electronic circuitry. These products are well-established as important, reliable elements of conventional power systems architectures.



The BBU currently offers seven families of high power density, component-level DC-DC converters, representing what we believe to be the broadest selection of DC-DC converter modules in the industry: the VI-200™, VI-J00™, MI-200™, MI-J00™, and the FasTrak™ module line, our highest volume products, made up of the Maxi, Mini, and Micro product families. All of our DC-DC converters are based on our proprietary approach to resonant soft switching, enabling high efficiencies and power

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densities. Wide ranges of input voltage (from nine to 425 volts), output voltages (from two to 54 volts), and output power (up to 600 watts) are offered, allowing end users to select components appropriate to their individual applications. The products differ in temperature grades, maximum power ratings, performance characteristics, pin configuration, and, in certain cases, characteristics specific to the targeted market. Brick DC-DC converters are offered in sizes, depending on family, ranging from 116.9 x 61.0 x 12.7 mm (full brick), to 57.9 x 61.0 x 12.7 mm (half brick), to 57.9 x 36.8 x 12.7 mm (quarter brick).

Products from our broad line of complementary components are used to condition and/or filter the input and output voltages of the brick DC-DC converter. Generally, these components address customer requirements at the AC current source, upstream from our DC-DC converters, providing rectification of the AC current, input filtering, inrush limiting, and transient protection. An example of such a complementary product is our HAM™ (Harmonic Attenuator Module), a front end providing power factor correction. The HAM utilizes a proprietary zero current switching boost converter, allowing it to provide output power of up to 675 watts and DC output voltage of 365 volts.

We also offer numerous accessories (for example, base plates and heat sinks) to meet customer requirements.

These products are generally targeted at applications requiring high performance and reliability in the following market segments: aerospace and aviation; defense electronics; industrial automation, instrumentation, and test equipment; medical diagnostics; telecommunications infrastructure; and vehicles and transportation infrastructure.

### *Open-Frame Intermediate Bus Converters*

We offer an extensive line of open-frame (i.e., not encapsulated) intermediate bus converters ( IBCs ) for implementation of multi-stage power conversion. These devices utilize the same Sine Amplitude Converter switching topology utilized in our VTM and BCM modules in the VI Chip and ChiP formats. These low profile, isolated, fixed-ratio IBCs conform to industry standard quarter-brick and eighth-brick sizes, but offer increased capabilities and exceptional performance.

These devices typically are used in telecommunications and networking equipment applications. Because our IBCs represent pin compatible upgrades for existing designs, a customer, for example, can replace a competitor's quarter-brick unit with our eighth-brick converter, using half the available space, while meaningfully improving system performance.

### *Cool-Power High Density ZVS DC-DC Converters*

We offer a family of isolated DC-DC converters delivering up to 60 watts in a very small (22 x 16.5 x 6.7 mm) surface-mount package. Because these small devices are packaged in the VI Chip over-molded package, they are able to withstand harsh environments in applications for which space is limited and light weight is advantageous (e.g., aerospace, aviation, and defense electronics). These high density converter modules are offered in three input voltages: 48 volt nominal for communication applications; 28 volt nominal for rugged high temperature or military applications; and 24 volt nominal for industrial applications.

Cool-Power converters utilize our proprietary zero voltage soft switching topology ( ZVS ) to achieve high-switching frequencies enabling best-in-class power density, while reducing input and output filtering requirements.

*Configurable Products*

Utilizing our modular brick components to drive system function, we offer numerous higher valued-added standard products we configure to a customer's specific needs, often with multiple voltage outputs. These near-custom products exploit the benefits and flexibility of our modular approach to offer higher performance, higher power densities, lower costs, and faster delivery than many competitive offerings. These AC-DC and DC-DC configurable products are designed, developed, and manufactured by the BBU.

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Our highest volume configurable product, the FlatPAC™, is representative of our approach to integrating our power components to create high-performance solutions. FlatPACs, available in thousands of configurations in three package variants based on the number of DC output voltages, are complete, conductively-cooled AC-DC conversion solutions comprised of our VI-200 DC-DC converter modules and our complementary components, described above, providing rectification and filtering of the AC input voltage.

Our configurable products typically are used in a range of CPA and distributed power architecture implementations in defense electronics, industrial and transportation applications, as well as medical instrumentation.

### *Custom Power Systems*

Certain customers rely on us to design, develop, and manufacture custom power systems to meet performance and/or form factor requirements that cannot be met with off-the-shelf system solutions. These low-volume, high value-add products frequently are designed to function reliably in the harsh environments associated with aerospace, aviation, and defense applications, but also are used in applications ranging from industrial equipment to medical instrumentation. By utilizing our modular components to drive system function, we have been able to meet such customers' needs with reliable, high power density, turnkey solutions.

### ***Advanced Products***

The following product groups include those that reflect our vision of the direction of the market segments we serve with our Power Component Design Methodology. Many of these products are targeted toward FPA implementations, but our more recently introduced products are suitable for other distributed architectures.

### *ChiPs (Modular Power Components)*

In 2013, our VI Chip Corporation subsidiary introduced the ChiP platform, designed to be a scalable, leveragable module format with lower manufacturing costs. We believe the ChiP platform establishes best-in-class standards for a new generation of scalable power modules, while expanding our capability range and, in turn, our addressable market opportunity. Combining advanced proprietary magnetic structures, power semiconductors, and microcontrollers in a high density interconnect substrate, the ChiP delivers superior thermal management characteristics, allowing customers to achieve low cost power system solutions with previously unattainable system efficiency, size, and weight. ChiP modules also have lower manufacturing costs than our original VI Chips, thereby allowing us to offer highly differentiated products, not only with superior total cost of ownership over time, but at attractive initial price points. Our goal is to offer ChiP modules and solutions on a cents per watt basis near or equivalent to the prices of competitive product offerings, thereby presenting customers with a compelling value proposition.

ChiPs are produced in the same functional families as our earlier VI Chip FPA modules (i.e., PRM, BCM, and VTM), but today we offer five package sizes ranging from 6 by 23 mm to 61 by 23 mm. We currently offer over 100 specific ChiP module variants, reflecting the multiple configurations, based on dimensions, lead formats, and performance specifications, enabled by the flexible module format. During 2016, we continued to introduce ChiP modules, adding 32 new products and 128 additional variants within the product families. Based on our current design and development activities, we anticipate, in 2017, further expansion of the range of package sizes, board or chassis mounting alternatives, lead formats, and performance characteristics of our ChiP product offerings. We plan to target a number of these new product families and variants at segments and applications that, if successfully penetrated, should expand the size of our addressable markets.

ChiP modules are targeted at sophisticated applications, regardless of the power distribution architecture, for which their high level of performance and form factor differentiation is appropriate. Across distributed power system architectures, ChiPs are targeted at: aerospace and aviation (e.g., for

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use in unmanned aerial vehicles, due to their conversion efficiency, reliability, small form factor, and light weight); computing (e.g., for source to point-of-load solutions in servers deployed in datacenters, due to their conversion efficiency and flexibility of use, which contribute to lower total cost of ownership); defense electronics (e.g., for use in airborne, seaborne, or field radar, due to their high power capabilities, conversion efficiency, ruggedness, and reliability); industrial automation, instrumentation, and test equipment (e.g., for use in semiconductor testing, due to their power density and tight current regulation); telecommunications and networking infrastructure (e.g., for use in pole-mounted small-cell base stations in urban environments, due to their form factor, reliability, and cost/performance profile); and vehicles (e.g., in hybrid electric vehicles, due to their form factor, light weight, differentiated performance, and cost/performance profile). As stated, we also are pursuing applications with OEMs and their contract manufacturers in market segments for which the advantages of ChiPs are most compelling.

*VIAs (Vicor Integrated Adapter Package)*

The VIA platform is a rugged, double-sided, copper-alloy package for ChiP modules, integrating complementary components, circuitry, and superior thermal management through conductive cooling. In 2016, we completed installation of our first dedicated manufacturing line exclusively for the VIA packaging concept.

We consider the VIA platform to be important to our transitional go-to-market strategy, as it has been designed to enable the use of ChiP modules across the widest range of power system architectures, power levels, and applications. It is an easy-to-use power management solution, providing customers an advanced, turn-key solution for their demanding power needs, cost-effectively accelerating design cycles and time-to-market, while providing superior power density. The VIA platform is particularly differentiated by the flexibility it provides designers, as it offers substantial thermal advantages and its form factor allows a broad range of installation options. In numerous applications, the package simplifies thermal design considerations and, in some instances, eliminates the need for a fan for convection cooling, improving overall system reliability and further minimizing the power system footprint. Offered in board and chassis mount configurations, all VIA packages have a vertical dimension of 9.3 mm and a width of 35.5 mm, and, depending on the packaged ChiP module and its functionality, range in length from 72.0 to 141.4 mm.

The VIA platform facilitates our latest AC front-end solution, based on the ChiP PFM<sup>®</sup> (Power Factor Module). The VIA PFM represents a significant improvement over our legacy front-end solutions, thereby enhancing our positioning as a supplier of highly-differentiated power management solutions from the AC source to the point(s) of load. The VIA PFM achieves a market-leading power density of 127 W/in<sup>3</sup>, supplying an isolated DC output of either 24 or 48 volts, at up to 400 watts, from a universal AC input. It operates with active power factor correction at 93% peak conversion efficiency, which is an unprecedented level for an AC-DC converter of this size and power density. Combining the VIA PFM with our small AIM<sup>™</sup> ( AC Input Module ), which provides AC rectification, filtering, transient protection, and inrush limiting capabilities, creates a high-performance AC-DC front-end solution with an unmatched size profile. This solution is especially well-suited for emerging applications with size constraints, including small-cell base stations and commercial LED lighting.

The VIA platform also facilitates the VIA DCM, which is an important product for executing our strategic transition. We currently offer seven variants of the VIA DCM. The product family integrates filtering, output voltage regulation, circuitry protection, and a control interface, giving the VIA DCM the function of a conventional brick DC-DC converter, while offering higher conversion efficiency, superior power density, and the design flexibility described above. As such, we are positioning the VIA DCM as a successor to our legacy brick DC-DC converters, notably in advanced, challenging applications. However, the VIA DCM also is positioned as an innovative, high-performance element of our Power Component Design Methodology, as it has been designed to be integrated with our other

products to facilitate design of comprehensive power system solutions.

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### *Cool-Power® ZVS Modules (System-in-Package Point-of-Load Regulators)*

Our Cool-Power brand of non-isolated, point-of-load regulators currently consists of an expanding portfolio of buck (i.e., the device steps down voltage) and buck-boost (i.e., the device lowers or increases voltage) regulators.

We believe Cool-Power buck regulators provide best in class conversion efficiency (up to 98%), allowing customers to deploy more efficient designs, regardless of power system architecture, based on the compatibility of these point-of-load regulators with higher, more efficient input voltages. Operating from nominal input voltages of 12, 24, or 48 volts, these regulators are optimized for applications requiring high conversion efficiency and power density, such as computer and graphic processors.

The high conversion efficiency of our Cool-Power regulators is enabled by our proprietary ZVS topology, which minimizes switching losses, while maximizing dynamic response to line and load transients. Along with ZVS control circuitry, the advanced design of Cool-Power regulators incorporates proprietary power semiconductors, all within a high-density, surface-mount package.

Cool-Power regulators are competitively well-positioned to address market trends toward higher required conversion efficiencies and higher currents at the point-of-load. The addition of buck-boost variants expands our capabilities to include loads powered by batteries, which are subject to varying voltage delivery over their discharge cycle. We believe these products will be an important contributor to our long-term success, as they represent a meaningful element of our Power Component Design Methodology, enabling comprehensive, highly integrated solutions for FPA and other distributed architectural implementations, fulfilling our strategic commitment to offering integrated solutions all the way from the source to the point-of-load. Our success to date with these products has frequently been when they have been part of an integrated FPA solution, delivering a tightly regulated voltage to a downstream VTM serving as a current multiplier, which in turn delivers low voltage, high amperage, regulated current to the point-of-load, typically a microprocessor. Our 48 volt to point-of-load solutions for datacenter servers is representative of such an integrated FPA solution.

### *Power Path Management Components*

Our Picor subsidiary offers a limited range of specialized components for circuit protection, all of which are characterized by small size, ease-of-use, and differentiated performance. The highest volume products are QuietPower® filters for input filtering of electro-magnetic interference and output noise (i.e., ripple attenuation).

We consider these products to be a valuable complement to our Power Component Design Methodology, despite their relatively small sales volumes, as they enable customers, assisted by our application engineers, to source from Vicor their complete solution to power conversion and management.

### *VI Chips (Modular Power Components)*

We continue to offer the first generation of VI Chip PRM, BCM, and VTM modules, in full (32.5 by 22.0 by 6.73 mm) and half (22.0 by 16.5 by 6.73 mm) sizes, targeting FPA implementations. These products remain compelling solutions for certain applications, notably in defense electronics, medical instrumentation, and test and measurement applications.

With the expansion of ChiP product families, we anticipate our sales of the first generation of VI Chips will be limited to shipments to existing customers during the life cycles of the applications into which these products have been



designed. We expect the life cycles of many of these applications may continue for several years.

**Patents and Intellectual Property**

An important element of our strategy is to protect our competitive leadership with domestic and foreign patents and patent applications that cover our products and much of their enabling technologies. We believe our

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competitive leadership is further protected by proprietary trade secrets associated with our use of certain components and materials of our own design, as well as our significant experience with manufacturing, packaging, and testing these complex devices.

We believe our patents afford advantages by building fundamental and multilayered barriers to competitive encroachment upon key features and performance benefits of our principal product families. Our patents cover the fundamental switching topologies used to achieve the performance attributes of our converter product lines; converter array architectures; product packaging design; product construction; high frequency magnetic structures; as well as automated equipment and methods for circuit and product assembly.

In the United States, as of December 31, 2016, we have been issued 102 total patents, which expire between 2017 and 2035. We also have a number of patent applications pending in the United States and certain countries of Europe and Asia. We have vigorously protected our rights under these patents and will continue to do so. Although we believe patents are an effective way of protecting our technology, there can be no assurances our patents will prove to be enforceable in any given jurisdiction.

In addition to generating revenue from product sales, we seek to license our intellectual property. In granting licenses, we generally retain the right to use our patented technologies and manufacture and sell our products in all licensed geographic areas and fields of use. Licenses are granted and administered through our wholly-owned subsidiary, VLT, Inc., which is the assignee for our patents that may be subject to licensing. Revenues from licensing arrangements have not exceeded 10% of our consolidated revenues in any of the last three fiscal years.

## **Customers and Backlog**

The applications in which our products are used are in the higher-performance, higher-power segments of the market segments we serve. The BBU has customers concentrated in aerospace and aviation, defense electronics, industrial automation and equipment, medical diagnostics, rail transportation, and test and measurement instrumentation. VI Chip and Picor have customers concentrated in the datacenter and supercomputer segments of the computing market, although they also target applications in aerospace and aviation, defense electronics, networking equipment, solid state lighting, test and measurement instrumentation, and transportation (electric and hybrid vehicles and autonomous vehicles). With our strategic emphasis on larger, high-volume customers, we expect to experience a greater concentration of sales among relatively fewer customers.

For the year ended December 31, 2016, one customer, NuPower Electronic, Ltd., accounted for approximately 16.4% of net revenues, and our five largest customers represented approximately 26.5% of net revenues. For the year ended December 31, 2015, one customer, NuPower Electronic, Ltd., accounted for approximately 16.2% of net revenues, and our five largest customers represented approximately 33.4% of net revenues. For the year ended December 31, 2014, one customer (NuPower Electronic, Ltd.) accounted for approximately 14.7% of net revenues, and our five largest customers represented approximately 32.6% of net revenues.

International revenues, as a percentage of total revenues, were approximately 59.4%, 59.6%, and 60.5% in 2016, 2015, and 2014, respectively. Net revenues from customers in China, our largest international market, accounted for approximately 32.1% of total net revenues in 2016, approximately 34.2% in 2015, and approximately 32.3% in 2014, respectively. International sales have increased from historical levels primarily due to higher volumes of shipments to foreign contract manufacturers, many of which are located in China, utilized by domestic and international OEMs. As we have substantially expanded our sales and customer support activities and resources internationally, particularly in Asia, we expect international sales to continue to increase as a percentage of total revenue.

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As of December 31, 2016, we had a backlog of approximately \$48,371,000, compared to \$39,073,000 as of December 31, 2015. Backlog, as presented here, consists of orders for products for which shipment is scheduled

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within the following 12 months, subject to normal customer cancellation policies. A portion of our revenue in any quarter is, and will continue to be, derived from orders booked and shipped in the same quarter. Over the past two years, the portion of sales booked and shipped in the same quarter has represented less than two-fifths of our quarterly revenue, as we typically only build products to customer specifications upon receipt of a purchase order (i.e., we typically do not maintain significant inventories of finished goods for the BBU and VI Chip). Products sold by the BBU may have a lead time (i.e., the period between receipt of an order and shipment of the product) of up to six weeks, although the average lead time for 2016 was less than four weeks. Products sold by VI Chip typically have a lead time in excess of eight weeks. Lead times for the BBU and VI Chip may shorten (and have shortened) during periods of sustained volume. Picor, given its fabless model, builds inventories based on expected customer demand and orders from stocking distribution partners. As such, the portion of sales booked and shipped in the same quarter can vary considerably depending on the relative volumes of BBU, VI Chip, and Picor products booked within the quarter.

**Sales and Marketing**

We reach and serve customers through several channels: a direct sales force; a network of independent sales representative organizations in North America and South America; independent, authorized non-stocking distributors in Europe and Asia; and three authorized stocking distributors world-wide, Digi-Key Corporation, Future Electronics Incorporated, and Mouser Electronics, Inc. These channels are supported by regional TSCs, each offering application engineering and sales support for customers and our channel partners. Domestic TSCs are located in: Andover, Massachusetts; Lombard, Illinois; and Santa Clara, California. International TSCs are located in: Beijing, China; Hong Kong, China; Shanghai, China; Shenzhen, China; Munich, Germany; Bangalore, India; Milan, Italy; Taipei, Taiwan (Republic of China); Seoul, South Korea; and Camberley, United Kingdom. Customers do not place purchase orders with TSCs, but either directly with the Company or with our distributors. In Japan, customers place purchase orders with VJCL or authorized distributors.

Because of the technically complex nature of our products and the applications they address, we maintain an extensive staff of Field Applications Engineers to support our own sales and customer support activities, as well as those of our channel partners. Field Application Engineers, based in our TSCs, provide direct technical support worldwide by reviewing new applications and technical matters with existing and potential customers, as well as our channel partners. Product Line Engineers, located in our Andover headquarters, support Field Application Engineers assigned to all of our TSCs.

Vicor also reaches customers through the recently-expanded electronic commerce capabilities of our website, [www.vicorpower.com](http://www.vicorpower.com). Registered customers in the United States, Canada, and certain European countries are able to purchase prototype quantities of selected products online. We intend to expand these capabilities to allow for higher-volume purchases.

Our web-based resources are an important element of our efforts to interact and support customers. Within our website, *PowerBench*<sup>™</sup> is a workspace of tools and references allowing engineers to select, architect, and implement power systems using Vicor's products. During 2016, we continued to enhance our highly differentiated *Whiteboard*<sup>™</sup> tool, which allows users to configure and analyze their own power system designs or those from an extensive library of designs addressing a wide range of applications. Users can modify the operating condition for each component of their design to match the intended application and perform efficiency and loss analysis of individual components and the full power system. We are aggressively expanding the range and capabilities of engineering tools we make available online to customers and prospective customers.

In 2016, we reorganized our approach to how we address new, low volume customers not already served by our regional distributors in European Union member countries. We discontinued our distributor support initiative, which had been an effort to address the needs of small-volume customers targeted for transition to distributors as their purchase volumes increased. Previously, such customers had placed orders via telephone or email, denominated in Euros or Pounds Sterling, with Vicor B.V., which served as importer of record for shipments by Vicor from Andover, Massachusetts. European TSCs participating in the initiative did not record

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any revenue associated with shipments from Vicor to Vicor B.V. for subsequent delivery to customers. The early-stage, low volume customers previously served by this initiative now are referred by us to either our website or a distributor for order placement.

We generally sell our products on the basis of our standard terms and conditions, and we most commonly warrant our products for a period of two years. Effective January 1, 2017, we extended the warranty period to three years for a range of H Grade, M Grade and MI Family DC-DC converters, input filters, output filters, and front ends sold after that date. In a limited number of circumstances, we have entered into supply contracts with certain high-volume customers calling for extended warranty terms. With our distribution partners, we also enter into contracts providing for our product warranties to transfer to the end customer upon final sale of our product(s) by the stocking distributor.

## **Manufacturing, Quality Assurance, and Supply Chain Management**

Our BBU and VI Chip manufacturing facilities are co-located in Andover, Massachusetts, where we are headquartered. Picor, given its fabless model, outsources manufacturing, packaging, and testing of its products under contract to partners in the United States and Asia.

Our primary manufacturing processes consist of assembly of electronic components onto printed circuit boards; automatic testing of components; wave, reflow and infrared soldering of assembled components; encapsulation or over-molding of converter subassemblies and assemblies; final environmental stress screening of certain products; and product inspection and testing using automated equipment. These processes are largely automated, but their labor components require relatively high levels of skill and training.

We pursue a manufacturing strategy based upon production flexibility and the continuous improvement of product quality, volume throughput, and reduced manufacturing costs. Product quality and reliability are critical to our success and, as such, we emphasize quality and reliability in our design and manufacturing activities. We follow industry best practices in manufacturing and are compliant with ISO 9001 certification standards (as set forth by the International Organization for Standardization). Our quality assurance practices include rigorous testing and, as necessary, burn-in and temperature cycling (i.e., extended operation of a product to confirm performance) of our products using automated equipment.

We continue to make investments in automated manufacturing equipment, particularly for our ChiP modules and VIA packaging platforms. Based on current estimates of ChiP and VIA manufacturing volumes and our capacity requirements, we do not expect to incur capital expenditures during 2017 significantly higher than we incurred during recent years.

Components and materials used in our products are purchased from a variety of domestic and international vendors. Most of the components are available from multiple sources, whether directly from suppliers or indirectly through distributors. In instances of single source items, we maintain levels of inventories we consider to be appropriate to enable meeting the delivery requirements of customers. Incoming components, assemblies, and other parts are subjected to several levels of inspection procedures, and we maintain robust data on our inventories in order to support our quality assurance procedures. Picor, given its fabless model, relies on a limited number of wafer foundries and providers of packaging and test services. Our proprietary switching controllers were designed by and are sourced through Picor, which relies on these wafer foundries and service providers for supply continuity and sufficiency of these critical semiconductor devices.

See Note 17 *Segment Information* to the Consolidated Financial Statements for certain financial information associated with the operations and manufacturing activities of our business segments.

**Employees**

As of December 31, 2016, we had 959 full time employees and 12 part time employees. None of our employees are subject to a collective bargaining agreement. We believe our continued success depends, in part,

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on our ability to attract and retain qualified personnel. Although there is strong demand for qualified personnel, we have not to date experienced difficulty in attracting and retaining sufficient engineering and technical personnel to meet our needs (see Part I, Item 1A – Risk Factors ).

**Available Information**

We maintain a website with the address [www.vicorpower.com](http://www.vicorpower.com) and make available free of charge through this website our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and amendments to these reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act, as soon as reasonably practicable after we electronically file such material with, or furnish such material to, the SEC. We also make available on our website our Code of Business Conduct, as well as the charters for the Audit and Compensation Committees of our Board of Directors.

While our website sets forth extensive information, including information regarding our products and the applications in which they may be used, such information is not a part of, nor incorporated by reference into, this Annual Report on Form 10-K and shall not be deemed filed under the Exchange Act.



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**ITEM 1A. RISK FACTORS**

This Annual Report on Form 10-K contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Exchange Act. Actual results could differ materially from those projected in the forward-looking statements as a result of, among other factors, the risk factors set forth below.

*Our future operating results are difficult to predict and are subject to fluctuations.*

Our operating results, including revenues, gross margins, operating expenses, and net income (loss), have fluctuated on a quarterly and annual basis. Our focus on higher volume opportunities with OEMs and their contract manufacturers has caused the impact of a relative few such customers to disproportionately influence our operating results. Unanticipated delays in purchase orders from and shipments to these customers have resulted in lower revenue, contributing to our recent operating losses. We cannot predict when, or if, we will return to profitability. Our future operating results may be materially affected by a number of factors, many of which are beyond our control, including:

changes in demand for our products and for our customers' end-products incorporating our products, as well as our ability to respond efficiently to such changes in demand, including changes in order lead times and the volume of product for which orders are received and the product shipped within an individual quarter;

our ability to manage our supply chain, inventory levels, and our own manufacturing capacity or that of third-party partners, particularly in the event of delays or cancellation of significant customer orders;

our ability to effectively coordinate changes in the mix of products we manufacture and sell, while managing our ongoing transition in organizational focus from traditional brick power components to our new products;

our ability to provide and maintain a high level of support to an increasing number of demanding, high volume customers;

the ability of our third party suppliers, service subcontractors, and manufacturers to supply us with sufficient quantities of high quality products, components, and/or services on a timely basis;

the effectiveness of our efforts to continuously reduce product costs and manage operating expenses;

our ability to utilize our manufacturing facilities and personnel at efficient levels, maintaining production capacity and manufacturing yields;

the timing of our new product introductions and our ability to meet customer expectations for timely delivery of fully qualified products;

the timing of new product introductions or other competitive actions (e.g., product price reductions) by our competitors;

the ability to hire, retain, and motivate qualified employees to meet the demands of our customers;

intellectual property disputes;

potential significant litigation-related costs;

adverse economic conditions in the United States and those international markets in which we operate;

adverse budgetary conditions within the U.S. government, particularly the Department of Defense, which continue to influence spending on current and anticipated programs into which we sell or anticipate to sell our products;

costs related to compliance with increasing worldwide governance, quality, environmental, and other regulations; and

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the effects of events outside of our control, including natural disasters, public health emergencies, terrorist activities, political risks, international conflicts, information security breaches, communication interruptions, and other *force majeure*.

As a result of these and other factors, we cannot assure you we will not experience significant fluctuations in future operating results on a quarterly or annual basis. In addition, if our operating results do not meet the expectations of investors, the market price of our Common Stock may decline.

***Our stock price has been volatile and may fluctuate in the future.***

Because of the factors set forth below, among others, the trading price of our Common Stock has fluctuated and may continue to fluctuate significantly:

volatility of the financial markets;

uncertainty regarding the prospects of domestic and foreign economies, including currency exchange rates;

uncertainty regarding domestic and international political conditions, including tax and tariff policies;

actual or anticipated fluctuations in our operating performance or that of our competitors;

the performance and prospects of our major customers;

announcements by us or our competitors of significant new products, technical innovations, or litigation;

investor perception of our company and the industry in which we operate;

the absence of earnings estimates and supporting research by investment analysts;

the liquidity of the market for our Common Stock;

the uncertainty of the declaration and payment of future cash dividends on our Common Stock; and

the concentration of ownership of our Common Stock by Dr. Vinciarelli, our Chairman of the Board, Chief Executive Officer, and President.

We do not actively communicate with investment analysts and, as a consequence, we are not aware of earnings estimates or supporting investment research coverage of Vicor and our Common Stock. While we seek to be

transparent in our financial reporting, public statements, and related disclosures, the absence of research coverage may limit investor interest in our Common Stock. Because our operating results have fluctuated on a quarterly and annual basis, investors may have difficulty in assessing our current and future performance.

In the past, we have declared and paid cash dividends on our Common Stock. The payment of dividends is based on the periodic determination by our Board of Directors that we have adequate capital to fund anticipated operating requirements and that excess cash is available for distribution to stockholders via a dividend. We have no formal policy regarding dividends and, as such, investors cannot make assumptions regarding the possibility of future dividend payments nor the amounts and timing thereof.

The ownership of our Common Stock is concentrated between Dr. Vinciarelli and a limited number of institutional investors. As of December 31, 2016, Dr. Vinciarelli owned 9,828,272 shares of our Common Stock, as well as 11,023,648 shares of our unregistered Class B Common Stock (convertible on a one-for-one basis into registered shares of Common Stock), together representing 54.5% of total issued and outstanding shares. Accordingly, the market float for our Common Stock and average daily trading volumes are relatively small, which can negatively impact investors' ability to buy or sell shares of our Common Stock in a timely manner.

Dr. Vinciarelli owns 93.8% of our issued and outstanding Class B shares, which possess 10 votes per share. Dr. Estia J. Eichten, a member of our Board of Directors, owns the majority of the balance of Class B shares

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issued and outstanding. As such, Dr. Vinciarelli, controlling in aggregate 82.7% of our outstanding voting securities, has effective control of our governance.

***Global economic uncertainty could materially and adversely affect our business and consolidated operating results.***

Disruption and further deterioration of global economic conditions, including relative strength of the U.S. Dollar, may reduce customer purchases of our products, thereby reducing our revenues and earnings. In addition, such adverse conditions may, among other things, result in increased price competition for our products, increased risk of excess and obsolete inventories, increased risk in the collectability of our accounts receivable from our customers, increased risk in potential reserves for doubtful accounts and write-offs of accounts receivable, and higher operating costs as a percentage of revenues.

***We compete with many companies possessing far greater resources.***

Some of our competitors have far greater financial, manufacturing, technical, sales and marketing resources than we have. We compete with domestic and foreign manufacturers of integrated power supplies and power conversion components. With the growth of our VI Chip and Picor product lines, we increasingly are competing with global manufacturers of power management products with far larger organizations and broader semiconductor-based product lines. Competition is generally based on design and quality of products, product performance, features and functionality, and product pricing, availability and capacity, with the relative importance of these factors varying among products, markets, and customers. Existing or new competitors may develop products or technologies that more effectively address the demands of our customers and markets with enhanced performance, features and functionality, or lower cost. If we fail to develop and commercialize leading-edge technologies and products that are cost effective and maintain high standards of quality, and introduce them to the market on a timely basis, our competitive position and results of operations could be materially adversely affected.

***Our future success depends upon our ability to develop and market differentiated, leading-edge power conversion products for larger customers, potentially contributing to lengthy product development and sales cycles that may result in significant expenditures before revenues are generated. Our future operating results are dependent on the growth in such customers' businesses and on our ability to profitably develop and deliver products meeting customer requirements.***

The power system industry and the industries in which many of our customers operate are characterized by intense competition, rapid technological change, quickened product obsolescence, and price erosion for mature products, each of which could have an adverse effect on our results of operations. We are following a strategy based on the development of differentiated products addressing what we believe to be the long-term limitations of traditional power architectures, while at the same time sustaining the performance of the BBU, which manufactures and markets our lines of legacy brick products. The development of new products is often a complex, time-consuming, and costly process involving significant investment in research and development, with no assurance of return on investment. Although we have introduced many products over the past three years, there can be no assurance we will be able to continue to develop and introduce new and improved products in a timely or efficient manner. Similarly, there can be no assurance recently introduced or to be developed products will achieve customer acceptance.

Our future success depends substantially upon customer acceptance of our innovative products. As we have been in the early stages of market penetration for these products, we have experienced lengthy periods during which we have focused our product development efforts on the specific requirements of a limited number of large customers, followed by further periods of delay before meaningful purchase orders are received. These lengthy development and sales cycle times increase the possibility a customer may decide to cancel or change product plans, which could

reduce or eliminate our sales to that customer. As a result, we may incur significant

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product development expenses, as well as significant sales and marketing expenses, before we generate the related revenues for these products. Furthermore, we may never generate the anticipated revenues from a product after incurring such expenses if our customer cancels or changes its product plans.

We are shifting our go-to-market strategy to focus on larger opportunities with global OEMs and their contract manufacturers. Our growth is therefore dependent on: the pace at which these OEMs develop their own new products, the acceptance of our products by these OEMs, and the success of the OEM products incorporating our new products. If we fail to anticipate changes in our customers' businesses and their changing product needs or do not successfully identify and enter new markets, our results of operations and financial position could be negatively impacted. We cannot assure you the markets we serve will grow in the future, our existing and new products will meet the requirements of these markets, or we can maintain adequate gross margins or operating profits in these markets.

***Our operating results recently have been influenced by a limited number of customers, and our future results may be similarly influenced.***

Since it was established in 2007, our VI Chip subsidiary has derived a substantial portion of its revenue in any given year from one customer, whether through sales directly to the customer or indirectly to the customer's contract manufacturers. Similarly, our Picor subsidiary has derived a substantial portion of its third-party revenue from a limited number of customers, including those customers served by VI Chip. This concentration of revenue is a reflection of the relatively early stage of adoption of the technologies, architectures, and products offered by these subsidiaries, and their targeting of market leading innovators as initial customers. Our current sales and marketing efforts, in part, are focused on accelerating the adoption of VI Chip and Picor products by a diversified customer base across a number of identified market segments. However, we cannot assure you our new strategy will be successful and such diversification of customers will be achieved.

***Further stagnation of spending by the U.S. Department of Defense or a pronounced shift in the nature of such spending may negatively influence our operating results.***

Customers in the defense electronics segment historically have contributed a meaningful portion of our revenue, primarily in the BBU, which sells military-grade brick modules and, through our Vicor Custom Power businesses, customer-specific systems incorporating our brick modules, primarily for C4I (*Command, Control, Communications, Computing, and Intelligence*) applications. However, shifts in Department of Defense spending priorities and ongoing budget constraints have contributed to a decline in such revenue as a percentage of our consolidated revenue. Additional risks to our defense electronics volume has been associated with the organizational structure, capacity, and ownership of our Vicor Custom Power businesses. In March 2016, we acquired 100% ownership of certain operating assets and cash of our consolidated subsidiary, Converpower Corporation, in which we held a 49% ownership interest, transferring operations to Granite Power Technologies, Inc., a wholly-owned subsidiary we established to assume the operations of a previously unincorporated Vicor Custom Power location (i.e., a division). Converpower ceased operations in December 2015. In December 2015, we completed the statutory merger of one Vicor Custom Power subsidiary, Mission Power Solutions, Inc. with and into another subsidiary, Northwest Power, Inc., after which we closed the Mission Power Solutions location. Also in December 2015, we sold our 49% ownership interest in Aegis Power Systems, Inc. to Aegis Power Systems, thereby ending our formal relationship with the subsidiary. We undertook these transactions in order to consolidate our custom organization, reduce manufacturing capacity, and reduce our cost structure. If the performance of the remaining three Vicor Custom Power subsidiaries does not improve as expected, we may choose to further consolidate our locations or otherwise rationalize our associated cost structure, which may impact our ability to compete cost effectively in this market segment.

***We may not be able to procure necessary key components for our products, or we may purchase excess raw material inventory or unusable inventory, possibly impacting our operating results.***

The power systems industry, and the electronics industry as a whole, can be subject to pronounced business cycles and otherwise subject to sudden and sharp changes in demand. Our success, in part, is dependent on our



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ability to forecast and procure inventories of raw materials and components to match production schedules and customer delivery requirements. Many of our products require raw materials supplied by a limited number of vendors and, in some instances, a single vendor. During certain periods, key components or materials required to build our products may become unavailable in the timeframe required for us to meet our customers' needs. Our inability to secure sufficient materials and components to build products for our customers has, in the past, negatively impacted our sales and operating results and could do so again. We may choose, and have chosen, to mitigate this risk by increasing the levels of inventory for certain materials and components. Such increased inventory levels may increase the potential risk for excess or obsolete inventories, should our forecasts fail to materialize or if there are negative factors impacting our customers' end markets, leading to order cancellation. If we identify excess inventory or determine certain inventory is obsolete (i.e., unusable), we may record additional inventory reserves (i.e., expenses representing the write-off of the excess or obsolete inventory), which could have an adverse effect on our gross margins and on our operating results.

***We rely on third-party vendors and subcontractors for supply of components, assemblies, and services and, therefore, cannot control the availability or quality of such components, assemblies, and services.***

We depend on third-party vendors and subcontractors to supply components, assemblies, and services used in our products, some of which are supplied by a single vendor, and have experienced shortages of certain semiconductor components, incurred additional and unexpected costs to address the shortages, and experienced delays in production and shipping. If suppliers or subcontractors cannot provide their products or services on time or to our specifications, we may not be able to meet the demand for our products and our delivery times may be negatively affected. In addition, we cannot directly control the quality of the products and services provided by third parties. In order to grow revenue, we likely will need to identify and qualify new suppliers and subcontractors to supplant or replace existing suppliers and subcontractors which is a time-consuming and expensive process. In addition, any qualification of new suppliers may require customers of our products utilizing products and services from new suppliers and service providers to undergo a re-qualification process. Such circumstances likely would lead to disruptions in our production, increased production costs, delays in shipping to our customers, and/or increases in prices paid to third parties for products and services.

***We are exposed to foreign economic, political, and other external risks.***

For the years ended December 31, 2016, 2015, and 2014, our revenues from sales outside the United States were 59.4%, 59.6%, and 60.5%, respectively, of the Company's total revenues. Net revenues from customers in China, our largest international market, accounted for approximately 32.1% of total net revenues in 2016, approximately 34.2% in 2015, and approximately 32.3% in 2014, respectively. We expect international sales will continue to be a significant component of total sales, since many of the global manufacturers we target as customers increasingly utilize offshore contract manufacturers and rely upon those contract manufacturers to place orders directly with us. We also expect international revenue from our distributors to increase.

While our currency risks are limited, as our sales are denominated in U.S. Dollars worldwide, with the exception of sales by VJCL and Vicor B.V., our international activities expose us to special risks including, but not limited to, regulatory requirements, economic and political instability, transportation delays, foreign currency controls and market fluctuations, trade barriers and tariffs, and unfavorable shifts in foreign exchange rates. In addition, our international customers' business may be negatively affected by economic sanctions, as were imposed in 2014 by the U.S. Department of the Treasury against certain Russian entities to which we had sold products in the past. Sudden or unexpected changes in the foregoing could have a material adverse effect on our operating results.

***We may be unable to adequately protect our proprietary rights, which may limit our ability to compete effectively.***

We operate in an industry in which the ability to compete depends on the development or acquisition of proprietary technologies that must be protected to preserve the exclusive use of such technologies. We devote

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substantial resources to establish and protect our patents and proprietary rights, and we rely on patent and intellectual property law to protect such rights. This protection, however, may not prevent competitors from independently developing products similar or superior to our products. We may be unable to protect or enforce current patents, may rely on unpatented technology that competitors could restrict or replicate, or may be unable to acquire patents in the future, all of which may have a material adverse effect on our competitive position. In addition, the intellectual property laws of foreign countries may not protect our rights to the same extent as those of the United States. We have been and may need to continue to defend or challenge patents. We have incurred and expect to incur significant financial costs in the defense of our patented technologies and have devoted and expect to devote significant resources to these efforts which, if unsuccessful, may have a material adverse effect on our operating results and financial position.

***We face intellectual property infringement claims that could be disruptive to operations and costly to resolve and may encounter similar infringement claims in the future.***

The power supply industry is characterized by vigorous protection and pursuit of intellectual property rights. We have in the past and may in the future receive communications from third parties asserting that our products or manufacturing processes infringe on a third party's patent or other intellectual property rights. Such assertions, if publicly disclosed, have in the past and may in the future inhibit the willingness of potential customers to purchase certain of our products. In the event a third party makes a valid intellectual property claim against us and a license is not available to us on commercially reasonable terms, or at all, we could be forced to either redesign or stop production of products incorporating that technology, and our operating results could be materially and adversely affected. In addition, litigation may be necessary to defend us against claims of infringement, and this litigation could be costly, extend over a lengthy period of time, and divert the attention of key personnel. An adverse outcome in these types of matters could have a material adverse impact on our operating results and financial condition.

Please see Part I, Item 3 – Legal Proceedings for information regarding current litigation related to our intellectual property.

***Any expenses or liability resulting from the outcome of litigation could adversely affect our operating results and financial condition.***

From time to time, we may be subject to claims or litigation, including intellectual property litigation as described elsewhere in this Annual Report on Form 10-K. Any such claims or litigation may be time-consuming and costly, divert management resources, require us to change our products, or have other adverse effects on our business. Any of the foregoing could have a material adverse effect on our operating results and could require us to pay significant monetary damages.

The outcomes of legal proceedings and claims brought against us are subject to significant uncertainty. An estimated loss from a loss contingency such as a legal proceeding or claim is accrued by a charge to income if it is considered probable an asset has been impaired or a liability has been incurred and the amount of the loss can be reasonably estimated. Disclosure of a contingency is required if there is at least a reasonable possibility that a loss has been incurred. In determining whether a loss should be accrued, we evaluate, among other factors, the degree of probability of an unfavorable outcome and the ability to make a reasonable estimate of the amount of loss. Changes in these factors could materially impact our financial statements. As of December 31, 2016, our evaluation led us to conclude no accrual of a loss contingency was warranted.

***We may face legal claims and litigation from product warranty or other claims that could be costly to resolve.***

We have in the past and may in the future encounter legal action from customers, vendors, or others concerning product warranty or other claims. We generally offer a two-year warranty from the date title passes

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from us for all of our standard products. Effective January 1, 2017, we extended the warranty period to three years for a range of H Grade, M Grade and MI Family DC-DC converters, input filters, output filters, and front ends sold after that date. In a limited number of circumstances, we have entered into supply contracts with certain high-volume customers calling for extended warranty terms. With our distribution partners, we also enter into contracts providing for our product warranties to transfer to the end customer upon final sale of our product(s) by the stocking distributor.

We invest significant resources in the testing of our products; however, if any of our products contain defects, we may be required to incur additional development and remediation costs, pursuant to our warranty policies. These issues may divert our technical and other resources from other product development efforts and could result in claims against us by our customers or others, including liability for costs associated with product returns, which may adversely impact our operating results. If any of our products contain defects, or have reliability, quality or compatibility problems, our reputation may be damaged, which could make it more difficult for us to sell our products to existing and prospective customers and could adversely affect our operating results. We are currently party to a limited number of supply agreements with certain customers contractually committing us to warranty and indemnification requirements exceeding those to which we have been exposed in the past. While we maintain insurance coverage for such exposure, we could incur significant financial cost beyond the limits of such coverage, as well as operational disruption and damage to our competitive position and image if faced with a significant product warranty or other claim.

***Our ability to successfully implement our business strategy may be limited if we do not retain our key personnel and attract and retain skilled and experienced personnel.***

Our success depends on our ability to retain the services of our executive officers. The loss of one or more members of senior management could materially adversely affect our business and financial results. In particular, we are dependent on the services of Dr. Vinciarelli, our founder, Chairman of the Board, Chief Executive Officer, and President. The loss of the services of Dr. Vinciarelli could have a material adverse effect on our development of new products and on our results of operations. In addition, we depend on highly skilled engineers and other personnel with technical skills that are in high demand and are difficult to replace. Our continued operations and growth depend on our ability to attract and retain skilled and experienced personnel in a very competitive employment market. If we are unable to attract and retain these employees, our ability to successfully implement our business strategy may be harmed.

***Extended interruption of production at our manufacturing facility in Andover, Massachusetts, could materially reduce our revenue and increase costs.***

All modular power components, whether for direct sale to customers or for sale to our subsidiaries for incorporation into their respective products, as well as all configurable products, are manufactured at our Andover, Massachusetts, production facility. Substantial damage to this facility due to fire, natural disaster, power loss or other events could interrupt manufacturing. While we have never experienced any meaningful interruption of manufacturing in our history, any prolonged inability to utilize all or a significant portion of our Andover facility could have a material adverse effect on our results of operations.

***Disruption of our information technology infrastructure could adversely affect our business.***

We depend heavily on our computing and communications infrastructure to achieve our business objectives, particularly for email communications, financial and operational record keeping, and our computer-integrated manufacturing processes that control all aspects of our operations in our manufacturing facility in Andover, Massachusetts. If a problem occurs impairing this infrastructure, the resulting disruption could impede our ability to

record or process orders, manufacture and ship in a timely manner, or otherwise carry on business in the normal course. Since 2012, we have experienced no interruption of our computing and communications capabilities. While we carry business interruption insurance that would mitigate financial losses from such an

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interruption to an extent, such insurance may be insufficient to compensate us for the potentially significant amounts incurred. Any such events, if prolonged, could have a material and adverse effect on our operating results and financial condition.

Our systems are designed to protect us from network security breaches and associated disruptions. However, we remain vulnerable to computer viruses and related software-based challenges to the integrity of our systems, unauthorized or illegal break-ins or malicious network hacking, equipment or software sabotage, acts of vandalism to our systems by third parties, and, in the extreme, forms of cyber-terrorism. Our security measures or those of our third-party service providers may not detect or prevent such network security breaches or associated disruptions. Also, we provide confidential information to third-party business partners in certain circumstances when doing so is necessary to conduct business. While we employ confidentiality agreements to protect such information, our own security measures or those of our third-party service providers may not be sufficient to protect such information in the event the computing infrastructure of these third-party business partners is compromised. Security breaches of our computing and communications infrastructure or that of a third-party business partner could result in the misappropriation or unauthorized release of confidential information belonging to us or to our employees, partners, customers or suppliers, which could result in an interruption to our operations, result in a violation of privacy or other laws, expose us to a risk of litigation, or damage our reputation, any of which could have a material and adverse effect on our operating results and financial condition.

***If we fail to maintain an effective system of internal controls over financial reporting or discover material weaknesses in our internal controls over financial reporting, we may not be able to report our financial results accurately or timely or detect fraud, which could have a material adverse effect on our business.***

An effective internal control environment is necessary for us to produce reliable financial reports and is an important part of our effort to prevent financial fraud. Section 404 of the Sarbanes-Oxley Act of 2002 requires our management to report on, and our independent registered public accounting firm to attest to, the effectiveness of our internal control over financial reporting.

We have an ongoing program to perform the system and process evaluation and testing necessary to comply with the requirements of the Sarbanes-Oxley Act and to continuously improve and, when necessary, remediate internal controls over financial reporting.

While management evaluates the effectiveness of our internal controls on a regular basis, these controls may not always be effective. There are inherent limitations on the effectiveness of internal controls, including collusion, management override, and failure in human judgment. In addition, control procedures are designed to reduce rather than eliminate business risks. In the event our Chief Executive Officer, Chief Financial Officer, or independent registered public accounting firm determines our internal controls over financial reporting are not effective as defined under Section 404, we may be unable to produce reliable financial reports or prevent fraud, which could materially adversely affect our business. In addition, we may be subject to sanctions or investigation by government authorities or self-regulatory organizations, such as the SEC or The NASDAQ Stock Market LLC. Any such actions could affect investor perceptions of the Company and result in an adverse reaction in the financial markets due to a loss of confidence in the reliability of our financial statements, which could cause the market price of our Common Stock to decline or limit our access to capital.

***New regulations related to conflict minerals could adversely impact our business.***

The Dodd-Frank Wall Street Reform and Consumer Protection Act contains provisions to improve transparency and accountability concerning the supply of certain minerals, known as conflict minerals (including gold, tantalum, tin,

and tungsten, and their related ores), originating from the Democratic Republic of Congo ( DRC ) and adjoining countries. As a result, in August 2012 the SEC released final rules for annual disclosure and reporting for those companies who use conflict minerals mined from the DRC and adjoining countries in



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their products. We began to implement processes within our supply chain to comply these rules beginning in 2012 and filed our initial Form SD in May 2014. There have been and will continue to be costs associated with complying with these disclosure requirements, including due diligence to determine the sources of conflict minerals used in our products and other potential changes to products, processes, or sources of supply as a consequence of such verification activities. The implementation of these rules could adversely affect the sourcing, supply, and pricing of materials used in our products. As there may be only a limited number of suppliers offering conflict free conflict minerals, we cannot be sure that we will be able to obtain necessary conflict minerals from such suppliers in sufficient quantities or at competitive prices. Also, we may face reputational challenges if we determine that certain of our products contain minerals not determined to be conflict free or if we are unable to sufficiently verify the origins for all conflict minerals used in our products through the procedures we may implement.

**ITEM 1B. UNRESOLVED STAFF COMMENTS**

None.

**ITEM 2. PROPERTIES**

Our corporate headquarters building in Andover, Massachusetts, which we own, provides approximately 90,000 square feet of office space for our sales, marketing, engineering, and administrative personnel and is used by and supports all business segments. We also own a building of approximately 230,000 square feet in Andover, Massachusetts, which houses all Massachusetts manufacturing activities.

In December 2014, we completed the consolidation of manufacturing Westcor's products, from a single-story industrial building of approximately 31,000 square feet in Sunnyvale, California, to our manufacturing facility in Andover, Massachusetts. The Sunnyvale building was purchased in 1994 and is carried on our consolidated balance sheet at a net book value, as of December 31, 2016, of approximately \$631,000. In February 2016, we executed a long-term lease with a corporate tenant, who occupied the building beginning in June 2016.

All other domestic and foreign facilities are leased from third-party lessors on arms length terms. We believe our owned and leased facilities are adequate for our present needs and expect them to remain adequate for the foreseeable future.

**ITEM 3. LEGAL PROCEEDINGS**

On January 28, 2011, SynQor, Inc. ( SynQor ) filed a complaint for patent infringement against Ericsson, Inc. ( Ericsson ), Cisco Systems, Inc. ( Cisco ) and Vicor in the U.S. District Court for the Eastern District of Texas (the Texas Action ). Ericsson and Cisco subsequently settled with SynQor and are no longer parties to the Texas Action. With respect to Vicor, SynQor's complaint in the Texas Action alleged that our products, including but not limited to unregulated bus converters used in intermediate bus architecture power supply systems, infringe SynQor's U.S. patent numbers 7,072,190, 7,272,021, and 7,564,702 ( the 190 patent , the 021 patent and the 702 patent , respectively). SynQor's complaint sought an injunction against further infringement and an award of unspecified compensatory and enhanced damages, interest, costs and attorney fees. On September 20, 2011, SynQor filed an amended complaint in the Texas Action that further alleged that our products, including, but not limited to, unregulated bus converters used in intermediate bus architecture power supply systems, infringe SynQor's U.S. patent number 8,023,290 ( the 290 patent ). We responded to SynQor's amended complaint in the Texas Action by denying our products infringe any of

the SynQor patents, and asserting that the SynQor patents are invalid. We further alleged that the SynQor 290 patent is unenforceable due to inequitable conduct by SynQor or its agents during the examination of the 290 patent at the United States Patent and Trademark Office ( USPTO ). We have also asserted counterclaims seeking damages against SynQor for deceptive trade practices and tortious interference with prospective economic advantage arising from SynQor s attempted enforcement of its patents against us.

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We have initiated administrative review proceedings at the USPTO challenging the validity of certain claims of the SynQor patents asserted in the Texas Action, including all claims that were asserted against us by SynQor. Regarding the 190 patent, the Patent Trial and Appeal Board ( PTAB ) of the USPTO issued a decision upholding the validity of the 190 patent claims. That decision was appealed by us to the United States Court of Appeals for the Federal Circuit ( the Federal Circuit ), which issued a decision on March 13, 2015 reversing the PTAB, determining that certain claims were invalid, and remanding the matter to the PTAB for further proceedings. On May 2, 2016, the PTAB issued a decision determining that all but one of the remaining claims of the 190 patent were invalid and remanding the remaining claim to a patent examiner for further examination, where it remains under review. In addition, on that date, the PTAB issued decisions finding all challenged claims of SynQor s 021 patent invalid and upholding the validity of all challenged claims of SynQor s 702 and 290 patents. We have filed an appeal with the Federal Circuit from the PTAB s decision upholding the validity of the challenged claims of the 702 and 290 patents. SynQor has filed an appeal with the Federal Circuit from the PTAB s decision that the challenged claims of the 021 patent are invalid. Decisions in these appeals are expected later in 2017. On May 23, 2016, the Texas Court issued an order staying the Texas Action until the completion of all of the administrative review proceedings concerning the asserted SynQor patents, including any appeals from such proceedings to the Federal Circuit.

We continue to believe none of our products, including our unregulated bus converters, infringe any valid claim of the asserted SynQor patents, either alone or when used in an intermediate bus architecture implementation, including such use by Cisco. We believe SynQor s claims lack merit and, therefore, continue to vigorously defend ourselves against SynQor s patent infringement allegations. We do not believe a loss is probable for this matter. If a loss were to be incurred, however, we cannot estimate the amount of possible loss or range of possible loss at this time.

In addition to the SynQor matter, we are involved in certain other litigation and claims incidental to the conduct of our business. While the outcome of lawsuits and claims against us cannot be predicted with certainty, we do not expect any current litigation or claims will have a material adverse impact on our financial position or results of operations.

**ITEM 4. *MINE SAFETY DISCLOSURES***

Not Applicable.

**Table of Contents****PART II****ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES**

Our Common Stock is listed on The NASDAQ Stock Market LLC, under the trading symbol VICR. Shares of our Class B Common Stock are not registered with the Securities and Exchange Commission, are not listed on any exchange nor traded on any market, and are subject to transfer restrictions under our Restated Certificate of Incorporation, as amended.

The following table sets forth the quarterly high and low sales prices for the Common Stock as reported by The NASDAQ Stock Market for the periods indicated:

<b>2016</b>	<b>High</b>	<b>Low</b>
First Quarter	\$ 10.60	\$ 7.19
Second Quarter	11.06	8.94
Third Quarter	12.16	9.74
Fourth Quarter	16.05	11.50
<b>2015</b>	<b>High</b>	<b>Low</b>
First Quarter	\$ 15.79	\$ 10.77
Second Quarter	17.21	11.73
Third Quarter	11.89	8.93
Fourth Quarter	10.66	8.96

As of February 28, 2017, there were 153 holders of record of our Common Stock and 13 holders of record of our Class B Common Stock. These numbers do not reflect persons or entities that hold their shares in nominee or street name through various brokerage firms.

**Dividend Policy**

We do not have a policy mandating the declaration of cash dividends at any particular time or on a regular basis. We did not pay cash dividends on our Common Stock for the years ended December 31, 2016 or 2015.

Dividends are declared periodically, only at the discretion of our Board of Directors, and any such declaration depends on actual cash from operations, our financial condition and capital requirements, the recommendation of our management, and any other factors the Board of Directors may consider relevant at the time.

From time to time, excess cash held at the subsidiary level is transferred to the Company via cash dividends declared by the subsidiary. Because we have owned less than 100% of the common stock of certain subsidiaries, such subsidiary dividends can result in payments to outside shareholders of those subsidiaries. During the years ended December 31, 2016 and 2015, one of our subsidiaries paid a total of \$750,000 and \$250,000 in cash dividends, respectively, all of which was paid to us. Dividends paid to outside shareholders of our subsidiaries are accounted for as a reduction in noncontrolling interest.



**Table of Contents****Issuer Purchases of Equity Securities**

<b>Period</b>	<b>Total Number of Shares Purchased</b>	<b>Average Price Paid per Share</b>	<b>Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs</b>	<b>Maximum Number (of Approximate Dollar Value) of Shares that May Yet Be Purchased Under the Plans or Programs</b>
October 1 31, 2016		\$		\$ 8,541,000
November 1 30, 2016		\$		\$ 8,541,000
December 1 31, 2016		\$		\$ 8,541,000
Total		\$		\$ 8,541,000

In November 2000, our Board of Directors authorized the repurchase of up to \$30,000,000 of our Common Stock (the November 2000 Plan ). The November 2000 Plan authorizes us to make such repurchases from time to time in the open market or through privately negotiated transactions. The timing and amounts of Common Stock repurchases are at the discretion of management based on its view of economic and financial market conditions.

**Table of Contents****Stockholder Return Performance Graph**

The graph set forth below presents the cumulative, five-year stockholder return for each of the Company's Common Stock, the Standard & Poor's 500 Index ( S&P 500 Index ), a value-weighted index made up of 500 of the largest, by market capitalization, listed companies, and the Standard & Poor's SmallCap 600 Index ( S&P SmallCap 600 Index ), a value-weighted index of 600 listed companies with market capitalizations between \$200,000,000 and \$1,000,000,000.

The graph assumes an investment of \$100 on December 31, 2011, in each of our Common Stock, the S&P 500 Index, and the S&P SmallCap 600 Index, and assumes reinvestment of all dividends. The historical information set forth below is not necessarily indicative of future performance.

**Comparison of Five Year Cumulative Return****Among Vicor Corporation, S&P 500 Index****and S&P SmallCap 600 Index**

	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
Vicor Corporation	\$100.00	\$ 68.09	\$ 168.59	\$ 152.01	\$ 114.57	\$ 189.70
S&P 500 Index	\$100.00	\$ 116.00	\$ 153.57	\$ 174.60	\$ 177.01	\$ 198.18
S&P SmallCap 600 Index	\$100.00	\$ 116.33	\$ 164.38	\$ 173.84	\$ 170.41	\$ 215.67

Our equity plan information required by this item is incorporated by reference to the information in Part III, Item 12 of this Annual Report on Form 10-K.

**Table of Contents****ITEM 6. SELECTED FINANCIAL DATA**

The following selected consolidated financial data with respect to our statements of operations for the years ended December 31, 2016, 2015, and 2014, and with respect to our balance sheet as of December 31, 2016 and 2015, are derived from our audited Consolidated Financial Statements, which appear elsewhere in this Annual Report on Form 10-K. The following selected consolidated financial data with respect to our statements of operations for the years ended December 31, 2013 and 2012, and with respect to our balance sheets as of December 31, 2014, 2013, and 2012, are derived from our Consolidated Financial Statements, which are not included herein. The data should be read in conjunction with the Consolidated Financial Statements, related notes and other financial information included herein.

Statement of Operations Data	Year Ended December 31,				
	2016	2015	2014	2013	2012
	(In thousands, except per share data)				
Net revenues	\$ 200,280	\$ 220,194	\$ 225,731	\$ 199,160	\$ 218,507
Loss from operations	(6,314)	(267)	(14,763)	(20,467)	(2,785)
Consolidated net income (loss)	(6,261)	5,159	(14,070)	(23,504)	(3,798)
Net income (loss) attributable to noncontrolling interest	(14)	232	(183)	136	279
Net income (loss) attributable to Vicor Corporation	(6,247)	4,927	(13,887)	(23,640)	(4,077)
Net income (loss) per share basic and diluted attributable to Vicor Corporation	(0.16)	0.13	(0.36)	(0.60)	(0.10)
Weighted average shares basic	38,842	38,754	38,569	39,195	41,811
Weighted average shares diluted	38,842	39,146	38,569	39,195	41,811
	As of December 31,				
	(In thousands)				
Balance Sheet Data	2016	2015	2014	2013	2012
Working capital	\$ 89,545	\$ 94,905	\$ 90,321	\$ 97,869	\$ 128,498
Total assets	154,067	157,545	155,542	165,640	202,581
Total liabilities	23,050	21,460	24,990	23,303	20,608
Total equity	131,017	136,085	130,552	142,337	181,973

**ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS****Overview**

We design, develop, manufacture, and market modular power components and power systems for converting, regulating, and controlling electric current. We also license certain rights to our technology in return for recurring royalties. The principal customers for our power converters and systems are large original equipment manufacturers ( OEMs ) and their contract manufacturers, and smaller, lower volume users. We serve a broad range of market segments and geographies worldwide.

We have organized our business segments according to our key product lines. Reflecting our history and direction, we broadly categorize our products as either legacy or advanced, generally based on design, performance, and form factor considerations, as well as the range of applications for which the products are appropriate.



The BBU segment designs, develops, manufactures and markets our legacy lines of DC-DC converters and configurable products, as well as complementary components providing AC line rectification, input filtering, power factor correction, and transient protection. The BBU segment also includes the BBU business conducted through VJCL and our Vicor Custom Power subsidiaries. The BBU has customers concentrated in aerospace and aviation, defense electronics, industrial automation and equipment, medical diagnostics, rail transportation, and test and measurement instrumentation.

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As previously disclosed, on March 30, 2016, we acquired 100% ownership of certain operating assets and cash of Converpower Corporation ( Converpower ). We also entered into a license with Converpower allowing us to continue manufacturing certain products and supporting existing customers. With the closing of the Converpower transaction, we completed the consolidation of our Vicor Custom Power operations into three wholly-owned subsidiaries.

The VI Chip segment consists of our subsidiary, VI Chip Corporation, which designs, develops, manufactures, and markets many of our advanced power component products. The VI Chip segment also includes VI Chip business conducted in Japan through VJCL. VI Chip generally targets large, high-volume customers concentrated in the datacenter and supercomputer segments of the computing market, although we also target applications in aerospace and aviation, defense electronics, electric and hybrid vehicles, instrumentation and test equipment, and networking equipment.

The Picor segment consists of our subsidiary, Picor Corporation, which designs, develops, and markets integrated circuits and related solid-state products for use in a variety of power management and power system applications. Picor is a fabless manufacturer, as its products are manufactured, assembled, packaged, and tested by third parties. Picor develops products for use in our BBU and VI Chip modules, to be sold as complements to our BBU and VI Chip products, or for sale to third parties for separate (i.e., stand-alone) applications, often integrated with VI Chip products to represent a customer solution, particularly in the datacenter and supercomputer segments of the computing market.

Our consolidated results for 2016, particularly our decreased revenue and profitability, continue to be impacted by the general weakness of demand for our legacy products due to global macroeconomic uncertainty. Customer interest in our expanding portfolio of advanced products continues to increase, but we are encountering longer sales cycles than originally anticipated, attributable, in part, to the same macroeconomic trends and industry-specific conditions influencing bookings and sales of our legacy product lines. In addition, for the latter half of 2015 and throughout 2016, demand for our 48 volt to point-of-load solutions for datacenter servers was influenced by customer supply chain matters, notably scheduling delays associated with the release of next generation computer processors. However, since the first quarter of 2016, these solutions received significant, high profile recognition from customers, user groups, and trade publications, leading to increased design activities and design wins with an expanded range of customers. We believe this heightened visibility, along with the implied endorsements of our solutions, has contributed to shortened sales cycles for our advanced products.

We believe the following factors influenced our results for the year ended December 31, 2016, and may continue to influence our results for the foreseeable future:

Global demand for our legacy brick converters, configurable products, and associated components remains unpredictable and at volumes lower than historical trend, given the macroeconomic variables underlying customer confidence across the industries and geographies we serve. Our legacy products are commonly used in high-value capital goods and sizeable infrastructure projects, the end demand for which has lagged, reflecting low-growth economies and budgetary uncertainty. Although we have completed initiatives to reduce our exposure to certain problematic market segments, notably the custom portion of defense electronics, we expect to experience relatively flat aggregate demand for the BBU until customer outlooks improve.

Our profitability is closely aligned with production volumes. We manufacture our products in Andover, Massachusetts, in a state-of-the-art, highly automated factory. While direct labor and associated costs are

scaled with volume, extended periods of low activity and/or small production runs contribute to lower profitability, largely due to lower absorption of overhead expenses, which are less flexible and less scalable, given the sophistication and complexity of our manufacturing processes. An additional influence on product-level profitability has been the availability and delivery timing of certain materials and components we use in our products. Due to the same economic uncertainty we and our customers are experiencing, our suppliers are facing production and scheduling challenges. While we

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closely monitor our supply chain and our raw materials requirements, we are susceptible to production delays and added costs associated with unforeseen supply chain disruption.

We have focused our organization on the promising opportunities for our advanced products, in which we have invested a substantial amount of research and development effort and dollars. Many of these opportunities are in the early phases of market exposure, and we are committed to expanding our product lines and our ability to serve and support customers in pursuit of these opportunities. As such, our operating costs have been high, relative to revenue levels, and likely will remain relatively high until revenue from our legacy products recovers and revenue from our newer advanced products increases on a sustained basis.

Customer adoption of certain new products has been delayed by unanticipated market influences beyond our control. For example, our leadership position in the transition of datacenter computing to 48 volt to point-of-load solutions using our Factorized Power Architecture was the basis for our expectation of an earlier, higher-volume uptake of such solutions and our decisions to focus our resources on such opportunities. However, delays in the transition of processor generations and associated supply chain disruption caused repeated delays in customer purchase orders. We continue to believe our new products, notably our 48 volt to point-of-load solutions for datacenters, will be adopted in volume by multiple, leading customers, particularly in light of various announcements during the first and second quarters of 2016 from two industry trade organizations regarding adoption and support of 48 Volt bus architectures. However, we cannot control the actions by, nor the timing, of our customers, their contract manufacturers, or the significant vendors also participating in the market.

Recent consolidated financial results have been influenced by operational changes and restructuring initiatives. During the first quarter of 2016, we completed the consolidation of our Vicor Custom Power operations, reducing our six domestic locations to three. While this consolidation disrupted the sales, bookings, and manufacturing patterns of the custom operations for the fourth quarter of 2015 and the first quarter of 2016, we believe we currently are achieving our competitive and performance goals.

During the third quarter of 2016, we reversed approximately \$768,000 of stock-based compensation expense related to certain VI Chip performance-based stock options. This resulted in decreases to cost of revenues of \$86,000, selling, general, and administrative expense of \$516,000, and research and development expense of \$166,000 in the third quarter of 2016. (See Note 3 to the Consolidated Financial Statements).

### Financial Highlights:

Net revenues decreased 9.0% to \$200,280,000 for 2016, from \$220,194,000 for 2015, primarily due to an 8.7% decrease in overall BBU bookings for 2016 compared to 2015. While VI Chip and Picor bookings increased year over year, a large portion of their respective bookings in the third and fourth quarter of 2016 was scheduled for shipment in 2017, mitigating the impact of the increased bookings on 2016 revenue.

Export sales, as a percentage of total revenues, represented approximately 59.4% in 2016 and 59.6% in 2015.

Gross margin decreased to \$91,209,000 for 2016, from \$99,518,000 for 2015, due primarily to lower production volumes associated with the decrease in net revenues.

Gross margin, as a percentage of net revenues, increased to 45.5% for 2016 from 45.2% for 2015. The gross margin percentage improved, despite lower net revenues, due to a more favorable product mix and lower charges for warranty reserves.

Backlog, representing the total of orders for products received for which shipment is scheduled within the next 12 months, was approximately \$48,371,000 at the end of 2016, as compared to \$39,073,000 at the end of 2015. The increase in backlog was due to increased VI Chip and Picor bookings in the second half of 2016, compared to the second half of 2015, partially offset by lower BBU bookings.

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Operating expenses for 2016 decreased \$2,262,000, or 2.3%, to \$97,523,000 from \$99,785,000 for 2015, due to a decrease in selling, general, and administrative expenses of \$2,638,000, partially offset by an increase in research and development expense of \$376,000.

The primary components of the decrease in selling, general and administrative expenses were declines in compensation expenses of \$1,077,000, commission expenses of \$748,000, and legal fees of \$734,000.

Lower compensation expenses were due to a reversal of stock-based compensation expense related to certain VI Chip performance-based stock options in the third quarter of 2016, as noted above, the impact of the consolidation of our Vicor Custom Power operations, and the final shutdown of Westcor operations.

The primary elements of the increase in research and development expenses were project and pre-production materials of \$1,214,000, and compensation expenses of \$502,000, partially offset by decreases in deferred costs of \$774,000, depreciation and amortization of \$357,000, and facilities expenses of \$221,000.

We recorded a gain from equity method investment of \$4,999,719 in the third quarter of 2015 when Intersil Corporation ( Intersil ) acquired Great Wall Semiconductor Corporation ( GWS ). See Note 8 to the Consolidated Financial Statements for additional details.

We reported a net loss for 2016 of \$(6,247,000), as compared to net income of \$4,927,000 for 2015, and a net loss per share of \$(0.16) for 2016, as compared to net income per diluted share of \$0.13 for 2015.

In 2016, depreciation and amortization totaled \$8,438,000, and capital additions were \$8,428,000, compared to \$9,142,000 and \$9,090,000, respectively, for 2015.

Inventories increased by approximately \$3,694,000, or 15.8%, to \$27,136,000 at the end of 2016, as compared to \$23,442,000 at the end of 2015. This increase was primarily associated with increases in VI Chip and Picor inventories of \$2,959,000 and \$1,799,000, respectively, to meet increased bookings for the two segments, partially offset by a decrease in BBU inventories of \$1,064,000.

The following table sets forth certain items of selected consolidated financial information as a percentage of net revenues for the years shown, ended December 31. This table and the subsequent discussion should be read in conjunction with the selected financial data and the Consolidated Financial Statements and related footnotes contained elsewhere in this report.

	<b>Year Ended December 31,</b>		
	<b>2016</b>	<b>2015</b>	<b>2014</b>
Net revenues	100.0%	100.0%	100.0%
Gross margin	45.5%	45.2%	43.0%
Selling, general and administrative expenses	27.8%	26.5%	30.2%

Research and development expenses	20.9%	18.8%	18.4%
Loss before income taxes	(3.0)%	(0.1)%	(6.4)%

### **Critical Accounting Policies and Estimates**

Management's Discussion and Analysis of Financial Condition and Results of Operations is based upon our Consolidated Financial Statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these financial statements requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues, expenses, and related disclosures of contingent assets and liabilities. On an ongoing basis, we evaluate our estimates and assumptions, and our associated judgments, including those related to inventories, income taxes, contingencies, and litigation.

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We base our estimates, assumptions, and judgments on historical experience, knowledge of current conditions, and on various other factors we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. We also have other policies we consider key accounting policies, such as our policy for revenue recognition, including the deferral of revenue on sales to distributors until the products are sold to the end user. However, the application of these other policies does not require us to make significant estimates and assumptions difficult to support quantitatively.

***Inventories***

We employ a variety of methodologies to estimate allowances for our inventory for estimated obsolescence or unmarketable inventory, based upon our existing backlog, historical consumption, and assumptions about future demand and market conditions. For BBU products produced at our Andover facility, our principal manufacturing location, the methodology used compares on-hand quantities to projected demand and historical consumption, such that amounts of inventory on hand in excess of a three-year projected consumption or three-year historical consumption, whichever is higher, are fully reserved. VI Chip and Picor use two-year projected and historical consumption assumptions. While we have used our best efforts and believe we have used the best available information to estimate future demand, due to uncertainty in the economy and our business and the inherent difficulty in predicting future demand, it is possible actual demand for our products will differ from our estimates. If actual future demand or market conditions are less favorable than those projected by management, additional inventory reserves for existing inventories may need to be recorded in future periods.

***Income Taxes***

We make certain estimates, assumptions, and judgments in determining income tax expense for financial statement reporting purposes. These estimates, assumptions, and judgments occur in the calculation of tax credits, benefits, and deductions, and in the calculation of certain assets and liabilities that arise from differences in the timing and of the recognition of revenue and expense for tax and financial statement purposes, as well as the interest and penalties relating to uncertain tax positions. Significant changes to these estimates, assumptions, and judgments may result in an increase or decrease to our tax provision in a subsequent period.

Significant management judgment also is required in determining whether deferred tax assets will be realized in full or in part. We assess the need for a valuation allowance on a quarterly basis. We record a valuation allowance to reduce our deferred tax assets to the amount we believe is more likely than not to be realized. In assessing the need for a valuation allowance, we consider all positive and negative evidence, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax planning strategies, and past financial performance. Currently, we maintain a valuation allowance against all domestic net deferred tax assets and the majority of foreign net deferred tax assets. The valuation allowances against these deferred tax assets may require adjustment in the future based on changes in the mix of temporary differences, changes in tax laws, and operating performance. If and when we determine the valuation allowance should be released (i.e., reduced), the adjustment would result in a tax benefit reported in that period's Consolidated Statements of Operations, the effect of which would be an increase in reported net income. A portion of such an adjustment may be accounted for through an increase to Additional paid-in capital, a component of Stockholders' Equity. The amount of any such tax benefit associated with release of our valuation allowance in a particular quarter may be material.

We follow a two-step process to determine the amount of tax benefit to recognize in our financial statements for tax positions taken on tax returns. The first step is to evaluate the tax position to determine the likelihood it would be sustained upon examination by a tax authority. If the tax position is deemed more-likely-than-not to be sustained, the



second step is to assess the tax position to determine the amount of tax benefit to recognize in the financial statements. The amount of the benefit that may be recognized is the largest amount that has a greater

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than 50 percent likelihood of being realized upon ultimate settlement. If the tax position does not meet the more-likely-than-not threshold then it is not recognized in the financial statements. We accrue interest and penalties, if any, related to unrecognized tax benefits as a component of income tax expense. If the estimates, assumptions, and judgments made by us change, the unrecognized tax benefits may have to be adjusted, and such adjustments may be material.

***Contingencies***

From time to time, we receive notices of product failure claims, notices of infringement of patent or other intellectual property rights of others, or notices associated with other claims. In January 2011, we were named in a lawsuit for patent infringement (See Part I, Item 3 Legal Proceedings ) that is ongoing. We assess each notice and associated matter to determine if a contingent liability should be recorded. In making this assessment, we may consult, depending on the nature of the matter, with external legal counsel and technical experts. Based on the information we obtain, combined with our judgment regarding all the facts and circumstances of each matter, we determine whether it is probable a contingent loss may be incurred and whether the amount of such loss can be reasonably estimated. Should a loss be probable and reasonably estimable, we record such a loss (i.e., we establish a loss contingency). In determining the amount of the loss to be recorded, we consider advice received from experts in the specific matter, current status of legal proceedings (if any), prior case history, comparable precedent litigation, and other factors. Should the estimates, assumptions, and judgments made by us change, we may need to record additional losses (i.e., add to our loss contingency) that may be material.

***New Accounting Pronouncements***

From time to time, new accounting pronouncements are issued by the Financial Accounting Standards Board ( FASB ) that we adopt as of the specified effective date. Unless otherwise discussed, we believe the impact of recently issued accounting standards will not have a material impact on our future financial condition and results of operations. See Note 2 *Impact of recently issued accounting standards*, to the Consolidated Financial Statements for a description of recently issued and adopted accounting pronouncements, including the dates of adoption and expected impact on our financial position and results of operations.

***Revenue Recognition***

In May 2014, the FASB issued new guidance for revenue recognition, which will require an entity to recognize the amount of revenue to which it expects to be entitled for the transfer of promised goods or services to customers. The new guidance, which includes several amendments, will replace most existing revenue recognition guidance in U.S. Generally Accepted Accounting Principles when it becomes effective which will be, for us, on January 1, 2018. The new standard permits the use of either the retrospective or cumulative effect transition method. As described in Note 2

Significant Accounting Policies, *Revenue Recognition*, of the Notes to the Consolidated Financial Statements, we defer revenue and the related cost of sales on shipments to stocking distributors until the distributors resell the products to their customers. Upon adoption of the new guidance, we will no longer be permitted to defer revenue until sale by the stocking distributor to the end customer, but rather, will be required to estimate the effects of returns and allowances provided to stocking distributors and record revenue at the time of sale to the stocking distributor. We currently plan to utilize the cumulative effect transition method for adoption of the standard. Upon adoption, we will recognize the cumulative effect of adopting this guidance as an adjustment to the balance of retained earnings as of January 1, 2018. We are continuing to evaluate the future impact and method of adoption the new guidance will have on our consolidated financial statements and related disclosures.

**Year ended December 31, 2016 compared to Year ended December 31, 2015**

Net revenues for 2016 were \$200,280,000, a decrease of \$19,914,000 or 9.0%, as compared to \$220,194,000 for 2015.

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The components of revenue for the years ended December 31 were as follows (dollars in thousands):

	2016	2015	Increase (decrease)	
			\$	%
BBU	\$ 151,429	\$ 173,108	\$ (21,679)	(12.5)%
VI Chip	38,369	35,198	3,171	9.0%
Picor	10,482	11,888	(1,406)	(11.8)%
Total	\$ 200,280	\$ 220,194	\$ (19,914)	(9.0)%

The overall year to year decrease in consolidated net revenues was primarily due to an 8.7% decrease in overall BBU bookings for 2016 compared to 2015. While VI Chip and Picor bookings increased year over year, a large portion of their respective bookings in the third and fourth quarter of 2016 was scheduled for shipment in 2017, mitigating the impact of the increased bookings on 2016 revenue. Customer bookings patterns continue to be unpredictable, particularly with the VI Chip and Picor segments. The decrease in BBU revenues was primarily attributable to a decrease in BBU module and configurable product revenues of approximately \$18,225,000 and a decrease in Vicor Custom Power revenues of \$5,440,000, due to the consolidation of operations noted above.

Gross margin for 2016 decreased \$8,309,000, or 8.3%, to \$91,209,000 from \$99,518,000 in 2015. Gross margin as a percentage of net revenues increased to 45.5% in 2016 from 45.2% in 2015. The lower gross margin dollars is primarily due to the lower net revenues, while the higher gross margin percentage was primarily due to a more favorable product mix and lower charges for warranty reserves in 2016 compared to 2015.

Income (loss) from operations by segment for the years ended December 31 were as follows (dollars in thousands):

	2016	2015	Increase (decrease)	
			\$	%
BBU	\$ 11,750	\$ 21,743	\$ (9,993)	(46.0)%
VI Chip	(16,494)	(21,040)	4,546	21.6%
Picor	(637)	(290)	(347)	(119.7)%
Corporate	(933)	(680)	(253)	(37.2)%
Total	\$ (6,314)	\$ (267)	\$ (6,047)	(2,264.8)%

The decrease in BBU operating profit in 2016 compared to 2015 was primarily due to a decrease in revenues and related decrease in gross margin, partially offset by decreases in operating expenses. The primary decreases in operating expenses were compensation expenses, commissions expense, and legal fees. Compensation and other operating expenses have decreased in part due to the Westcor consolidation and the consolidation of our Vicor Custom Power operations discussed above. The decrease in commissions expense is primarily attributable to the decrease in net revenues subject to commissions. Legal fees, which are charged to the BBU segment, are associated with the ongoing patent infringement litigation. The decrease in VI Chip operating loss in 2016 compared to 2015 was due to the increase in revenues and the related increase in gross margin, along with the reversal of approximately \$768,000 of stock-based compensation expense related to certain VI Chip performance-based stock options in the third quarter of 2016. The VI Chip segment continues to incur significant operating losses as revenue volume and

related gross margins are not sufficient to cover fixed manufacturing costs and operating expenses, particularly research and development expenses. The cash needs for each segment are primarily for working capital and capital expenditures. Positive cash flow from BBU historically has funded, and is expected to continue to fund, VI Chip and Picor operations, as well as the capital expenditures for all segments for the foreseeable future.

Selling, general, and administrative expenses were \$55,675,000 for 2016, a decrease of \$2,638,000, or 4.5%, as compared to \$58,313,000 for 2015. As a percentage of net revenues, selling, general, and administrative expenses increased to 27.8% in 2016 from 26.5% in 2015, primarily due to the decrease in net revenues.

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The components of the \$2,638,000 decrease in selling, general, and administrative expenses were as follows (dollars in thousands):

	<b>Increase (decrease)</b>	
Compensation	\$ (1,077)	(3.1)% <sup>(1)</sup>
Commissions expense	(748)	(17.4)% <sup>(2)</sup>
Legal fees	(734)	(31.9)% <sup>(3)</sup>
Depreciation and amortization	(148)	(5.2)% <sup>(4)</sup>
Supplies expense	(138)	(25.3)% <sup>(5)</sup>
Project expenses	(132)	(73.5)% <sup>(6)</sup>
Computer expenses	(52)	(5.2)%
Employment recruiting	(40)	(15.3)%
Travel expenses	300	11.3% <sup>(7)</sup>
Outside services	362	22.1% <sup>(8)</sup>
Other, net	(231)	(3.0)%
	<b>\$ (2,638)</b>	<b>(4.5)%</b>

- (1) Decrease primarily attributable to the reversal of VI Chip performance-based stock compensation expense (see Note 3 to the Consolidated Financial Statements), the consolidation of Westcor operations, and the consolidation of our Vicor Custom Power operations, partially offset by annual compensation adjustments in May 2016.
- (2) Decrease primarily attributable to the decrease in net revenues subject to commissions.
- (3) Decrease attributable to reduced activity associated with the patent infringement claims filed against us during the first quarter of 2011 by SynQor. See Note 16 to the Consolidated Financial Statements.
- (4) Decrease attributable to certain Corporate segment fixed assets becoming fully depreciated during 2016.
- (5) Decrease primarily attributable to a decrease in spending by the VI Chip segment.
- (6) Decrease primarily attributable to a decrease in spending by the BBU segment.
- (7) Increase primarily attributable to increased travel by our sales and marketing personnel.
- (8) Increase primarily attributable to an increase in the use of outside consultants at certain international locations.

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Research and development expenses increased \$376,000, or 0.9%, to \$41,848,000 in 2016 from \$41,472,000 in 2015. As a percentage of net revenues, research and development increased to 20.9% in 2016 from 18.8% in 2015, primarily due to the decrease in net revenues.

The components of the \$376,000 increase in research and development expenses were as follows (in thousands):

	<b>Increase (decrease)</b>	
Project and pre-production materials	\$ 1,214	26.5%(1)
Compensation	502	1.8%(2)
Computer expenses	91	22.7%
Outside services	(86)	(9.7)%
Facilities expenses	(221)	(10.2)%(3)
Depreciation and amortization	(357)	(14.8)%(4)
Deferred costs	(774)	(474.7)%(5)
Other, net	7	0.3%
	<b>\$ 376</b>	<b>0.9%</b>

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- (1) Increase primarily attributable to increases in spending by the BBU and VI Chip segments.
- (2) Increase primarily attributable to annual compensation adjustments in May 2016.
- (3) Decrease primarily attributable to a decrease in utilities and building maintenance expenses.
- (4) Decrease attributable to certain BBU segment fixed assets becoming fully depreciated during 2016.
- (5) Decrease primarily attributable to an increase in deferred costs capitalized for certain non-recurring engineering projects for which the related revenues have been deferred.
- The significant changes in the components of Other income (expense), net for the years ended December 31 were as follows (in thousands):

	<b>2016</b>	<b>2015</b>	<b>Increase (decrease)</b>
Rental income	\$ 462	\$	\$ 462
Foreign currency losses, net	(268)	(161)	(107)
Interest income	68	47	21
Credit gains on available for sale securities	13	12	1
(Loss) gain on disposal of equipment	(4)	60	(64)
Other	13	67	(54)
	<b>\$ 284</b>	<b>\$ 25</b>	<b>\$ 259</b>

During the second quarter of 2016, we began recognizing rental income under a new leasing agreement with a third party for the former Westcor facility. Our exposure to market risk for fluctuations in foreign currency exchange rates relates primarily to the operations of VJCL, for which the functional currency is the Japanese Yen. The functional currency of the subsidiaries in Europe and other subsidiaries in Asia is the U.S. Dollar. While our Vicor B.V. operation also potentially exposes us to exchange rate risk, as that subsidiary's sales are denominated in Euros and Pounds Sterling, any periodic gains or losses associated with exchange rate fluctuations are small, given the small U.S. Dollar value of shipments we make to Vicor B.V.

Loss before income taxes was \$(6,030,000) in 2016, as compared to \$(242,000) in 2015.

The provision (benefit) for income taxes and the effective income tax rate for the years ended December 31 were as follows (dollars in thousands):

**2016**                      **2015**



Provision (benefit) for income taxes	\$ 231	\$ (401)
Effective income tax rate	3.8%	(165.7)%

For the years ended December 31, 2016 and 2015, no tax benefit could be recognized for the majority of our losses due to a full valuation allowance against all domestic deferred tax assets. The tax provision for both years includes estimated federal, state and foreign income taxes and, in 2015, estimated federal and state income taxes for one noncontrolling interest subsidiary. In 2016, in connection with the acquisition of 100% ownership of certain operating assets and cash of Converpower Corporation, the related deferred tax liability for unremitted earnings of \$55,000 was reversed and recorded as a discrete benefit in the first quarter of 2016 (see Note 9 to the Consolidated Financial Statements). In 2015, we recognized a tax benefit of approximately \$555,000 as a discrete item in the fourth quarter of 2015 for the release of certain tax reserves, due to entering into voluntary disclosure agreements with several states. In addition, in connection with the sale of our 49% interest in a noncontrolling interest subsidiary, Aegis Power Systems, Inc., the related deferred tax liability for unremitted earnings of \$274,000 was reversed and recorded as a deferred tax benefit in the fourth quarter of 2015 (see Note 9 to the Consolidated Financial Statements). We continue to maintain a full valuation allowance against all

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domestic net deferred tax assets and the majority of foreign net deferred tax assets. The effective tax rate was lower in 2016 than 2015 as the loss before income taxes and before the gain from sale of equity method investments was significantly higher in 2016 than in 2015.

In September 2015, Intersil acquired GWS. At that time, our gross investment in non-voting convertible preferred stock of GWS totaled \$4,999,719, giving us an approximately 27% ownership interest in GWS. We received cash consideration of \$4,999,719 for our investment from Intersil, representing full preference value of our shares of non-voting convertible preferred stock of GWS. Since the investment in GWS had previously been written down to zero, the full amount of the consideration was recorded as a gain from sale of equity method investment in the third quarter of 2015. (See Note 8 to the Consolidated Financial Statements for additional information.)

Net loss per share attributable to Vicor Corporation was \$(0.16) for the year ended December 31, 2016, compared to net income per diluted share of \$0.13 for the year ended December 31, 2015.

**Year ended December 31, 2015 compared to Year ended December 31, 2014**

Net revenues for 2015 were \$220,194,000, a decrease of \$5,537,000 or 2.5%, as compared to \$225,731,000 for 2014.

The components of revenue for the years ended December 31 were as follows (dollars in thousands):

	2015	2014	Increase (decrease)	
			\$	%
BBU	\$ 173,108	\$ 184,224	\$ (11,116)	(6.0)%
VI Chip	35,198	32,929	2,269	6.9%
Picor	11,888	8,578	3,310	38.6%
Total	\$ 220,194	\$ 225,731	\$ (5,537)	(2.5)%

The overall year to year decrease in BBU net revenues was primarily due to a 8.2% decrease in bookings in 2015 compared to 2014. The decrease in BBU revenues was primarily attributable to decreases in BBU revenues of approximately \$4,481,000, Vicor Custom Power revenues of approximately \$3,507,000, and VJCL revenues of approximately \$3,100,000. While bookings declined across all three segments on a year over year basis, VI Chip and Picor revenues increased due to strong bookings in the latter half of 2014, particularly from the two segments' major datacenter customer.

Gross margin for 2015 increased \$2,398,000, or 2.5%, to \$99,518,000 from \$97,120,000 in 2014. Gross margin as a percentage of net revenues increased to 45.2% in 2015 from 43.0% in 2014. The increases in gross margin and gross margin percentage were primarily due to the increase in VI Chip and Picor net revenues, particularly due to a larger proportion of higher margin Picor products. In addition, the gross margin for BBU products remained relatively flat, despite their decrease in net revenues, due to average selling price improvements across several BBU programs, along with realizing the full benefit of the Westcor consolidation into Andover manufacturing.

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Income (loss) from operations by segment for the years ended December 31 were as follows (dollars in thousands):

	2015	2014	Increase	
			\$	%
BBU	\$ 21,743	\$ 15,499	\$ 6,244	40.3%
VI Chip	(21,040)	(29,015)	7,975	27.5%
Picor	(290)	(407)	117	28.7%
Corporate	(680)	(840)	160	19.0%
<b>Total</b>	<b>\$ (267)</b>	<b>\$ (14,763)</b>	<b>\$ 14,496</b>	<b>98.2%</b>

The increase in BBU operating profit in 2015 compared to 2014 was due to decreases in operating expenses, partially offset by decreases in revenues and the related gross margin. The primary decreases in operating expenses were legal fees and compensation expenses. Legal fees, which are charged to the BBU segment, are associated with the ongoing patent infringement litigation. The decrease in legal fees continued the trend begun in the fourth quarter of 2014 associated with continued delays in the expected trial date related to the SynQor litigation. Compensation and other operating expenses have decreased in part due to the Westcor consolidation discussed above.

Selling, general, and administrative expenses were \$58,313,000 for 2015, a decrease of \$9,884,000, or (14.5)%, as compared to \$68,197,000 for 2014. As a percentage of net revenues, selling, general, and administrative expenses decreased to 26.5% in 2015 from 30.2% in 2014.

The components of the \$9,884,000 decrease in selling, general, and administrative expenses were as follows (dollars in thousands):

	Increase (decrease)	
Legal fees	\$ (8,621)	(78.9)%(1)
Compensation	(1,064)	(3.0)%(2)
Commissions expense	(310)	(6.7)%(3)
Travel expenses	(280)	(9.5)%(4)
Advertising expenses	(234)	(9.6)%(5)
Business taxes and fees	83	16.0%
Outside services	130	8.1%
Audit, tax, and accounting fees	145	8.1%
Facilities expenses	145	10.0%
Other, net	122	2.0%
	<b>\$ (9,884)</b>	<b>(14.5)%</b>

- (1) Decrease attributable to reduced activity associated with the patent infringement claims filed against us during the first quarter of 2011 by SynQor. See Note 16 to the Consolidated Financial Statements.

- (2) Decrease primarily attributable to the decrease in bonuses and the consolidation of Westcor operations.
- (3) Decrease primarily attributable to the decrease in net revenues subject to commissions.
- (4) Decrease primarily attributable to decreased travel by our sales and marketing personnel.
- (5) Decrease primarily attributed to decreases in sales support expenses, direct mailings, and advertising in trade publications.

Research and development expenses decreased \$7,000, or 0.0%, to \$41,472,000 in 2015 from \$41,479,000 in 2014. As a percentage of net revenues, research and development increased to 18.8% in 2015 from 18.4% in 2014, primarily due to the decrease in net revenues.

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The significant changes in the components of Other income, net for the years ended December 31 were as follows (in thousands):

	2015	2014	Increase (decrease)
Foreign currency losses, net	\$ (161)	\$ (196)	\$ 35
Gain on disposal of equipment	60	22	38
Interest income	47	80	(33)
Credit gains on available for sale securities	12	311	(299)
Other	67	51	16
	\$ 25	\$ 268	\$ (243)

We assess the value of our investment portfolio of auction rate securities each quarter, and record any credit gains or losses calculated as a component of Other income (expense), net. Our exposure to market risk fluctuations in foreign currency exchange rates relate primarily to the operations of VJCL, for which the functional currency is the Japanese Yen. The functional currency of all other subsidiaries in Europe and Asia is the U.S. Dollar. While our Vicor B.V. operation also potentially exposes us to exchange rate risk, as that subsidiary's sales are denominated in Euros and Pounds Sterling, any periodic gains or losses associated with exchange rate fluctuations are small, given the small U.S. Dollar value of shipments we make to Vicor B.V. The decrease in interest income for the period was due to lower average balances on our long-term investments, as well as a general decrease in interest rates earned on these investments.

Loss before income taxes was \$(242,000) in 2015, as compared to \$(14,495,000) in 2014.

The benefit for income taxes and the effective income tax rate for the years ended December 31 were as follows (dollars in thousands):

	2015	2014
Benefit for income taxes	\$ (401)	\$ (425)
Effective income tax rate	(165.7)%	(2.9)%

For the years ended December 31, 2015 and 2014, no tax benefit could be recognized for the majority of our losses due to a full valuation allowance against all domestic deferred tax assets. In 2015, we recognized a tax benefit of approximately \$555,000 as a discrete item in the fourth quarter of 2015 for the release of certain tax reserves, due to entering into voluntary disclosure agreements with several states. In addition, in connection with the sale of our 49% interest in a noncontrolling interest subsidiary, Aegis Power Systems, Inc., the related deferred tax liability for unremitted earnings of \$274,000 was reversed and recorded as a deferred tax benefit in the fourth quarter of 2015 (see Note 9 to the Consolidated Financial Statements). In 2014, we recognized a tax benefit of approximately \$552,000 as a discrete item in the third quarter of 2014 for the release of certain income tax reserves, due to the completion of an Internal Revenue Service examination of its 2010 and 2011 federal corporate income tax returns during the quarter. The tax benefits in both years were partially offset by estimated federal and state taxes for one noncontrolling interest subsidiary as well as estimated state and foreign taxes in jurisdictions in which we do not have net operating loss carryforwards. We continue to maintain a full valuation allowance against all domestic net deferred tax assets and, in 2015, established a valuation allowance against the majority of foreign net deferred tax assets. The effective tax rate was higher in 2015 than 2014 as the loss before income taxes and before the gain from sale of equity method

investments was significantly lower in 2015 than in 2014.

In September 2015, Intersil acquired GWS. At that time, our gross investment in non-voting convertible preferred stock of GWS totaled \$4,999,719, representing an approximately 27% ownership preference in GWS. We received cash consideration from Intersil of \$4,999,719, representing full preference value of the shares of

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non-voting convertible preferred stock of GWS we owned. Since the investment in GWS had previously been reduced to zero, the full amount of the consideration was recorded as a gain from sale of equity method investment in the third quarter of 2015. See Note 8 to the Consolidated Financial Statements for additional information.

Net income (loss) of noncontrolling interest increased by \$415,000 for 2015 to \$232,000, as compared to \$(183,000) for 2014. This increase was due to the increase in net income during 2015 recorded by entities in which others held an equity interest (i.e., three Vicor Custom Power subsidiaries and VJCL).

Net income per diluted share attributable to Vicor Corporation was \$0.13 for the year ended December 31, 2015, compared to net loss per share of \$(0.36) for the year ended December 31, 2014. The increase in net income per diluted share was due in part to the acquisition of GWS by Intersil and the resulting gain from sale of equity method investment recorded by us, as discussed above.

**LIQUIDITY AND CAPITAL RESOURCES**

At December 31, 2016, we had \$56,170,000 in cash and cash equivalents. The ratio of current assets to current liabilities was 5.0:1 at December 31, 2016, as compared to 5.6:1 at December 31, 2015. Working capital decreased \$5,360,000 to \$89,545,000 at December 31, 2016 from \$94,905,000 at December 31, 2015.

The primary working capital changes were due to the following (in thousands):

	<b>Increase (decrease)</b>
Cash and cash equivalents	\$ (6,810)
Accounts receivable	(766)
Inventories	3,694
Other current assets	148
Accounts payable	(118)
Accrued compensation and benefits	(616)
Accrued expenses	389
Accrued severance charges	195
Income taxes payable	(61)
Deferred revenue	(1,415)
	<b>\$ (5,360)</b>

The primary sources of cash for the year ended December 31, 2016, were \$544,000 from operating activities and \$1,584,000 of proceeds from the issuance of Common Stock associated with the exercise of options for the purchase of shares of our Common Stock. The primary use of cash for the year ended December 31, 2016, was the purchase of equipment of \$8,428,000.

In November 2000, our Board of Directors authorized the repurchase of up to \$30,000,000 of Common Stock (the November 2000 Plan). The November 2000 Plan authorizes us to make such repurchases from time to time in the open market or through privately negotiated transactions. The timing of such repurchases and the number of shares purchased in each transaction are at the discretion of management based on its view of economic and financial market conditions. We did not repurchase shares of Common Stock under the November 2000 Plan during the year ended December 31, 2016. As of December 31, 2016, we had approximately \$8,541,000 remaining for share purchases

under the November 2000 Plan.

During the years ended December 31, 2016 and 2015, one of our subsidiaries paid a total of \$750,000 and \$250,000 in cash dividends, respectively, all of which were paid to us.

As of December 31, 2016, we had no off-balance sheet arrangements.



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The table below summarizes our contractual obligations as of December 31, 2016 (in thousands):

Contractual Obligations	Total	Payments Due by Period			More Than 5 Years
		Less than 1 Year	Years 2 & 3	Years 4 & 5	
Operating lease obligations	\$ 4,771	\$ 1,572	\$ 1,569	\$ 699	\$ 931

Our primary liquidity needs are for making continuing investments in manufacturing equipment. We believe cash generated from operations and the total of our cash and cash equivalents will be sufficient to fund planned operations and capital equipment purchases for the foreseeable future. We have approximately \$2,393,000 of capital expenditure commitments, principally for manufacturing equipment, as of December 31, 2016.

We do not consider the impact of inflation and changing prices on our business activities or fluctuations in the exchange rates for foreign currency transactions to have been significant during the last three fiscal years.

**ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK**

We are exposed to a variety of market risks, including changes in interest rates affecting the return on our cash and cash equivalents and fluctuations in foreign currency exchange rates. As our cash and cash equivalents consist principally of cash accounts and money market securities, which are short-term in nature, we believe our exposure to market risk on interest rate fluctuations for these investments is not significant. As of December 31, 2016, our long-term investment portfolio, recorded on our Consolidated Balance Sheet as Long-term investments, net, consisted of a single auction rate security with a par value of \$3,000,000, purchased through and held in custody by a broker-dealer affiliate of Bank of America, N.A., that has experienced failed auctions (the Failed Auction Security) since February 2008. While the Failed Auction Security is Aaa/AA+ rated by major credit rating agencies, collateralized by student loans and guaranteed by the U.S. Department of Education under the Federal Family Education Loan Program, continued failure to sell at its periodic auction dates (i.e., reset dates) could negatively impact the carrying value of the investment, in turn leading to impairment charges in future periods. Periodic changes in the fair value of the Failed Auction Security attributable to credit loss (i.e., risk of the issuer's default) are recorded through earnings as a component of Other income (expense), net, with the remainder of any periodic change in fair value not related to credit loss (i.e., temporary mark-to-market carrying value adjustments) recorded in Accumulated other comprehensive (loss) income, a component of Stockholders' Equity. Should we conclude a decline in the fair value of the Failed Auction Security is other than temporary, such losses would be recorded through earnings as a component of Other income (expense), net. We do not believe there was an other-than-temporary decline in value in this security as of December 31, 2016.

We estimate our annual interest income would change by approximately \$30,000 in 2016 for each 100 basis point increase or decrease in interest rates.

Our exposure to market risk for fluctuations in foreign currency exchange rates relates primarily to the operations of VJCL, for which the functional currency is the Japanese Yen, and changes in the relative value of the Yen to the U.S. Dollar. Relative to our Yen exposure as of December 31, 2016, we estimate a 10% unfavorable movement in the value of the Yen relative to the U.S. Dollar would increase our foreign currency loss by approximately \$188,000. As the functional currency of all other subsidiaries in Europe and Asia is the U.S. Dollar, we believe risk to fluctuations in foreign currency exchange rates is not significant, as these operations do not incur material foreign exchange

exposures.

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**ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA  
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**REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

The Board of Directors and Stockholders

Vicor Corporation:

We have audited the accompanying consolidated balance sheets of Vicor Corporation and subsidiaries as of December 31, 2016 and 2015, and the related consolidated statements of operations, comprehensive income (loss), cash flows, and equity for each of the years in the three-year period ended December 31, 2016. In connection with our audits of the consolidated financial statements, we also have audited the financial statement schedule listed in Item 15(a)(2). These consolidated financial statements and the financial statement schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements and the financial statement schedule based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Vicor Corporation and subsidiaries as of December 31, 2016 and 2015, and the results of their operations and their cash flows for each of the years in the three-year period ended December 31, 2016, in conformity with U.S. generally accepted accounting principles. Also in our opinion, the related financial statement schedule, when considered in relation to the basic consolidated financial statements taken as a whole, presents fairly, in all material respects, the information set forth therein.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), Vicor Corporation's internal control over financial reporting as of December 31, 2016, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO), and our report dated March 7, 2017 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

/s/ KPMG LLP

Boston, Massachusetts

March 7, 2017

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**VICOR CORPORATION**  
**CONSOLIDATED BALANCE SHEETS**

**December 31, 2016 and 2015**

**(In thousands, except per share data)**

	2016	2015
<b>ASSETS</b>		
Current assets:		
Cash and cash equivalents	\$ 56,170	\$ 62,980
Accounts receivable, less allowance of \$153 in 2016 and \$171 in 2015	25,216	25,982
Inventories, net	27,136	23,442
Other current assets	3,250	3,102
<b>Total current assets</b>	<b>111,772</b>	<b>115,506</b>
Long-term deferred tax assets	38	15
Long-term investments, net	2,508	2,866
Property, plant and equipment, net	37,574	37,450
Other assets	2,175	1,708
<b>Total assets</b>	<b>\$ 154,067</b>	<b>\$ 157,545</b>
<b>LIABILITIES AND EQUITY</b>		
Current liabilities:		
Accounts payable	\$ 7,588	\$ 7,470
Accrued compensation and benefits	8,965	8,349
Accrued expenses	2,179	2,568
Accrued severance charges		195
Income taxes payable	92	31
Deferred revenue	3,403	1,988
<b>Total current liabilities</b>	<b>22,227</b>	<b>20,601</b>
Long-term deferred revenue	374	468
Contingent consideration obligations	253	144
Long-term income taxes payable	196	192
Deferred income taxes		55
<b>Total liabilities</b>	<b>23,050</b>	<b>21,460</b>
Commitments and contingencies (Note 16)		
Equity:		
Vicor Corporation stockholders' equity:		
Preferred Stock, \$.01 par value, 1,000,000 shares authorized; no shares issued		
Class B Common Stock: 10 votes per share, \$.01 par value, 14,000,000 shares authorized, 11,758,218 shares issued and outstanding in 2016 and 2015	118	118

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Common Stock: 1 vote per share, \$.01 par value, 62,000,000 shares authorized 38,922,489 shares issued and 27,251,003 shares outstanding (38,705,564 shares issued and 27,034,078 shares outstanding in 2015)	397	395
Additional paid-in capital	176,344	174,337
Retained earnings	93,438	99,685
Accumulated other comprehensive loss	(561)	(577)
Treasury stock at cost: 11,671,486 shares in 2016 and 2015	(138,927)	(138,927)
Total Vicor Corporation stockholders equity	130,809	135,031
Noncontrolling interest	208	1,054
Total equity	131,017	136,085
Total liabilities and equity	\$ 154,067	\$ 157,545

See accompanying notes.

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**VICOR CORPORATION**  
**CONSOLIDATED STATEMENTS OF OPERATIONS**

**Years Ended December 31, 2016, 2015 and 2014**

**(In thousands, except per share amounts)**

	<b>2016</b>	<b>2015</b>	<b>2014</b>
Net revenues	\$ 200,280	\$ 220,194	\$ 225,731
Cost of revenues	109,071	120,676	128,611
Gross margin	91,209	99,518	97,120
Operating expenses:			
Selling, general and administrative	55,675	58,313	68,197
Research and development	41,848	41,472	41,479
Severance and other charges			2,207
Total operating expenses	97,523	99,785	111,883
Loss from operations	(6,314)	(267)	(14,763)
Other income (expense), net:			
Total unrealized (losses) gains on available-for-sale securities, net	(18)	(49)	750
Portion of gains (losses) recognized in other comprehensive income (loss)	31	61	(439)
Net credit gains recognized in earnings	13	12	311
Other income (expense), net	271	13	(43)
Total other income (expense), net	284	25	268
Loss before income taxes	(6,030)	(242)	(14,495)
Less: Provision (benefit) for income taxes	231	(401)	(425)
Gain from sale of equity method investment, net of tax		5,000	
Consolidated net income (loss)	(6,261)	5,159	(14,070)
Less: Net income (loss) attributable to noncontrolling interest	(14)	232	(183)
Net income (loss) attributable to Vicor Corporation	\$ (6,247)	\$ 4,927	\$ (13,887)
Net income (loss) per common share attributable to Vicor Corporation:			
Basic	\$ (0.16)	\$ 0.13	\$ (0.36)
Diluted	\$ (0.16)	\$ 0.13	\$ (0.36)
Shares used to compute net income (loss) per common share attributable to Vicor Corporation:			
Basic	38,842	38,754	38,569
Diluted	38,842	39,146	38,569

See accompanying notes.



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**VICOR CORPORATION**  
**CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)**

**Years Ended December 31, 2016, 2015 and 2014**

**(In thousands)**

	<b>2016</b>	<b>2015</b>	<b>2014</b>
Consolidated net income (loss)	\$ (6,261)	\$ 5,159	\$ (14,070)
Foreign currency translation gains (losses), net of tax benefit (1)	52	(52)	(410)
Unrealized (losses) gains on available-for-sale securities, net of tax (1)	(31)	(59)	429
Other comprehensive income (loss)	21	(111)	19
Consolidated comprehensive income (loss)	(6,240)	5,048	(14,051)
Less: Comprehensive income (loss) attributable to noncontrolling interest	(9)	227	(219)
Comprehensive income (loss) attributable to Vicor Corporation	\$ (6,231)	\$ 4,821	\$ (13,832)

- (1) The deferred tax assets associated with cumulative foreign currency translation gains (losses) and cumulative unrealized losses on available for sale securities are completely offset by a tax valuation allowance as of December 31, 2016, 2015, and 2014. Therefore, there is no income tax benefit (provision) recognized for the three years ended December 31, 2016.

See accompanying notes.

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**VICOR CORPORATION**  
**CONSOLIDATED STATEMENTS OF CASH FLOWS**

**Years Ended December 31, 2016, 2015 and 2014**

**(In thousands)**

	<b>2016</b>	<b>2015</b>	<b>2014</b>
Operating activities:			
Consolidated net income (loss)	\$ (6,261)	\$ 5,159	\$ (14,070)
Adjustments to reconcile consolidated net income (loss) to net cash provided by operating activities:			
Depreciation and amortization	8,438	9,142	9,805
Gain from sale of equity method investment		(5,000)	
Increase in other assets	(505)		
Gain from disposition of consolidated subsidiary		(28)	
Stock-based compensation expense	506	1,782	1,634
Increase (decrease) in long-term income taxes payable	4	(675)	(472)
Deferred income taxes	(78)	(183)	18
Decrease in long-term deferred revenue	(94)	(139)	(139)
Loss (gain) on disposal of equipment	4	(60)	(22)
(Benefit) provision for doubtful accounts	(22)	(18)	66
Credit gain on available for sale securities	(13)	(12)	(311)
Change in current assets and liabilities, net	(1,435)	1,499	5,682
Net cash provided by operating activities	544	11,467	2,191
Investing activities:			
Additions to property, plant and equipment	(8,428)	(9,090)	(7,128)
Sales and maturities of investments		360	3,460
Purchases of investments			(340)
Proceeds from sale of equity method investment		5,000	
Deconsolidation of subsidiary		(392)	
Proceeds from sale of equipment	2	60	22
Increase in other assets	(93)	(204)	(43)
Net cash used for investing activities	(8,519)	(4,266)	(4,029)
Financing activities:			
Proceeds from issuance of Common Stock	1,584	820	788
Acquisition of noncontrolling interest	(372)	(216)	
Payment of contingent consideration obligations	(99)		
Noncontrolling interest dividends paid			(162)
Net cash provided by financing activities	1,113	604	626
Effect of foreign exchange rates on cash	52	(12)	60

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Net (decrease) increase in cash and cash equivalents	(6,810)	7,793	(1,152)
Cash and cash equivalents at beginning of period	62,980	55,187	56,339
Cash and cash equivalents at end of period	\$ 56,170	\$ 62,980	\$ 55,187

Change in assets and liabilities, excluding effects of disposition of consolidated subsidiary:

Accounts receivable	\$ 780	\$ 2,201	\$ (1,151)
Inventories, net	(3,677)	1,880	3,202
Other current assets	(158)	(111)	1,029
Accounts payable and accrued liabilities	339	(1,301)	300
Accrued severance charges	(195)	(1,709)	1,855
Income taxes payable	61	(10)	26
Deferred revenue	1,415	549	421
	\$ (1,435)	\$ 1,499	\$ 5,682

Supplemental disclosures:

Cash paid during the year for income taxes, net of refunds	\$ 230	\$ 675	\$ (1,529)
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See accompanying notes.

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**VICOR CORPORATION**  
**CONSOLIDATED STATEMENTS OF EQUITY**

**Years Ended December 31, 2016, 2015 and 2014**

(In thousands)

	Class B Common Stock	Common Stock	Additional Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Treasury Stock	Total Vicor Corporation Stockholder Equity	Noncontrolling Interest	Total Equity
Balance on December 31, 2013	\$ 118	\$ 392	\$ 169,474	\$ 108,645	\$ (526)	\$ (138,927)	\$ 139,176	\$ 3,161	\$ 142,337
Sales of Common Stock		1	787				788		788
Noncontrolling interest dividends paid								(162)	(162)
Stock-based compensation expense			1,634				1,634		1,634
Other			6				6		6
Components of comprehensive income, net of tax									
Net loss				(13,887)			(13,887)	(183)	(14,070)
Other comprehensive income (loss)					55		55	(36)	19
Total comprehensive loss							(13,832)	(219)	(14,051)
Balance on December 31, 2014	118	393	171,901	94,758	(471)	(138,927)	127,772	2,780	130,552
Sales of Common Stock		2	818				820		820
Acquisition of noncontrolling interest			(144)				(144)	(216)	(360)
			(5)				(5)	(1,737)	(1,742)

Disposition of consolidated subsidiary									
Stock-based compensation expense			1,782				1,782		1,782
Net settlement stock option exercises			(22)				(22)		(22)
Other			7				7		7
Components of comprehensive income, net of tax									
Net income			4,927				4,927	232	5,159
Other comprehensive loss				(106)			(106)	(5)	(111)
Total comprehensive income							4,821	227	5,048
Balance on December 31, 2015	118	395	174,337	99,685	(577)	(138,927)	135,031	1,054	136,085
Sales of Common Stock		2	1,587				1,589		1,589
Acquisition of noncontrolling interest			(81)				(81)	(837)	(918)
Stock-based compensation expense			506				506		506
Net settlement stock option exercises			(5)				(5)		(5)
Components of comprehensive income, net of tax									
Net income				(6,247)			(6,247)	(14)	(6,261)
Other comprehensive income				16			16	5	21
Total comprehensive income							(6,231)	(9)	(6,240)
Balance on December 31, 2016	\$ 118	\$ 397	\$ 176,344	\$ 93,438	\$ (561)	\$ (138,927)	\$ 130,809	\$ 208	\$ 131,017

See accompanying notes.

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**VICOR CORPORATION**

**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS**

**1. DESCRIPTION OF BUSINESS**

Vicor Corporation (the Company or Vicor) designs, develops, manufactures, and markets modular power components and power systems for converting, regulating and controlling electric current. The Company also licenses certain rights to its technology in return for recurring royalties. The principal markets for the Company's power converters and systems are large original equipment manufacturers (OEMs) and their contract manufacturers, and smaller, lower volume users, which are broadly distributed across several major market areas.

**2. SIGNIFICANT ACCOUNTING POLICIES**

*Principles of consolidation*

The Consolidated Financial Statements include the accounts of the Company and its subsidiaries. All intercompany transactions and balances have been eliminated upon consolidation. Two of the Company's subsidiaries were not majority owned by the Company prior to 2016, and a third was not majority owned prior to March 31, 2016. Prior to the transactions described in Note 9, these entities were consolidated by the Company as management believed that the Company had the ability to exercise control over their activities and operations.

*Use of estimates*

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingencies at the date of the financial statements and the reported amounts of revenue and expenses during the reporting period. Such estimates and assumptions relate to the useful lives of fixed assets and identified intangible assets, recoverability of long-lived assets, fair value of long-term investments, allowances for doubtful accounts, the net realizable value of inventory, potential reserves relating to litigation matters, accrued liabilities, accrued taxes, deferred tax valuation allowances, assumptions pertaining to share-based payments, and other reserves. Actual results could differ from those based on these estimates and assumptions, and such differences may be material to the financial statements.

*Revenue recognition*

Product revenue is recognized in the period when persuasive evidence of an arrangement with a customer exists, the products are shipped and title has transferred to the customer, the price is fixed or determinable, and collection is considered probable.

The Company defers revenue and the related cost of sales on shipments to stocking distributors until the distributors resell the products to their customers. The agreements with these stocking distributors allow them to receive price adjustment credits or to return qualifying products for credit, as determined by the Company, in order to reduce the amounts of slow-moving, discontinued, or obsolete product from their inventory. These stocking distributors are also granted price adjustment credits in the event of a price decrease subsequent to the date the product was shipped and invoiced to the stocking distributor. Given the uncertainties associated with the levels of price adjustment credits to be granted to stocking distributors, the sales price to the stocking distributor is not fixed or determinable until the stocking distributor resells the products to its customers. Therefore, the Company defers revenue and the related cost

of sales on shipments to stocking distributors until the stocking distributors resell the products to their customers. Accordingly, the Company's revenue fully reflects end-customer purchases and is not impacted by stocking distributor inventory levels. Agreements with stocking distributors limit returns of qualifying product to the Company to a certain percentage of the value of the



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**Table of Contents****VICOR CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

Company's shipments to that stocking distributor during the prior quarter. In addition, stocking distributors are allowed to return unsold products if the Company terminates the relationship with the stocking distributor. Title to the inventory transferred to the stocking distributor at the time of shipment or delivery to the stocking distributor, as well as payment from the stocking distributor, are due in accordance with the Company's standard payment terms. These payment terms are not contingent upon the stocking distributors' sale of the products to their end-customers. Upon title transfer to stocking distributors, the Company reduces inventory for the cost of goods shipped, the margin (i.e., revenues less cost of revenues) is recorded as deferred revenue, and an account receivable is recorded. As of December 31, 2016, the Company had gross deferred revenue of approximately \$3,337,000 and gross deferred cost of revenues of approximately \$1,445,000 under agreements with stocking distributors (\$2,042,000 and \$882,000, respectively, as of December 31, 2015).

The Company evaluates revenue arrangements with potential multi-element deliverables to determine if there is more than one unit of accounting. A deliverable constitutes a separate unit of accounting when it has standalone value and there are no customer-negotiated refund or return rights for the undelivered elements. The Company enters into arrangements containing multiple elements that may include a combination of non-recurring engineering services (NRE), prototype units, and production units. The Company has determined NRE and prototype units represent one unit of accounting and production units represent a separate unit of accounting, based on an assessment of the respective standalone value. The Company defers revenue recognition for NRE and prototype units until completion of the final milestone under the NRE arrangement, which is generally the delivery of the prototype. Recognition generally takes place within six to twelve months of the initiation of the arrangement. Revenue for the production units is recognized upon shipment, consistent with other product revenue summarized above. During 2016, 2015, and 2014, revenue recognized under multi-element arrangements accounted for less than 3% of net revenues.

License fees are recognized as earned. The Company recognizes revenue on such arrangements only when the contract is signed, the license term has begun, all obligations have been delivered to the customer, and collection is probable.

***Foreign currency translation***

The financial statements of Vicor Japan Company, Ltd. (VJCL), a majority-owned subsidiary, for which the functional currency is the Japanese Yen, have been translated into U.S. Dollars using the exchange rate in effect at the balance sheet date for balance sheet amounts and the average exchange rates in effect during the year for income statement amounts. The gains and losses resulting from the changes in exchange rates from year to year have been reported in other comprehensive income.

Transaction gains and losses resulting from the remeasurement of foreign currency denominated assets and liabilities of the Company's foreign subsidiaries where the functional currency is the U.S. Dollar are included in other income (expense), net. Foreign currency losses included in other income (expense), net, were approximately \$(268,000), \$(161,000), and \$(196,000) in 2016, 2015, and 2014, respectively.

***Cash and cash equivalents***

Cash and cash equivalents include funds held in disbursement (i.e., checking) and money market accounts, certificates of deposit, and debt securities with maturities of less than three months at the time of purchase. Cash and cash equivalents are valued at cost, approximating market value. The Company's money market securities, which are classified as cash equivalents on the balance sheet, are purchased and redeemed at par value. Their estimated fair value is equal to their cost, and, due to the nature of the securities and their classification as cash equivalents, there are no unrealized gains or losses recorded at the balance sheet dates.

**Table of Contents****VICOR CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)*****Long-term investments***

The Company's principal sources of liquidity are its existing balances of cash and cash equivalents, as well as cash generated from operations. Consistent with the guidelines of the Company's investment policy, the Company can invest, and has historically invested, its cash balances in demand deposit accounts, money market funds, brokered certificates of deposit and auction rate securities meeting certain quality criteria. All of the Company's investments are subject to credit, liquidity, market, and interest rate risk.

The Company's long-term investments are classified as available-for-sale securities. Available-for-sale securities are recorded at fair value, with unrealized gains and losses, net of tax, attributable to credit loss recorded through the statement of operations and unrealized gains and losses, net of tax, attributable to other non-credit factors recorded in Accumulated other comprehensive loss, a component of Total Equity. In determining the amount of credit loss, the Company compares the present value of cash flows expected to be collected to the amortized cost basis of the securities, considering credit default risk probabilities and changes in credit ratings, among other factors.

The amortized cost of debt securities is adjusted for amortization of premiums and accretion of discounts to maturity, the net amount of which, along with interest and realized gains and losses, is included in Other income (expense), net in the Consolidated Statements of Operations. The Company periodically evaluates investments to determine if impairment is required, whether an impairment is other than temporary, and the measurement of an impairment loss. The Company considers a variety of impairment indicators such as, but not limited to, a significant deterioration in the earnings performance, credit rating, or asset quality of the investment.

***Fair value measurements***

The Company accounts for certain financial assets at fair value, defined as the price that would be received to sell an asset or paid to transfer a liability (i.e., an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability. A three-level hierarchy is used to show the extent and level of judgment used to estimate fair value measurements:

- |         |   |
|---------|---|
| Level 1 | Inputs used to measure fair value are unadjusted quoted prices available in active markets for the identical assets or liabilities as of the reporting date.  |
| Level 2 | Inputs used to measure fair value, other than quoted prices included in Level 1, are either directly or indirectly observable as of the reporting date through correlation with market data, including quoted prices for similar assets and liabilities in active markets and quoted prices in inactive markets. Level 2 also includes assets and liabilities valued using models or other pricing methodologies that do not require significant judgment since the input assumptions used in the models, such as interest rates and volatility factors, are corroborated by readily observable data from actively quoted markets |

for substantially the full term of the financial instrument.

Level 3

Inputs used to measure fair value are unobservable inputs supported by little or no market activity and reflect the use of significant management judgment. These values are generally determined using pricing models for which the assumptions utilize management's estimates of market participant assumptions.

The carrying amounts of cash and cash equivalents, accounts receivable and accounts payable approximate fair value because of the short maturity of these financial instruments.

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**Table of Contents****VICOR CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)*****Allowance for doubtful accounts***

The Company maintains allowances for doubtful accounts for estimated losses resulting from the inability of its customers to make required payments, based on assessments of customers' credit-risk profiles and payment histories. If the financial condition of the Company's customers were to deteriorate, resulting in an impairment of their ability to make payments, additional allowances may be required. The Company does not require collateral from its customers, although there have been circumstances when the Company has required cash in advance (i.e., a partial down-payment) to facilitate orders in excess of a customer's established credit limit. To date, such amounts have not been material.

***Inventories***

Inventories are valued at the lower of cost (determined using the first-in, first-out method) or net realizable value. Fixed production overhead is allocated to the inventory cost per unit based on the normal capacity of the production facilities. Abnormal production costs, including fixed cost variances from normal production capacity, if any, are charged to cost of revenues in the period incurred. All shipping and handling costs incurred in connection with the sale of products are included in cost of revenues.

The Company provides reserves for inventories estimated to be excess, obsolete, or unmarketable. The Company's estimation process for assessing net realizable value is based upon its known backlog, projected future demand, historical consumption and expected market conditions. If the Company's estimated demand and/or market expectations were to change or if product sales were to decline, the Company's estimation process may cause larger inventory reserves to be recorded, resulting in larger charges to cost of revenues.

***Concentrations of risk***

Financial instruments potentially subjecting the Company to significant concentrations of credit risk consist principally of cash and cash equivalents, of which a significant portion is held by one financial institution, long-term investments, and trade accounts receivable. The Company maintains cash and cash equivalents and certain other financial instruments with various large financial institutions. Generally, amounts invested with these financial institutions are in excess of federal deposit insurance limits. The Company has not experienced any losses in such accounts, and management believes the Company is not exposed to significant credit risk. The Company's long-term investments consist of highly rated (Aaa/AA+) municipal and corporate debt securities which, as of December 31, 2016, consist of a single auction rate security with a par value of \$3,000,000, which is collateralized by student loans. Through December 31, 2016, auctions held for the Company's auction rate security have failed. The funds associated with an auction rate security that has failed auction may not be accessible until a successful auction occurs, a buyer is found outside of the auction process, the security is called, or the underlying securities have matured. If the credit rating of the issuer of the auction rate security held deteriorates, the Company may be required to adjust the carrying value of the investment for an other-than-temporary decline in value through an impairment charge. The Company's investment policy, approved by the Board of Directors, limits the amount the Company may invest in any issuer, thereby reducing credit risk concentrations.

The Company's products are sold worldwide to customers ranging from smaller, independent manufacturers of highly specialized electronic devices, to larger OEMs and their contract manufacturers. The Company's Brick Business Unit ( BBU ) has customers concentrated in aerospace and aviation, defense electronics, industrial automation and equipment, medical diagnostics, rail transportation, and test and measurement instrumentation. The Company's VI Chip and Picor subsidiaries have customers concentrated in the datacenter and supercomputer segments of the computing market, although they also target applications in aerospace and aviation, defense

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**Table of Contents****VICOR CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

electronics, networking equipment, solid state lighting, test and measurement instrumentation, and transportation (electric and hybrid vehicles and autonomous vehicles). While, overall, the Company has a broad customer base and sells into a variety of industries, VI Chip and Picor have derived a substantial portion of their revenue from a limited number of customers. This concentration of revenue is a reflection of the relatively early stage of adoption of the technologies, architectures and products offered by these subsidiaries, and their targeting of market leading innovators as initial customers. Concentrations of credit risk with respect to trade accounts receivable are limited due to the number of entities comprising the Company's customer base. As of December 31, 2016 and 2015, one customer accounted for approximately 14.2% and 21.9%, respectively, of trade account receivables.

During 2016, 2015, and 2014, one customer accounted for approximately 16.4%, 16.2%, and 14.7% of net revenues, respectively. International sales, based on customer location, as a percentage of total net revenues, were approximately 59.4% in 2016, 59.6% in 2015, and 60.5% in 2014. Net revenues from customers in China, our largest international market, accounted for approximately 32.1% of total net revenues in 2016, approximately 34.2% in 2015, and approximately 32.3% in 2014, respectively.

Components and materials used in the Company's products are purchased from a variety of vendors. While most of the components are available from multiple sources, some key components for certain VI Chip and Picor products, in particular, are supplied by single vendors. In instances of single source items, the Company maintains levels of inventories management considers appropriate to enable meeting the delivery requirements of customers. If suppliers or subcontractors cannot provide their products or services on time or to the required specifications, the Company may not be able to meet the demand for its products and its delivery times may be negatively affected.

***Long-lived assets***

The Company reviews property, plant and equipment and finite-lived intangible assets for impairment whenever events or changes in circumstances indicate the carrying value of such assets may not be recoverable. Management determines whether the carrying value of an asset or asset group is recoverable based on comparison to the undiscounted expected future cash flows the assets are expected to generate over their remaining economic lives. If an asset value is not recoverable, the impairment loss is equal to the amount by which the carrying value of the asset exceeds its fair value, which is determined by either a quoted market price, if any, or a value determined by utilizing a discounted cash flow technique. Evaluation of impairment of long-lived assets requires estimates of future operating results that are used in the preparation of the expected future undiscounted cash flows. Actual future operating results and the remaining economic lives of our long-lived assets could differ from the estimates used in assessing the recoverability of these assets. These differences could result in impairment charges, which could be material.

***Intangible assets***

Values assigned to patents are amortized using the straight-line method over periods ranging from three to 20 years. Patents and other intangible assets are included in "Other assets" in the accompanying Consolidated Balance Sheets.

***Advertising expense***

The cost of advertising is expensed as incurred. The Company incurred \$1,818,000, \$1,762,000, and \$1,832,000 in advertising costs during 2016, 2015 and 2014, respectively.



Table of Contents**VICOR CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)*****Product warranties***

The Company generally offers a two-year warranty for all of its products, though it is party to a limited number of supply agreements with certain customers contractually committing the Company to warranty and indemnification requirements exceeding those to which the Company has been exposed in the past. Effective January 1, 2017, the Company extended the warranty period to three years for certain military grade products sold after that date. The Company provides for the estimated cost of product warranties at the time product revenue is recognized. Factors influencing the Company's warranty reserves include the number of units sold, historical and anticipated rates of warranty returns, and the cost per return. The Company periodically assesses the adequacy of warranty reserves and adjusts the amounts as necessary. Warranty obligations are included in *Accrued expenses* in the accompanying Consolidated Balance Sheets.

***Legal Costs***

Legal costs in connection with litigation are expensed as incurred.

***Net income (loss) per common share***

The Company computes basic net income (loss) per share using the weighted average number of common shares outstanding and diluted net income (loss) per share using the weighted average number of common shares outstanding plus the effect of outstanding dilutive stock options, if any. The following table sets forth the computation of basic and diluted net income (loss) per share for the years ended December 31 (in thousands, except per share amounts):

	<b>2016</b>	<b>2015</b>	<b>2014</b>
<b>Numerator:</b>			
Net income (loss) attributable to Vicor Corporation	\$ (6,247)	\$ 4,927	\$ (13,887)
<b>Denominator:</b>			
Denominator for basic net income (loss) per share-weighted average shares (1)	38,842	38,754	38,569
<b>Effect of dilutive securities:</b>			
Employee stock options (2)		392	
Denominator for diluted net income (loss) per share-adjusted weighted-average shares and assumed conversions (3)	38,842	39,146	38,569
Basic net income (loss) per share	\$ (0.16)	\$ 0.13	\$ (0.36)
Diluted net income (loss) per share	\$ (0.16)	\$ 0.13	\$ (0.36)

- (1) Denominator represents weighted average number of Common Shares and Class B Common Shares outstanding.
- (2) Options to purchase 1,696,222, 238,792, and 1,895,675 shares of Common Stock in 2016, 2015, and 2014, respectively, were not included in the calculation of net income (loss) per share as the effect would have been antidilutive.
- (3) Denominator represents weighted average number of Common Shares and Class B Common Shares outstanding for the year, adjusted to include the dilutive effect, if any, of outstanding options.

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**Table of Contents****VICOR CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)*****Income taxes***

Deferred tax assets and liabilities are determined based on the differences between financial reporting and tax bases of assets and liabilities and are measured using the enacted income tax rates and laws expected to be in effect when the temporary differences are expected to reverse. Deferred tax assets are reduced by a valuation allowance if management determines it is more likely than not that some portion or all of the deferred tax assets will not be realized. All deferred tax assets and liabilities are classified as noncurrent.

The Company follows a two-step process to determine the amount of tax benefit to recognize. The first step is to evaluate the tax position to determine the likelihood it would be sustained upon examination by a tax authority. If the tax position is deemed more-likely-than-not to be sustained, the second step is to assess the tax position to determine the amount of tax benefit to be recognized in the financial statements. The amount of the benefit that may be recognized is the largest amount that possesses greater than 50 percent likelihood of being realized upon ultimate settlement. If the tax position does not meet the more-likely-than-not threshold, then it is not recognized in the financial statements. Additionally, the Company accrues interest and penalties, if any, related to unrecognized tax benefits as a component of income tax expense. The unrecognized tax benefits, including accrued interest and penalties, if any, are included in Long-term income taxes payable in the accompanying Consolidated Balance Sheets.

***Stock-based compensation***

The Company uses the Black-Scholes option-pricing model to calculate the grant-date fair value of stock option awards, whether they possess time-based vesting provisions or performance-based vesting provisions. For stock options with time-based vesting provisions, the calculated compensation expense, net of expected forfeitures, is recognized on a straight-line basis over the service period of the award, which is generally five years for stock options. For stock options with performance-based vesting provisions, recognition of compensation expense, net of expected forfeitures, commences if and when the achievement of the performance criteria is deemed probable. For stock options with performance-based vesting provisions, compensation expense, net of expected forfeitures, when recognized, is recognized over the relevant performance period.

***Comprehensive income (loss)***

The components of comprehensive income (loss) include, in addition to net income (loss), unrealized gains and losses on investments, net of tax and foreign currency translation adjustments related to VJCL, net of tax.

***Impact of recently issued accounting standards***

In August 2016, the Financial Accounting Standards Board ( FASB ) issued guidance to clarify how certain cash receipts and cash payments should be presented in the statement of cash flows. These include debt prepayment, settlement of zero-coupon debt instruments, contingent consideration payments made after a business combination, proceeds from the settlement of insurance claims, proceeds from the settlement of corporate-owned life insurance policies, distributions received from equity method investees and beneficial interests in securitization transactions. The new guidance is effective for interim and annual reporting periods beginning after December 15, 2017, with early

adoption permitted. The Company has not yet determined the impact this new guidance will have on its consolidated financial statements and related disclosures.

In June 2016, the FASB issued new guidance which will require measurement and recognition of expected credit losses on certain types of financial instruments. It also modifies the impairment model for available-for-sale debt securities and provides for a simplified accounting model for purchased financial assets

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**Table of Contents****VICOR CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

with credit deterioration since their origination. The new guidance is effective for interim and annual reporting periods beginning after December 15, 2019, with early adoption permitted. It is required to be applied on a modified-retrospective approach with certain elements being adopted prospectively. The Company has not yet determined the impact this new guidance will have on its consolidated financial statements

In March 2016, the FASB issued new guidance for employee share-based payment accounting, which makes several modifications to existing guidance related to the accounting for forfeitures, employer tax withholding on share-based compensation and the financial statement presentation of excess tax benefits or deficiencies. This new guidance also clarifies the statement of cash flows presentation for certain components of share-based awards. In terms of the accounting for forfeitures, the new guidance allows an option for them to either be estimated, as currently required, or recognized when they occur. The Company will continue to estimate forfeitures. The standard is effective for interim and annual reporting periods beginning after December 15, 2016, with early adoption permitted. The Company does not anticipate the new guidance will have a material impact on its consolidated financial statements and related disclosures.

In February 2016, the FASB issued new guidance for lease accounting, which will require lessees to recognize leases on the balance sheet and disclose key information about leasing arrangements. The new guidance establishes a right-of-use model ( ROU ) that will require a lessee to recognize a ROU asset and a lease liability on the balance sheet for all leases with a term longer than twelve months. Leases will be classified as finance or operating, with classification affecting the pattern and classification of expense recognition in the income statement. For lessors, the guidance modifies the classification criteria and accounting for sales-type and direct financing leases. The new standard is effective for interim and annual periods beginning after December 15, 2018, with early adoption permitted. The Company plans to adopt the new guidance effective January 1, 2019. The new standard must be adopted using a modified retrospective transition which includes certain practical expedients. The Company has not yet determined the impact this new guidance will have on its consolidated financial statements and related disclosures.

In July 2015, the FASB issued new guidance for inventory accounting, which will require companies to measure in scope inventory at the lower of cost or net realizable value. Current guidance requires an entity to measure inventory at the lower of cost or market. The new guidance does not apply to inventory that is measured using last-in, first-out ( LIFO ) or retail inventory methods. The guidance applies to all other inventory, which includes inventory that is measured using first-in, first-out ( FIFO ), which the Company employs, or average cost methods. The new guidance will be effective for the Company on January 1, 2017, and is to be applied prospectively with earlier application permitted as of the beginning of an interim or annual reporting period. The Company does not anticipate the new guidance will have a material impact on its consolidated financial statements and related disclosures.

In May 2014, the FASB issued new guidance for revenue recognition, which will require an entity to recognize the amount of revenue to which it expects to be entitled for the transfer of promised goods or services to customers. The new guidance, which includes several amendments, will replace most existing revenue recognition guidance in U.S. Generally Accepted Accounting Principles when it becomes effective which will be, for the Company, on January 1, 2018. The new standard permits the use of either the retrospective or cumulative effect transition method. As described in Note 2 Significant Accounting Policies, *Revenue Recognition*, of these Notes to the Consolidated Financial Statements, the Company defers revenue and the related cost of sales on shipments to stocking distributors

until the distributors resell the products to their customers. Upon adoption of the new guidance, the Company will no longer be permitted to defer revenue until sale by the stocking distributor to the end customer, but rather, will be required to estimate the effects of returns and allowances provided to stocking distributors and record revenue at the time of sale to the stocking distributor. The Company currently plans to utilize the cumulative effect transition method for adoption of the standard. Upon adoption, the Company will recognize the cumulative effect of adopting this guidance as an adjustment to the balance of

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**Table of Contents****VICOR CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

retained earnings as of January 1, 2018. The Company is continuing to evaluate the future impact and method of adoption the new guidance will have on its consolidated financial statements and related disclosures.

Other new pronouncements issued but not effective until after December 31, 2016 are not expected to have a material impact on the Company's consolidated financial statements.

**3. STOCK-BASED COMPENSATION AND EMPLOYEE BENEFIT PLANS**

Vicor currently grants options for the purchase of common stock (i.e., stock options) under the following equity compensation plans that are stockholder-approved:

*Amended and Restated 2000 Stock Option and Incentive Plan (the 2000 Plan)* Under the 2000 Plan, the Board of Directors or the Compensation Committee of the Board of Directors may grant stock incentive awards based on the Company's Common Stock, including stock options, stock appreciation rights, restricted stock, performance shares, unrestricted stock, deferred stock, and dividend equivalent rights. Awards may be granted to employees and other key persons, including non-employee directors. Incentive stock options may be granted to employees at a price at least equal to the fair market value per share of the Common Stock on the date of grant, and non-qualified options may be granted to non-employee directors at a price at least equal to 85% of the fair market value of the Common Stock on the date of grant. A total of 4,000,000 shares of Common Stock have been reserved for issuance under the 2000 Plan. The period of time during which an option may be exercised and the vesting periods are determined by the Compensation Committee. The term of each option may not exceed 10 years from the date of grant.

Picor Corporation (Picor), a privately held, majority-owned subsidiary of Vicor, currently grants stock options under the following equity compensation plan that has been approved by its Board of Directors:

*2001 Stock Option and Incentive Plan, as amended (the 2001 Picor Plan)* Under the 2001 Picor Plan, the Board of Directors of Picor may grant equity-based awards associated with Picor Common Stock, including stock options, restricted stock, or unrestricted stock. Awards may be granted to employees and other key persons, including non-employee directors and full or part-time officers. No incentive stock options have been granted since November 11, 2011, and no such options were outstanding as of December 31, 2015. Non-qualifying stock options may be granted to employees at a price at least equal to the fair market value per share of Picor Common Stock, based on judgments made by Picor's Board of Directors on the date of grant. All stock option awards must be approved by both the Picor Board of Directors and the Compensation Committee of the Company's Board of Directors. A total of 20,000,000 shares of Picor Common Stock have been reserved for issuance under the 2001 Picor Plan. The period of time during which an option may be exercised and the vesting periods are determined by the Picor Board of Directors. The term of each option may not exceed 10 years from the date of grant.

VI Chip Corporation (VI Chip), a privately held, majority-owned subsidiary of Vicor, currently grants stock options under the following equity compensation plan that has been approved by its Board of Directors:

*2007 Stock Option and Incentive Plan, as amended (the 2007 VI Chip Plan)* Under the 2007 VI Chip Plan, the Board of Directors of VI Chip may grant equity-based awards associated with VI Chip Common Stock, including stock

options, restricted stock, or unrestricted stock. Awards may be granted to employees and other key persons, including non-employee directors and full or part-time officers. No incentive stock options have been granted since November 11, 2011, and no such options were outstanding as of December 31, 2016. Non-qualifying stock options may be granted to employees at a price at least equal to the fair market value per share of the VI Chip Common Stock, based on judgments made by VI Chip's Board of Directors on the date of grant. A total of 12,000,000 shares of VI Chip Common Stock have



**Table of Contents****VICOR CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

been reserved for issuance under the 2007 VI Chip Plan. The period of time during which an option may be exercised and the vesting periods are determined by the VI Chip Board of Directors. The term of each option may not exceed 10 years from the date of grant.

All time-based (i.e., non-performance-based) options for the purchase of Vicor common stock are granted at an exercise price equal to or greater than the market price for Vicor common stock at the date of the grant. All time-based (i.e., non-performance-based) options for the purchase of VI Chip or Picor common stock are granted at an exercise price equal to or greater than the estimated fair market value of the respective share price, based on a value calculated using a discounted cash flow model at the date of grant consistent with the requirements of Section 409A of the Internal Revenue Code.

On December 31, 2010, the Company granted 2,984,250 non-qualified stock options under the 2007 VI Chip Plan with performance-based vesting provisions tied to achievement of certain margin targets by VI Chip Corporation. As of December 31, 2010, the Company determined it was probable the margin targets would be achieved and, accordingly, began recording stock-based compensation expense relating to these options beginning January 1, 2011. During the third quarter of 2016, the Company determined the margin targets would not be met prior to the expiration date of the corresponding options, as VI Chip's revenue growth has been below levels necessary to achieve the targets. As a result, the Company reversed approximately \$768,000 of previously recorded stock-based compensation expense in the third quarter of 2016, representing all expense taken for these performance-based options through June 30, 2016. This resulted in decreases in cost of revenues of \$86,000, selling, general and administrative expense of \$516,000, and research and development expense of \$166,000 in the third quarter of 2016.

During the fourth quarter of 2014, the Company, in effect, cancelled certain stock options previously awarded to three corporate officers in 2013 and awarded to those officers new stock options representing an equivalent value, as calculated using the Black-Scholes option-pricing model. Subsequent to the 2013 awards, the Company determined those grants exceeded the limit on the number of stock options that may be granted to an individual in a year, according to the terms of the 2000 Plan. In connection with this action, recorded for financial reporting purposes as a modification of existing options, a total of 129,028 stock options awarded in 2013 were cancelled and a total of 150,355 new stock options were awarded. The cancellation of the 2013 stock options and the award of new stock options did not have a material impact on the Company's results of operations.

Stock-based compensation expense for the years ended December 31 was as follows (in thousands):

	<b>2016</b>	<b>2015</b>	<b>2014</b>
Cost of revenues	\$ 95	\$ 230	\$ 183
Selling, general and administrative	412	1,246	1,176
Research and development	(1)	306	275
Total stock-based compensation	\$ 506	\$ 1,782	\$ 1,634

The decrease in stock-based compensation expense in 2016 compared to 2015 was primarily due to the reversal of previously recorded stock-based compensation for VI Chip performance-based options, described above.

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## VICOR CORPORATION

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The fair value for options awarded for the years shown below was estimated at the date of grant using the Black-Scholes option pricing model with the following weighted-average assumptions:

	<b>Non Performance- based Stock Options</b>		
	<b>2016</b>	<b>2015</b>	<b>2014</b>
<b>Vicor:</b>			
Risk-free interest rate	1.5%	2.0%	2.2%
Expected dividend yield			
Expected volatility	45%	51%	52%
Expected lives (years)	7.2	7.2	6.6
<b>VI Chip:</b>			
Risk-free interest rate	1.7%	2.1%	2.3%
Expected dividend yield			
Expected volatility	34%	37%	41%
Expected lives (years)	6.5	6.5	6.5
<b>Picor:</b>			
Risk-free interest rate	1.5%	1.9%	2.2%
Expected dividend yield			
Expected volatility	42%	41%	42%
Expected lives (years)	6.5	6.5	6.5

***Risk-free interest rate:***

*Vicor* The Company uses the yield on zero-coupon U.S. Treasury Strip securities for a period that is commensurate with the expected term assumption for each vesting period.

*Picor and VI Chip* Picor and VI Chip use the yield to maturity of a seven-year U.S. Treasury bond, as it most closely aligns to the expected exercise period.

***Expected dividend yield:***

*Vicor* The Company determines the expected dividend yield by annualizing the most recent prior cash dividends declared by the Company's Board of Directors, if any, and dividing that result by the closing stock price on the date of that dividend declaration. Dividends are not paid on options.

*Picor and VI Chip* Picor and VI Chip have not and do not expect to declare and pay dividends in the foreseeable future. Therefore, the expected dividend yield is not applicable.

***Expected volatility:***

*Vicor* Vicor uses historical volatility to estimate the grant-date fair value of the options, using the expected term for the period over which to calculate the volatility (see below). The Company does not expect its future volatility to differ from its historical volatility. The computation of the Company's volatility is based on a simple average calculation of monthly volatilities over the expected term.

*Picor* As Picor is a nonpublic entity, historical volatility information is not available. An industry sector index of six publicly traded fabless semiconductor firms was developed for calculating historical volatility for Picor. Historical prices for each of the companies in the index based on the market price of the shares on each day of trading over the expected term were used to determine the historical volatility.

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**Table of Contents****VICOR CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

*VI Chip* As VI Chip is a nonpublic entity, historical volatility information is not available. An industry sector index of 11 publicly traded fabless semiconductor firms was developed for calculating historical volatility for VI Chip. Historical prices for each of the companies in the index based on the market price of the shares on each day of trading over the expected term were used to determine the historical volatility.

***Expected term:***

*Vicor* The Company uses historical employee exercise and option expiration data to estimate the expected term assumption for the Black-Scholes grant-date valuation. The Company believes this historical data is currently the best estimate of the expected term of options, and all groups of the Company's employees exhibit similar exercise behavior.

*Picor and VI Chip* Due to the lack of historical information, the simplified method as prescribed by the Securities and Exchange Commission is used to determine the expected term.

***Forfeiture rate:***

The amount of stock-based compensation recognized during a period is based on the value of the portion of the awards that are ultimately expected to vest. Forfeitures are estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. The term forfeitures is distinct from cancellations or expirations and represents only the unvested portion of the surrendered option. The forfeiture analysis is re-evaluated annually and the forfeiture rate is adjusted as necessary. Ultimately, the actual expense recognized over the vesting period will only be for those shares that vest.

*Vicor* The Company currently expects, for Vicor options, based on an analysis of historical forfeitures, approximately 86% of its options will actually vest. An annual forfeiture rate of 5.00% has been applied to all unvested options as of December 31, 2016. For 2015 and 2014, the Company expected 88% and 78%, respectively, of its options would actually vest and applied an annual forfeiture rate of 4.25% and 8.00%, respectively.

*Picor* The Company currently expects, for Picor options, based on an analysis of historical forfeitures, approximately 92% of its options will actually vest. An annual forfeiture rate of 2.50% has been applied to all unvested options as of December 31, 2016. For 2015 and 2014, the Company expected 93% and 92%, respectively, of its options would actually vest and applied an annual forfeiture rate of 2.50% and 2.75%, respectively.

*VI Chip* The Company currently expects, for VI Chip options, based on an analysis of historical forfeitures, approximately 76% of its options will actually vest. An annual forfeiture rate of 9.00% has been applied to all unvested options as of December 31, 2016. For 2015 and 2014, the Company expected 78% and 77%, respectively, of its options would actually vest and applied an annual forfeiture rate of 8.50% and 7.75%, respectively.

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## VICOR CORPORATION

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Vicor Stock Options

A summary of the activity under Vicor's stock option plans as of December 31, 2016 and changes during the year then ended, is presented below (in thousands except for share and weighted-average data):

	Options Outstanding	Weighted- Average Exercise Price	Weighted- Average Remaining Contractual Life in Years	Aggregate Intrinsic Value
Outstanding on December 31, 2015	1,848,067	\$ 8.57		
Granted	83,817	\$ 10.32		
Forfeited and expired	(18,737)	\$ 9.21		
Exercised	(216,925)	\$ 7.25		
Outstanding on December 31, 2016	1,696,222	\$ 8.82	6.83	\$ 10,661
Exercisable on December 31, 2016	730,388	\$ 7.74	6.51	\$ 5,375
Vested or expected to vest as of December 31, 2016 (1)	1,646,808	\$ 8.76	6.82	\$ 10,437

(1) In addition to the vested options, the Company expects a portion of the unvested options to vest at some point in the future. The number of options expected to vest is calculated by applying an estimated forfeiture rate to the unvested options.

As of December 31, 2015 and 2014 the Company had options exercisable for 565,861 and 306,173 shares respectively, for which the weighted average exercise prices were \$7.24 and \$6.90, respectively.

During the years ended December 31, 2016, 2015, and 2014 under all plans, the total intrinsic value of Vicor options exercised (i.e., the difference between the market price at exercise and the price paid by the employee to exercise the options) was \$1,392,000, \$928,000, and \$751,000, respectively. The total amount of cash received by the Company from options exercised in 2016, 2015, and 2014, was \$1,572,000, \$805,000, and \$788,000, respectively. The total grant-date fair value of stock options that vested during the years ended December 31, 2016, 2015, and 2014 was approximately \$365,000, \$1,194,000, and \$1,096,000, respectively.

As of December 31, 2016, there was \$870,000 of total unrecognized compensation cost related to unvested non-performance based awards for Vicor. That cost is expected to be recognized over a weighted-average period of 1.5 years for those awards. The expense will be recognized as follows: \$490,000 in 2017, \$245,000 in 2018, \$103,000

in 2019, \$28,000 in 2020, and \$4,000 in 2021.

The weighted-average fair value of Vicor options granted was \$4.94, \$6.76, and \$5.50, in 2016, 2015, and 2014, respectively.

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## VICOR CORPORATION

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Picor Stock Options

A summary of the activity under the 2001 Picor Plan as of December 31, 2016 and changes during the year then ended, is presented below (in thousands except for share and weighted-average data):

	Options Outstanding	Weighted- Average Exercise Price	Weighted- Average Remaining Contractual Life in Years	Aggregate Intrinsic Value
Outstanding on December 31, 2015	9,725,067	\$ 0.62		
Granted	603,000	\$ 0.88		
Forfeited and expired	(113,560)	\$ 0.65		
Exercised	(683,520)	\$ 0.88		
Outstanding on December 31, 2016	9,530,987	\$ 0.62	4.56	\$ 1,262
Exercisable on December 31, 2016	7,915,219	\$ 0.62	4.09	\$ 1,030
Vested or expected to vest as of December 31, 2016 (1)	9,470,822	\$ 0.62	4.54	\$ 1,256

(1) In addition to the vested options, the Company expects a portion of the unvested options to vest at some point in the future. Options expected to vest is calculated by applying an estimated forfeiture rate to the unvested options. As of December 31, 2015 and 2014, Picor had options exercisable for 8,053,490 and 6,643,377 shares, respectively, for which the weighted average exercise prices were \$0.64 and \$0.67, respectively.

During the years ended December 31, 2016 and 2015, the total intrinsic value of Picor options exercised was \$24,000 and \$72,000, respectively. The total amount of cash received by Picor from options exercised in 2016 and 2015 was \$17,000 and \$14,000, respectively. There were no Picor options exercised in 2014. The total grant-date fair value of stock options that vested during the years ended December 31, 2016, 2015, and 2014 was approximately \$155,000, \$39,000, and \$0, respectively.

As of December 31, 2016, there was \$285,000 of total unrecognized compensation cost related to unvested share-based awards for Picor. That cost is expected to be recognized over a weighted-average period of 2.8 years for all Picor awards. The expense will be recognized as follows: \$116,000 in 2017, \$78,000 in 2018, \$45,000 in 2019, \$29,000 in 2020, and \$17,000 in 2021.



The weighted-average fair value of Picor options granted was \$0.26 in 2016, \$0.48 in 2015, and \$0.19 in 2014.

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## VICOR CORPORATION

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

VI Chip Stock Options

A summary of the activity under the 2007 VI Chip Plan as of December 31, 2016 and changes during the year then ended, is presented below (in thousands except for share and weighted-average data):

	Options Outstanding	Weighted- Average Exercise Price	Weighted- Average Remaining Contractual Life in Years	Aggregate Intrinsic Value
Outstanding on December 31, 2015	10,097,500	\$ 1.00		
Granted	5,000	\$ 1.00		
Forfeited and expired	(168,750)	\$ 1.00		
Exercised		\$		
Outstanding on December 31, 2016 (1)	9,933,750	\$ 1.00	1.88	\$
Exercisable on December 31, 2016	7,074,650	\$ 1.00	0.88	\$
Vested or expected to vest as of December 31, 2016 (2)	9,747,034	\$ 1.00	1.83	\$

(1) Of the total VI Chip options outstanding on December 31, 2016, 5,500,000 options had been granted to Dr. Vinciarelli, the Company's Chief Executive Officer.

(2) In addition to the vested options, the Company expects a portion of the unvested options to vest at some point in the future. Options expected to vest is calculated by applying an estimated forfeiture rate to the unvested options. As of December 31, 2015 and 2014, VI Chip had options exercisable for 7,042,600 and 7,377,950 shares, respectively, for which the weighted average exercise price was \$1.00.

There were no VI Chip options exercised in 2016 and 2014. The total intrinsic value of VI Chip options exercised in 2015 was zero. The total amount of cash received by VI Chip from options exercised in 2015 was \$1,000.

As of December 31, 2016, there was \$51,000 of total unrecognized compensation cost related to unvested share-based awards for VI Chip. That cost is expected to be recognized over a weighted-average period of 2.1 years for all VI Chip awards. The expense will be recognized as follows: \$39,000 in 2017, and \$12,000 in 2018.

The weighted-average fair value of VI Chip options granted was \$0.01, \$0.01, and \$0.02 in 2016, 2015, and 2014, respectively.

**401(k) Plan**

The Company sponsors a savings plan available to all domestic employees, which qualifies under Section 401(k) of the Internal Revenue Code. Employees may contribute to the plan in amounts representing from 1% to 80% of their pre-tax salary, subject to statutory limitations. The Company matches employee contributions to the plan at a rate of 50%, up to the first 3% of an employee's compensation. The Company's matching contributions currently vest at a rate of 20% per year, based upon years of service. The Company's contributions to the plan were approximately \$882,000, \$854,000, and \$877,000 in 2016, 2015, and 2014, respectively.

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## VICOR CORPORATION

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Stock Bonus Plan

Under the Company's 1985 Stock Bonus Plan, as amended, shares of Common Stock may be awarded to employees from time to time as determined by the Board of Directors. On December 31, 2016, 109,964 shares were available for further award. All shares awarded to employees under this plan have vested. No further awards are contemplated under this plan at the present time.

**4. LONG-TERM INVESTMENTS**

As of December 31, 2016 and 2015, the Company held one auction rate security that had experienced failed auctions of \$3,000,000 at par value, which was purchased through and is held by a broker-dealer affiliate of Bank of America, N.A. (the Failed Auction Security). The Failed Auction Security held by the Company is Aaa/AA+ rated by the major credit rating agencies, is collateralized by student loans, and is guaranteed by the U.S. Department of Education under the Federal Family Education Loan Program. Management is not aware of any reason to believe the issuer of the Failed Auction Security is presently at risk of default. The interest rate for the security is reset at regular intervals ranging from seven to 28 days. The auction rate security held by the Company traded at par prior to February 2008 and is callable at par at the option of the issuer. Through December 31, 2016, the Company has continued to receive interest payments on the Failed Auction Security in accordance with the terms of its indenture. Management believes the Company ultimately should be able to liquidate the Failed Auction Security without significant loss primarily due to the overall quality of the issue held and the collateral securing the substantial majority of the underlying obligation. However, current conditions in the auction rate securities market have led management to conclude the recovery period for the Failed Auction Security exceeds 12 months. As a result, the Company continued to classify the Failed Auction Security as long-term as of December 31, 2016.

The following is a summary of available-for-sale securities (in thousands):

	Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
<b>December 31, 2016</b>				
Failed Auction Security	\$ 3,000	\$	\$ 492	\$ 2,508
<b>December 31, 2015</b>				
Failed Auction Security	\$ 3,000	\$	\$ 474	\$ 2,526
Brokered certificates of deposit	340			340
	\$ 3,340	\$	\$ 474	\$ 2,866

As of December 31, 2016 and 2015, the Failed Auction Security had been in an unrealized loss position for greater than 12 months.

The amortized cost and estimated fair value of available-for-sale securities on December 31, 2016, by contractual maturities, are shown below (in thousands):

	<b>Cost</b>	<b>Estimated Fair Value</b>
Due in twenty to forty years	\$ 3,000	\$ 2,508

Based on the fair value measurements described in Note 5, the fair value of the Failed Auction Security on December 31, 2016, with a par value of \$3,000,000, was estimated by the Company to be approximately \$2,508,000. The gross unrealized loss of \$492,000 on the Failed Auction Security consists of two types of

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estimated loss: an aggregate credit loss of \$59,000 and an aggregate temporary impairment of \$433,000. In determining the amount of credit loss, the Company compared the present value of cash flows expected to be collected to the amortized cost basis of the security, considering credit default risk probabilities and changes in credit ratings as significant inputs, among other factors (see Note 5).

The following table represents a rollforward of the activity related to the credit loss recognized in earnings on available-for-sale auction rate securities held by the Company for the years ended December 31 (in thousands):

	<b>2016</b>	<b>2015</b>	<b>2014</b>
Balance at the beginning of the period	\$ 72	\$ 84	\$ 395
Reductions in the amount related to credit gain for which other-than-temporary impairment was not previously recognized	(13)	(12)	(39)
Reductions for securities sold during the period			(272)
Balance at the end of the period	\$ 59	\$ 72	\$ 84

At this time, the Company has no intent to sell the Failed Auction Security and does not believe it is more likely than not the Company will be required to sell the security. If current market conditions deteriorate further, the Company may be required to record additional unrealized losses. If the credit rating of the security deteriorates, the Company may be required to adjust the carrying value of the investment through impairment charges recorded in the Consolidated Statement of Operations, and any such impairment adjustments may be material.

Based on the Company's ability to access cash and cash equivalents and its expected operating cash flows, management does not anticipate the current lack of liquidity associated with the Failed Auction Security held will affect the Company's ability to execute its current operating plan.

**5. FAIR VALUE MEASUREMENTS**

The Company accounts for certain financial assets at fair value, defined as the price that would be received to sell an asset or paid to transfer a liability (i.e., an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. As such, fair value is a market-based measurement that should be determined based on assumptions market participants would use in pricing an asset or liability. A three-level hierarchy is used to show the extent and level of judgment used to estimate fair value measurements.

Assets and liabilities measured at fair value on a recurring basis included the following as of December 31, 2016 (in thousands):

	<b>Quoted Prices in Active Markets (Level 1)</b>	<b>Using Significant Other Observable Inputs (Level 2)</b>	<b>Significant Unobservable Inputs (Level 3)</b>	<b>Total Fair Value as of December 31, 2016</b>
<b>Cash equivalents:</b>				
Money market funds	\$ 10,114	\$	\$	\$ 10,114
<b>Long-term investments:</b>				
Failed Auction Security			2,508	2,508
<b>Liabilities:</b>				
Contingent consideration obligations			(253)	(253)

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## VICOR CORPORATION

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Assets measured at fair value on a recurring basis included the following as of December 31, 2015 (in thousands):

	Quoted Prices in Active Markets (Level 1)	Using Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total Fair Value as of December 31, 2015
Cash equivalents:				
Money market funds	\$ 10,412	\$	\$	\$ 10,412
Long-term investments:				
Failed Auction Security			2,526	2,526
Brokered certificates of deposit		340		340
Liabilities:				
Contingent consideration obligation			(144)	(144)

The Company has classified its contingent consideration obligations as Level 3 because the fair value for this liability was determined using unobservable inputs. The liability was based on estimated sales of legacy products over the period of royalty payments at the royalty rate (see Note 9), discounted using the Company's estimated cost of capital.

The Company has classified its brokered certificates of deposit as Level 2 because the fair value for these investments was determined utilizing observable inputs from non-active markets. The fair values fluctuate with changes in market interest rates obtained from information available in publicly quoted markets. Management tested the reported fair values by comparing them to net present value calculations utilizing a discount rate based on U.S. Treasury bill and bond yields for similar maturities.

As of December 31, 2016, there was insufficient observable auction rate security market information available to determine the fair value of the Failed Auction Security using Level 1 or Level 2 inputs. As such, the Company's investment in the Failed Auction Security was deemed to require valuation using Level 3 inputs. Management, after consulting with advisors, valued the Failed Auction Security using analyses and pricing models similar to those used by market participants (i.e., buyers, sellers, and the broker-dealers responsible for execution of the Dutch auction pricing mechanism by which each issue's interest rate was set). Management utilized a probability weighted discounted cash flow (DCF) model to determine the estimated fair value of this security as of December 31, 2016. The major assumptions used in preparing the DCF model included: estimates for the amount and timing of future interest and principal payments based on default probability assumptions used to measure the credit loss of 2.0%; the rate of return required by investors to own this type of security in the current environment, which we estimate to be 5.0% above the risk free rate of return; and an estimated timeframe of three to five years for successful auctions for this type of security to occur. In making these assumptions, management considered relevant factors including: the formula applicable to each security defining the interest rate paid to investors in the event of a failed auction (the Penalty Rate); forward projections of the interest rate benchmarks specified in such formulas; the likely timing of principal



repayments; the probability of full repayment considering the guarantees by the U.S. Department of Education of the underlying student loans, guarantees by other third parties, and additional credit enhancements provided through other means; and publicly available pricing data for recently issued student loan asset-backed securities not subject to auctions. In developing its estimate of the rate of return required by investors to own these securities, management compared the Penalty Rate of the Failed Auction Security with yields of actively traded long-term bonds with similar characteristics and, reflecting the limited liquidity for auction rate securities and the discounts to par value seen in recent tender offers by issuers and arm's length market transactions between informed buyers and sellers,

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estimated the implied yield (i.e., the discount to par value) necessary to complete a sale of the Failed Auction Security. Management has calculated an increase or decrease in the liquidity risk premium of 5.0% referenced above of 1.0% (i.e., 100 basis points) as used in the model, would decrease or increase, respectively, the fair value of the Failed Auction Security by approximately \$100,000.

For purposes of the valuation process for the Failed Auction Security, management consists of senior members of the Company's finance department. The fair value measurements for the Failed Auction Security are reviewed and updated on a quarterly basis. The calculations are prepared by the Company's Corporate Controller, in conjunction with information provided by its valuation advisors, and include the development and substantiation of the unobservable inputs. The methodology, assumptions, and calculations are reviewed and approved by the Company's Chief Financial Officer and Chief Accounting Officer.

The significant unobservable inputs used in the fair value measurement of the Company's Failed Auction Security are the cumulative probability of earning the maximum rate until maturity, the cumulative probability of principal return prior to maturity, the cumulative probability of default, the liquidity risk premium, and the recovery rate in default. Significant increases (decreases) in any of those inputs in isolation would result in changes in fair value measurement. Significant increases (decreases) in the cumulative probability of earning the maximum rate until maturity, the cumulative probability of principal return prior to maturity, and the recovery rate in default would result in a higher (lower) fair value measurement, while increases (decreases) in the cumulative probability of default and the liquidity risk premium would result in a (lower) higher fair value measurement.

Generally, the interrelationships are such that a change in the assumption used for the cumulative probability of principal return prior to maturity is accompanied by a directionally similar change in the assumption used for the cumulative probability of earning the maximum rate until maturity and a directionally opposite change in the assumptions used for the cumulative probability of default and the liquidity risk premium. The recovery rate in default is somewhat independent and based upon the securities' specific underlying assets and published recovery rate indices.

Quantitative information about Level 3 fair value measurements as of December 31, 2016 are as follows (dollars in thousands):

	<b>Fair Value</b>	<b>Valuation Technique</b>	<b>Unobservable Input</b>	<b>Weighted Average</b>
Failed Auction Security	\$ 2,508	Discounted cash flow	Cumulative probability of earning the maximum rate until maturity	0.04%
			Cumulative probability of principal return prior to maturity	93.72%
			Cumulative probability of default	6.24%
			Liquidity risk premium	5.00%
			Recovery rate in default	40.00%

The change in the estimated fair value calculated for the investment valued on a recurring basis utilizing Level 3 inputs (i.e., the Failed Auction Security) for the year ended December 31, 2016 was as follows (in thousands):

Balance at the beginning of the period	\$ 2,526
Credit gain on available- for- sale security included in Other income (expense), net	13
Loss included in Other comprehensive income (loss)	(31)
Balance at the end of the period	\$ 2,508

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The change in the estimated fair value calculated for the liabilities valued on a recurring basis utilizing Level 3 inputs (i.e., the Contingent consideration obligations) for the year ended December 31, 2016 was as follows (in thousands):

Balance at the beginning of the period	\$ 144
Obligation incurred upon acquisition of noncontrolling interest (see Note 9)	208
Payments	(99)
Balance at the end of the period	\$ 253

There were no transfers between Level 1 and Level 2 of the fair value hierarchy during the year ended December 31, 2016.

**6. INVENTORIES**

Inventories as of December 31 were as follows (in thousands):

	<b>2016</b>	<b>2015</b>
Raw materials	\$ 18,648	\$ 16,257
Work-in-process	3,361	2,879
Finished goods	5,127	4,306
Net balance	\$ 27,136	\$ 23,442

**7. PROPERTY, PLANT AND EQUIPMENT**

Property, plant and equipment are stated at cost and are depreciated and amortized over a period of three to 39 years generally under the straight-line method for financial reporting purposes and accelerated methods for income tax purposes.

Property, plant and equipment as of December 31 were as follows (in thousands):

	<b>2016</b>	<b>2015</b>
Land	\$ 2,089	\$ 2,089
Buildings and improvements	43,950	44,647
Machinery and equipment	237,434	231,305
Furniture and fixtures	5,656	5,652

Construction in-progress and deposits	2,471	3,839
	291,600	287,532
Accumulated depreciation and amortization	(254,026)	(250,082)
Net balance	\$ 37,574	\$ 37,450

Depreciation expense for the years ended December 31, 2016, 2015 and 2014 was approximately \$8,304,000, \$9,028,000, and \$9,833,000 respectively. As of December 31, 2016, the Company had approximately \$2,393,000 of capital expenditure commitments.

## 8. OTHER INVESTMENTS

In September 2015, Intersil Corporation ( Intersil ) acquired, through a statutory merger, Great Wall Semiconductor Corporation ( GWS ), in which the Company held non-voting convertible preferred stock. GWS

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**Table of Contents****VICOR CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

and its subsidiary designed and sold semiconductors, conducted research and development activities, and developed and licensed patents. A director of the Company was the founder, Chairman of the Board, President and Chief Executive Officer ( CEO ), as well as the majority voting shareholder, of GWS. The Company accounted for its investment in GWS under the equity method. The Company determined, while GWS was a variable interest entity, the Company was not the primary beneficiary. The key factors in the Company's assessment were that the CEO of GWS had: (i) the power to direct the activities of GWS that most significantly impact its economic performance, and (ii) an obligation to absorb losses or the right to receive benefits from GWS, respectively, that could potentially be significant to GWS.

At the time of the merger transaction, the Company's gross investment totaled \$4,999,719. However, during the fourth quarter of 2008, the Company determined a decline in value judged to be other-than-temporary had occurred and, as such, the investment's recorded value on the Consolidated Balance Sheet, as of December 31, 2008, was reduced to zero. Management's decision to reduce the remaining investment balance to zero at that time was based on GWS continued operating losses, the impact of the global economic crisis on the current and short-term outlook for its operations, a negative working capital position as of December 31, 2008, and a valuation based on discounted cash flows.

Under the terms of the merger agreement between GWS and Intersil, and in accordance with the terms of the shareholder agreement under which the Company made its investments, all preferred stock was redeemed at full preference value (i.e., purchased for cash equal to the original investment amount). This redemption was effected through the exchange of a share of preferred stock for (a) the right to receive the preference value in cash upon surrender of the preferred shares and (b) the non-transferable right to receive certain cash payments as additional consideration, after a period of 16 months, associated with (i) the release by Intersil of some or all of the \$2,625,000 portion of total consideration held in escrow by Intersil for potential funding of indemnification and related obligations made by GWS and its selling shareholders and (ii) additional consideration of up to \$4,000,000, payable in the event Intersil achieved certain revenue goals related to GWS products. Immediately after the closing of the merger transaction, the Company received the full preference value, equal to its gross investment in GWS. Because the net investment on the Company's Consolidated Balance Sheet had a value of zero, the full preference value was recorded as a gain from sale of equity method investment in the third quarter of 2015. Just prior to the merger, the Company also received, as a dividend from GWS, shares of an entity in which GWS held an investment. Such shares were deemed by the Company to have a value of zero on the date of receipt.

While the Company's shares of preferred stock were never converted into shares of non-voting common stock, as provided for in the terms of the shareholder agreement under which the Company made its investment, the proportionate share of the contingent amounts described above was calculated assuming such a conversion, resulting in a *pro forma* proportionate share for the Company of any amounts paid of 27.0%. The Company will record its proportionate share of any additional consideration when it is determined to be realizable. As a former stockholder of GWS, the Company is subject to the indemnification provisions in the merger agreement, as noted above. In certain cases, the Company's indemnification obligation can extend to the full amount of the merger consideration received by the Company, however, the Company believes the likelihood of any such indemnification obligation occurring is remote.

The Company and GWS were parties to an intellectual property cross-licensing agreement, a license agreement, and two supply agreements, under which the Company purchased certain components from GWS. Intersil, through the merger transaction, has assumed all of GWS' rights and obligations under these agreements. Company purchases from GWS totaled approximately \$1,662,000 for the nine months ended September 30, 2015, the approximate time of the sale, and \$2,146,000 in 2014.

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**Table of Contents****VICOR CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)****9. NONCONTROLLING INTEREST TRANSACTIONS**

On March 30, 2016, the Company acquired 100% ownership of certain operating assets and cash of its consolidated subsidiary, Converpower Corporation ( Converpower ), in which it held a 49% ownership interest. The operating assets and cash were acquired in exchange for the Company's common shares representing that 49% interest and the aggregate dollar amount of royalty payments to be made by the Company to Converpower. The transaction was executed through a newly-formed, wholly-owned subsidiary, Granite Power Technologies, Inc. ( GPT ), the business operations of which had formerly existed as a division of Vicor Corporation. The shares of Converpower common stock held by the Company were contributed to GPT prior to the transaction. At the same time that it entered into the Asset Purchase Agreement associated with this transaction, the Company and Converpower entered into a license agreement providing the Company the right to continue manufacturing certain Converpower products in exchange for payment of royalties, quarterly through June 30, 2021, equal to a percentage of the revenue generated by the manufacture and sale of these products by GPT. The estimated present value of total future royalties, included in

Contingent consideration obligations in the accompanying Consolidated Balance Sheet as of December 31, 2016, is \$167,000 (initially \$208,000, as of March 31, 2016). Although the Company exchanged its shares representing its 49% equity interest in Converpower, it acquired 100% control of the business operations. Accordingly, this transaction was accounted for as an acquisition of a noncontrolling interest (i.e., an equity transaction). As such, the noncontrolling interest balance in equity associated with Converpower was reduced to zero, and the additional paid-in capital account was reduced by \$208,000, the estimated present value of total future royalties as of March 31, 2016. As a result of the transactions associated with the consolidation of the Converpower operation into GPT, the Company's aggregate balance of cash, short-term interest receivable, and long-term investments on its Consolidated Balance Sheet as of March 31, 2016, declined by approximately \$718,000. No amounts were recorded in the Consolidated Statement of Operations related to these transactions.

On December 28, 2015, the Company sold its 49% ownership interest in Aegis Power Systems, Inc. ( APS ) to the 51% noncontrolling interest holder for approximately \$1,698,000. The amount of the proceeds approximated the Company's share of the net equity of APS, resulting in a gain of approximately \$28,000, which was recorded in Other income (expense), net in the accompanying Consolidated Statements of Operations. As a result of the transaction, cash of approximately \$2,090,000 and other net assets of approximately \$1,317,000 of APS were fully deconsolidated from the Company's consolidated balance sheet as of December 31, 2015. After the sale, APS operates independently from the Company, and may purchase the Company's products going forward, on an arms-length basis.

Also on December 28, 2015, the Company acquired the noncontrolling interest holder's 18% ownership interest in Mission Power Solutions, Inc. ( MPS ) for approximately \$216,000, which equaled the noncontrolling interest holder's share of the net equity of MPS. This transaction was achieved through a statutory merger of MPS with and into an existing Vicor Custom Power wholly-owned subsidiary, Northwest Power, Inc. ( NPI ). In addition to the payment noted above, the selling principal will be eligible to receive quarterly royalty payments through June 30, 2021 equal to a percentage of the revenue generated by the sale of certain MPS legacy products to be manufactured by NPI going forward. The estimated obligation for total future royalties, recorded as Contingent consideration obligation in the accompanying Consolidated Balance Sheets, was approximately \$144,000 as of December 31, 2015. Royalty payments of approximately \$58,000 were made during 2016. The acquisition of the noncontrolling interest holder's 18% ownership interest was accounted for as an equity transaction, and therefore, the noncontrolling interest balance



in equity for this subsidiary was reduced to zero. The excess of the acquisition amount, which is inclusive of the cash paid and the value of the contingent consideration obligation, over the noncontrolling interest balance in equity, was recorded as a charge to additional paid-in capital.

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The respective noncontrolling interest holders of APS, Converpower, and MPS served as key employees of each company prior to the transactions described above.

**10. INTANGIBLE ASSETS**

Patent costs, which are included in other assets in the accompanying balance sheets, as of December 31 were as follows (in thousands):

	<b>2016</b>	<b>2015</b>
Patent costs	\$ 2,427	\$ 2,525
Accumulated amortization	(1,598)	(1,583)
	<b>\$ 829</b>	<b>\$ 942</b>

Definite lived intangible assets, such as patent rights, are amortized and tested for impairment if a triggering event occurs.

Amortization expense was approximately \$134,000, \$145,000 and \$170,000 in 2016, 2015 and 2014, respectively. The estimated future amortization expense from patent assets held as of December 31, 2016, is projected to be \$129,000, \$113,000, \$106,000, \$102,000 and \$92,000, in fiscal years 2017, 2018, 2019, 2020, and 2021, respectively.

**11. SEVERANCE AND OTHER CHARGES**

In July 2014, the Company's management authorized the consolidation of the manufacturing of its Westcor division products, of the BBU segment, announcing its intent to transfer those operations from Westcor's Sunnyvale, California facility to the Company's primary manufacturing facility in Andover, Massachusetts, by the end of 2014. As a result, the Company recorded a pre-tax charge of \$2,207,000 in the second half of 2014, primarily for the cost of severance and other employee-related costs involving cash payments based on each employee's respective length of service. The Company also incurred other costs related to the relocation of the manufacturing operations, primarily freight costs for the transfer of inventories and equipment, and employee travel expenses, of which approximately \$303,000 was expensed in the second half of 2014. The related liability is presented as "Accrued severance charges" in the Consolidated Balance Sheets.

A summary of the activity related to the accrued severance charges, is as follows (in thousands):

Balance as of December 31, 2014	\$ 1,904
Payments	(1,709)

Balance as of December 31, 2015	195
Payments	(195)
Balance as of December 31, 2016	\$

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Product warranty activity for the years ended December 31 was as follows (in thousands):

	<b>2016</b>	<b>2015</b>	<b>2014</b>
Balance at the beginning of the period	\$ 585	\$ 204	\$ 283
Accruals for warranties for products sold in the period	358	715	281
Fulfillment of warranty obligations	(527)	(334)	(350)
Revisions of estimated obligations	(202)		(10)
Balance at the end of the period	\$ 214	\$ 585	\$ 204

**13. STOCKHOLDERS EQUITY**

Each share of Common Stock entitles the holder thereof to one vote on all matters submitted to the stockholders.

Each share of Class B Common Stock entitles the holder thereof to ten votes on all such matters.

Shares of Class B Common Stock are not transferable by a stockholder except to or among the stockholder's spouse, certain of the stockholder's relatives, and certain other defined transferees. Class B Common Stock is not listed or traded on any exchange or in any market. Class B Common Stock is convertible at the option of the holder thereof at any time and without cost to the stockholder into shares of Common Stock on a one-for-one basis.

In November 2000, the Board of Directors of the Company authorized the repurchase of up to \$30,000,000 of the Company's Common Stock (the November 2000 Plan). The plan authorizes the Company to make repurchases from time to time in the open market or through privately negotiated transactions. The timing of this program and the amount of the stock that may be repurchased is at the discretion of management based on its view of economic and financial market conditions. There were no repurchases under the November 2000 Plan in 2016, 2015, and 2014. On December 31, 2016 the Company had approximately \$8,541,000 available for share repurchases under the November 2000 Plan.

Dividends are declared at the discretion of the Company's Board of Directors and depend on actual cash from operations, the Company's financial condition and capital requirements and any other factors the Company's Board of Directors may consider relevant at the time. Common Stock and Class B Common Stock participate in dividends and earnings equally.

During the years ended December 31, 2016 and 2015, one subsidiary paid a total of \$750,000 and \$250,000, in cash dividends, respectively, all of which were paid to the Company. During the year ended December 31, 2014, two subsidiaries paid a total of \$3,900,000 in cash dividends, of which \$3,738,000 was paid to the Company and \$162,000 was paid to outside shareholders. Dividends paid to outside shareholders of our subsidiaries are accounted for as a

reduction in noncontrolling interest.

On December 31, 2016, 2015, and 2014 there were 14,377,880, 14,594,805, and 14,719,889, respectively, shares of Vicor Common Stock reserved for issuance for Vicor stock options and upon conversion of Class B Common Stock.

**Table of Contents****VICOR CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)****14. OTHER INCOME (EXPENSE), NET**

The major changes in the components of Other income (expense), net for the years ended December 31 were as follows (in thousands):

	<b>2016</b>	<b>2015</b>	<b>2014</b>
Rental income	\$ 462	\$	\$
Foreign currency losses, net	(268)	(161)	(196)
Interest income	68	47	80
Credit gains on available for sale securities	13	12	311
(Loss) gain on disposal of equipment	(4)	60	22
Other	13	67	51
	<b>\$ 284</b>	<b>\$ 25</b>	<b>\$ 268</b>

During the second quarter of 2016, the Company began recognizing rental income under a new leasing agreement with a third party for the former Westcor facility.

**15. INCOME TAXES**

The tax provision is based on the annual effective tax rate for the year, which includes estimated federal, state and foreign income taxes on the Company's pre-tax income and, in 2015 and 2014, estimated federal and state income taxes for certain noncontrolling interest subsidiaries that were not part of the Company's consolidated income tax returns. The tax provisions also may include discrete items, principally related to tax credits, increases or decreases in tax reserves, tax provision vs. tax return differences and accrued interest for potential liabilities.

The reconciliation of the federal statutory rate on the loss before income taxes and before the gain from sale of equity method investment to the effective income tax rate for the years ended December 31 is as follows:

	<b>2016</b>	<b>2015</b>	<b>2014</b>
Statutory federal tax rate	(34.0)%	(34.0)%	(34.0)%
State income taxes, net of federal income tax benefit	1.9	46.4	0.8
(Decrease) increase in valuation allowance	46.5	(138.4)	46.9
Tax credits	(13.6)	29.9	(12.4)
Capital gain on sale to noncontrolling interest	3.9	237.8	
Permanent items	0.9	21.2	0.4
Decrease in unremitted Vicor Custom Power earnings	(0.9)	(108.7)	
Foreign rate differential and deferred items	(0.8)	(18.2)	(0.3)
Book income attributable to noncontrolling interest	0.1	47.0	(0.6)
Decrease in tax reserves		(248.6)	(3.7)

Other	(0.2)	(0.1)	
	3.8%	(165.7)%	(2.9)%

In 2016, 2015, and 2014, the Company could not recognize a tax benefit for the majority of its losses due to a full valuation allowance against all domestic deferred tax assets, as described below.

In 2016, in connection with the Company's acquisition of 100% ownership of certain operating assets and cash of Converpower, the related deferred tax liability for unremitted earnings of \$55,000 was reversed and recorded as a discrete benefit in the first quarter of 2016 (see Note 9).

Table of Contents**VICOR CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

In 2015, the Company entered into voluntary disclosure agreements with several states. As a result, the Company recognized a tax benefit of approximately \$555,000 as a discrete item in the fourth quarter of 2015 for the release of tax reserves. In addition, in connection with the Company's sale of its 49% interest in APS, recognized as a capital gain, the related deferred tax liability for unremitted earnings of \$274,000 was reversed and recorded as a deferred tax benefit in the fourth quarter of 2015 (see Note 9).

During the third quarter of 2014, the Company recognized a tax benefit of approximately \$552,000 as a discrete item for the release of certain income tax reserves, due to the completion of an Internal Revenue Service examination of its 2010 and 2011 federal corporate income tax returns during the quarter.

For financial reporting purposes, income (loss) before income taxes and before the gain from sale of equity method investment for the years ended December 31 include the following components (in thousands):

	<b>2016</b>	<b>2015</b>	<b>2014</b>
Domestic	\$ (6,034)	\$ 1,373	\$ (14,223)
Foreign	4	(1,615)	(272)
	<b>\$ (6,030)</b>	<b>\$ (242)</b>	<b>\$ (14,495)</b>

Significant components of the provision (benefit) for income taxes for the years ended December 31 are as follows (in thousands):

	<b>2016</b>	<b>2015</b>	<b>2014</b>
<b>Current:</b>			
Federal	\$	\$ 144	\$ (690)
State	172	(473)	147
Foreign	137	111	124
	<b>309</b>	<b>(218)</b>	<b>(419)</b>
<b>Deferred:</b>			
Federal	(55)	(274)	(6)
Foreign	(23)	91	
	<b>(78)</b>	<b>(183)</b>	<b>(6)</b>
	<b>\$ 231</b>	<b>\$ (401)</b>	<b>\$ (425)</b>



As discussed in Note 8, the Company recorded a gain from equity method investment in the third quarter of 2015 for cash consideration received equal to its gross investment in GWS of \$4,999,719 for the full preference value of its non-voting convertible preferred stock upon GWS acquisition by Intersil, as the value of the investment for financial reporting purposes was zero. For income tax purposes, though, the tax basis of the investment was \$4,999,719 at the time of the redemption as it was not previously deducted for tax purposes and, therefore, there was no gain or loss on the transaction for income tax purposes.

The Company intends to continue to reinvest certain of its foreign earnings indefinitely. Accordingly, no U.S. income taxes have been provided for approximately \$909,000 of unremitted earnings of international subsidiaries. As of December 31, 2016, the amount of unrecognized deferred tax liability on these earnings was \$80,000.

**Table of Contents****VICOR CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

Significant components of the Company's deferred tax assets and liabilities as of December 31 were as follows (in thousands):

	<b>2016</b>	<b>2015</b>
Deferred tax assets:		
Research and development tax credit carryforwards	\$ 13,967	\$ 12,503
Net operating loss carryforwards	4,902	3,393
Stock-based compensation	4,066	3,993
Inventory reserves	3,143	2,979
Vacation accrual	1,928	1,768
Investment tax credit carryforwards	1,576	1,399
Alternative minimum tax credit carryforward	340	340
Deferred revenue	154	192
Unrealized loss on investments	136	149
Warranty reserves	73	202
Bad debt reserves	52	58
Other	331	735
Total deferred tax assets	30,668	27,711
Less: Valuation allowance for deferred tax assets	(29,274)	(25,862)
Net deferred tax assets	1,394	1,849
Deferred tax liabilities:		
Prepaid expenses	(654)	(713)
Depreciation	(406)	(787)
Patent amortization	(296)	(334)
Unremitted Vicor Custom Power earnings		(55)
Total deferred tax liabilities	(1,356)	(1,889)
Net deferred tax assets (liabilities)	\$ 38	\$ (40)

As of December 31, 2016, the Company has a valuation allowance of approximately \$29,274,000 primarily against all domestic net deferred tax assets and the majority of foreign net deferred tax assets, for which realization cannot be considered more likely than not at this time. Management assesses the need for the valuation allowance on a quarterly basis. In assessing the need for a valuation allowance, the Company considers all positive and negative evidence, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax planning strategies, and past financial performance. The Company remains in a significant cumulative loss position as of December 31, 2016 and, as a result, management believes a full valuation allowance against all domestic net deferred tax assets is warranted as of December 31, 2016. The valuation allowance against these deferred tax assets may require adjustment

in the future based on changes in the mix of temporary differences, changes in tax laws, and operating performance. If and when the Company determines the valuation allowance should be released (i.e., reduced), the adjustment would result in a tax benefit reported in that period's Consolidated Statements of Operations, the effect of which would be an increase in reported net income. A portion of such an adjustment may be accounted for through an increase to

Additional paid-in capital, a component of Stockholders' Equity. The amount of any such tax benefit associated with release of our valuation allowance in a particular quarter may be material.

As a result of certain realization requirements under the stock-based compensation guidance, the table of deferred tax assets and liabilities shown above does not include certain deferred tax assets as of December 31, 2016, that arose directly from tax deductions related to stock-based compensation greater than stock-based

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## VICOR CORPORATION

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

compensation recognized for financial reporting. Equity will be increased, net of any valuation allowance, by \$3,485,000 if and when such deferred tax assets are ultimately realized. Beginning in 2017, upon the adoption of new guidance for employee share-based accounting described in Note 2 Significant Accounting Policies *Impact of recently issued accounting standards*, this amount will be allocated and added to the deferred tax assets for research and development tax credit carryforwards and net operating loss carryforwards, but will be fully offset by the valuation allowance for deferred tax assets. The Company uses ASC 740 ordering when determining when excess tax benefits have been realized.

The research and development tax credit carryforwards expire beginning in 2017 for state purposes and in 2022 for federal purposes. The Company has federal net operating loss carryforwards which expire beginning in 2033, as well as net operating loss carryforwards in certain states, which expire beginning in 2017 through 2036.

A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows (in thousands):

	<b>2016</b>	<b>2015</b>	<b>2014</b>
Balance on January 1	\$ 830	\$ 1,254	\$ 2,072
Additions based on tax provisions related to the current year	125	120	161
Reductions for tax positions of prior years			(967)
Settlements		(480)	
Lapse of statute	(9)	(64)	(12)
Balance on December 31	\$ 946	\$ 830	\$ 1,254

The Company has reviewed the tax positions taken, or to be taken, in its tax returns for all tax years currently open to examination by a taxing authority. The total amount of unrecognized tax benefits, that is the aggregate tax effect of differences between tax return positions and the benefits recognized in the Company's financial statements, as of December 31, 2016, 2015, and 2014 of \$946,000, \$830,000, and \$1,254,000, respectively, if recognized, may decrease the Company's income tax provision and effective tax rate. None of the unrecognized tax benefits as of December 31, 2016, are expected to significantly change during the next twelve months.

The Company recognizes accrued interest and penalties, if any, related to unrecognized tax benefits as a component of income tax expense. During the years ended December 31, 2016, 2015, and 2014, the Company recognized approximately \$6,000, \$21,000, and \$32,000, respectively, in net interest expense. As of December 31, 2016 and 2015, the Company had accrued approximately \$25,000 and \$24,000, respectively, for the potential payment of interest.

The Company files income tax returns in the United States and various foreign tax jurisdictions. These tax returns are generally open to examination by the relevant tax authorities from three to seven years from the date they are filed. The tax filings relating to the Company's federal and state taxes are currently open to examination for tax years 2013 and 2015 and 2007 through 2015, respectively. In addition, the 2003, 2004, and 2007 tax years resulted in losses.

These years may also be subject to examination since the losses were carried forward and utilized in future years.

The Company's subsidiary in Italy, Vicor Italy S.r.l. ( Vicor Italy ), underwent during 2014 a tax inspection for tax years 2009 through 2013, covering corporation, regional and value added taxes. Vicor Italy received a preliminary tax audit report dated June 30, 2014. The Company filed a response to the preliminary tax audit report in the third quarter of 2014. The statute of limitations for the tax authorities in Italy to file an assessment, if any, expired on December 31, 2015 for tax year 2009 and on December 31, 2016 for tax year 2010. While management believes it is too early to determine the likelihood or amount of potential liability at this time, it does not believe the ultimate impact of this matter will be material to the Company's financial statements.

**Table of Contents****VICOR CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

Other than the Vicor Italy matter discussed above there are no other income tax examinations or audits currently in process.

**16. COMMITMENTS AND CONTINGENCIES**

The Company leases certain of its office and manufacturing space. The future minimum rental commitments under non-cancelable operating leases with remaining terms in excess of one year are as follows (in thousands):

<b>Year</b>	
2017	\$ 1,572
2018	1,013
2019	556
2020	411
2021 and thereafter	1,219

Rent expense was approximately \$1,866,000, \$1,902,000 and \$1,824,000 in 2016, 2015 and 2014, respectively. The Company also pays tenant-related executory costs such as taxes, maintenance, and insurance.

On January 28, 2011, SynQor, Inc. ( SynQor ) filed a complaint for patent infringement against Ericsson, Inc. ( Ericsson ), Cisco Systems, Inc. ( Cisco ) and the Company in the U.S. District Court for the Eastern District of Texas (the Texas Action ). Ericsson and Cisco subsequently settled with SynQor and are no longer parties to the Texas Action. With respect to the Company, SynQor s complaint in the Texas Action alleged that the Company s products, including but not limited to unregulated bus converters used in intermediate bus architecture power supply systems, infringe SynQor s U.S. patent numbers 7,072,190, 7,272,021, and 7,564,702 ( the 190 patent , the 021 patent and the 702 patent , respectively). SynQor s complaint sought an injunction against further infringement and an award of unspecified compensatory and enhanced damages, interest, costs and attorney fees. On September 20, 2011, SynQor filed an amended complaint in the Texas Action that further alleged that the Company s products, including, but not limited to, unregulated bus converters used in intermediate bus architecture power supply systems, infringe SynQor s U.S. patent number 8,023,290 ( the 290 patent ). The Company responded to SynQor s amended complaint in the Texas Action by denying its products infringe any of the SynQor patents, and asserting that the SynQor patents are invalid. The Company has further alleged that the SynQor 290 patent is unenforceable due to inequitable conduct by SynQor or its agents during the examination of the 290 patent at the United States Patent and Trademark Office ( USPTO ). The Company has also asserted counterclaims seeking damages against SynQor for deceptive trade practices and tortious interference with prospective economic advantage arising from SynQor s attempted enforcement of its patents against the Company.

The Company has initiated administrative review proceedings at the USPTO challenging the validity of certain claims of the SynQor patents asserted in the Texas Action, including all claims that were asserted against the Company by SynQor. Regarding the 190 patent, the Patent Trial and Appeal Board ( PTAB ) of the USPTO issued a decision upholding the validity of the 190 patent claims. That decision was appealed by the Company to the United States Court of Appeals for the Federal Circuit ( the Federal Circuit ), which issued a decision on March 13, 2015 reversing

the PTAB, determining that certain claims were invalid, and remanding the matter to the PTAB for further proceedings. On May 2, 2016, the PTAB issued a decision determining that all but one of the remaining claims of the 190 patent were invalid and remanding the remaining claim to a patent examiner for further examination, where it remains under review. In addition, on that date, the PTAB issued decisions finding all challenged claims of SynQor's 021 patent invalid and upholding the validity of all challenged claims of SynQor's 702 and 290 patents. The Company has filed an appeal with the Federal Circuit from the PTAB's

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**Table of Contents****VICOR CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

decision upholding the validity of the challenged claims of the 702 and 290 patents. SynQor has filed an appeal with the Federal Circuit from the PTAB's decision that the challenged claims of the 021 patent are invalid. Decisions in these appeals are expected later in 2017. On May 23, 2016, the Texas Court issued an order staying the Texas Action until the completion of all of the administrative review proceedings concerning the asserted SynQor patents, including any appeals from such proceedings to the Federal Circuit.

The Company continues to believe none of its products, including its unregulated bus converters, infringe any valid claim of the asserted SynQor patents, either alone or when used in an intermediate bus architecture implementation, including such use by Cisco. The Company believes SynQor's claims lack merit and, therefore, continues to vigorously defend itself against SynQor's patent infringement allegations. The Company does not believe a loss is probable for this matter. If a loss were to be incurred, however, the Company cannot estimate the amount of possible loss or range of possible loss at this time.

In addition to the SynQor matter, the Company is involved in certain other litigation and claims incidental to the conduct of its business. While the outcome of lawsuits and claims against the Company cannot be predicted with certainty, management does not expect any current litigation or claims will have a material adverse impact on the Company's financial position or results of operations.

**17. SEGMENT INFORMATION**

The Company has organized its business segments according to its key product lines. The BBU segment designs, develops, manufactures, and markets the Company's modular DC-DC converters and configurable products, and also includes the entities comprising Vicor Custom Power, the BBU operations of VJCL, and the operations of the Company's Westcor division through its closure in December 2014. The VI Chip segment includes VI Chip Corporation, which designs, develops, manufactures, and markets many of the Company's advanced power component products. The VI Chip segment also includes the VI Chip business conducted through VJCL. The Picor segment consists of Picor Corporation, which designs, develops, manufactures, and markets integrated circuits and related products for use in a variety of power management and power system applications. The Picor segment develops these products for use in the Company's BBU and VI Chip modules, to be sold as complements to the Company's BBU and VI Chip products, or for sale to third parties for separate (i.e., stand-alone) applications.

The Company's Chief Executive Officer (i.e., the chief operating decision maker) evaluates performance and allocates resources based on segment revenues and segment operating income (loss). The operating income (loss) for each segment includes selling, general, and administrative and research and development expenses directly attributable to the segment. Certain of the Company's indirect overhead costs, which include corporate selling, general, and administrative expenses, are allocated among the segments based upon an estimate of costs associated with each segment. Assets allocated to each segment are based upon specific identification of such assets, which include accounts receivable, inventories, fixed assets and certain other assets. The Corporate segment consists of those operations and assets shared by all segments. The costs of certain centralized executive and administrative functions are recorded in this segment, as are certain shared assets, most notably cash and cash equivalents, deferred tax assets, long-term investments, the Company's facilities in Massachusetts, real estate, and other assets. The Company's accounting policies and method of presentation for segments are consistent with that used throughout the Consolidated



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The following table provides significant segment financial data as of and for the years ended December 31 (in thousands):

	<b>BBU</b>	<b>VI Chip</b>	<b>Picor</b>	<b>Corporate</b>	<b>Eliminations (1)</b>	<b>Total</b>
<b>2016:</b>						
Net revenues	\$ 151,428	\$ 39,947	\$ 16,684	\$	\$ (7,779)	\$ 200,280
Income (loss) from operations	11,750	(16,494)	(637)	(933)		(6,314)
Total assets	196,987	21,389	8,583	73,253	(146,145)	154,067
Depreciation and amortization	4,258	2,235	545	1,400		8,438
<b>2015:</b>						
Net revenues	\$ 173,064	\$ 36,688	\$ 17,304	\$	\$ (6,862)	\$ 220,194
Income (loss) from operations	21,743	(21,040)	(290)	(680)		(267)
Total assets	170,939	15,577	5,369	81,824	(116,164)	157,545
Depreciation and amortization	4,538	2,740	442	1,422		9,142
<b>2014:</b>						
Net revenues	\$ 184,224	\$ 34,701	\$ 15,570	\$	\$ (8,764)	\$ 225,731
Income (loss) from operations	15,499	(29,015)	(407)	(840)		(14,763)
Total assets	151,923	17,677	5,691	75,758	(95,507)	155,542
Depreciation and amortization	4,711	3,265	410	1,419		9,805

(1) The elimination for net revenues is principally related to inter-segment revenues of Picor to BBU and VI Chip and for inter-segment revenues of VI Chip to BBU. The elimination for total assets is principally related to inter-segment accounts receivable due to BBU for the funding of VI Chip and Picor operations.

**18. QUARTERLY RESULTS OF OPERATIONS (Unaudited)**

The following table sets forth certain unaudited quarterly financial data for the years ended December 31 (in thousands, except per share amounts):

	<b>First</b>	<b>Second</b>	<b>Third</b>	<b>Fourth</b>	<b>Total</b>
<b>2016:</b>					
Net revenues	\$ 46,027	\$ 52,941	\$ 53,227	\$ 48,085	\$ 200,280
Gross margin	19,316	24,471	25,923	21,499	91,209
Consolidated net income (loss)	(5,376)	(550)	2,351	(2,686)	(6,261)
Net income (loss) attributable to noncontrolling interest	(25)	(6)	15	2	(14)
	(5,351)	(544)	2,336	(2,688)	(6,247)

Net income (loss) attributable to Vicor Corporation

Net income (loss) per share attributable to Vicor Corporation:

Basic and diluted	(0.14)	(0.01)	0.06	(0.07)	(0.16)
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**Table of Contents****VICOR CORPORATION****NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)**

	<b>First</b>	<b>Second</b>	<b>Third</b>	<b>Fourth</b>	<b>Total</b>
<b>2015:</b>					
Net revenues	\$ 64,017	\$ 56,119	\$ 48,664	\$ 51,394	\$ 220,194
Gross margin	28,891	26,510	21,286	22,831	99,518
Consolidated net income (loss)	3,442	771	2,609	(1,663)	5,159
Net income (loss) attributable to noncontrolling interest	71	(34)	106	89	232
Net income (loss) attributable to Vicor Corporation	3,371	805	2,503	(1,752)	4,927
Net income (loss) per share attributable to Vicor Corporation:					
Basic and diluted	0.09	0.02	0.06	(0.05)	0.13

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**Table of Contents****ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE**

None.

**ITEM 9A. CONTROLS AND PROCEDURES**

Attached as exhibits to this Annual Report on Form 10-K are certifications of our CEO and Chief Financial Officer ( CFO ), which are required in accordance with Rule 13a-14 of the Exchange Act. This Controls and Procedures section includes information concerning the controls and controls evaluation referred to in the certifications.

**(a) Evaluation of disclosure controls and procedures**

As required by Rule 13a-15 under the Exchange Act, management, with the participation of our CEO and CFO, conducted an evaluation regarding the effectiveness of our disclosure controls and procedures, as of the end of the last fiscal year. The term disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the Securities and Exchange Commission's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the Company's management, including its principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure. We recognize any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and we necessarily apply our judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation of the Company's disclosure controls and procedures as of December 31, 2016, the Chief Executive Officer and Chief Financial Officer concluded, as of such date, the Company's disclosure controls and procedures were effective at the reasonable assurance level.

**(b) Management's Report on Internal Control Over Financial Reporting**

Our management is responsible for establishing and maintaining adequate internal control over financial reporting to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. Internal control over financial reporting includes those policies and procedures; (a) pertaining to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of our assets; (b) providing 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 are being made only in accordance with authorizations of our management and Board of Directors; and (c) providing reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of our assets that could have a material effect on our financial statements.

Management assessed our internal control over financial reporting as of December 31, 2016, the end of our fiscal year. Management based its assessment on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission ( COSO ). Management's assessment included evaluation of such elements as the design and operating effectiveness of key financial reporting controls, process documentation, accounting policies, and our overall control environment.

Based on our assessment, management has concluded that our internal control over financial reporting was effective as of December 31, 2016.

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The effectiveness of our internal control over financial reporting as of December 31, 2016 has been audited by KPMG LLP, our independent registered public accounting firm, as stated in their report which is included immediately below.

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**REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

The Board of Directors and Stockholders

Vicor Corporation:

We have audited Vicor Corporation's internal control over financial reporting as of December 31, 2016, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Vicor Corporation'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 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 conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). 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 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.

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.

In our opinion, Vicor Corporation maintained, in all material respects, effective internal control over financial reporting as of December 31, 2016, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheets of Vicor Corporation and subsidiaries as of December 31, 2016 and 2015, and the related consolidated statements of operations, comprehensive income (loss), cash flows, and equity for each of the years in the three-year period ended December 31, 2016, and our report dated March 7, 2017 expressed an unqualified opinion on those consolidated financial statements.



/s/ KPMG LLP

Boston, Massachusetts

March 7, 2017

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**(c) Inherent Limitations on Effectiveness of Controls**

The Company's management, including the CEO and CFO, does not expect that our disclosure controls or our internal control 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. The design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Further, because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, 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 the individual acts of some persons, 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 on certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Projections of any evaluation of controls effectiveness to future periods are subject to risks. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with policies or procedures.

**(d) Changes in Internal Control Over Financial Reporting**

There was no change in our internal control over financial reporting that occurred during the fiscal quarter ended December 31, 2016, that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

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**ITEM 9B. OTHER INFORMATION**

None.

**PART III**

**ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE**

Incorporated by reference from the Company's Definitive Proxy Statement for its 2017 annual meeting of stockholders.

**ITEM 11. EXECUTIVE COMPENSATION**

Incorporated by reference from the Company's Definitive Proxy Statement for its 2017 annual meeting of stockholders.

**ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS**

Incorporated by reference from the Company's Definitive Proxy Statement for its 2017 annual meeting of stockholders.

**ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE**

Incorporated by reference from the Company's Definitive Proxy Statement for its 2017 annual meeting of stockholders.

**ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES**

Incorporated by reference from the Company's Definitive Proxy Statement for its 2017 annual meeting of stockholders.

**PART IV**

**ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES**

(a) (1) *Financial Statements*

See index in Item 8.

(a) (2) *Schedules*

Schedule II Valuation and Qualifying Accounts

All other schedules for which provision is made in the applicable accounting regulation of the Securities and Exchange Commission are not required under the related instructions or are inapplicable, and therefore have been omitted.

**Table of Contents***(b) Exhibits*

<b>Exhibits</b>	<b>Description of Document</b>
3.1	Restated Certificate of Incorporation, dated February 28, 1990 (1)
3.2	Certificate of Ownership and Merger Merging Westcor Corporation, a Delaware Corporation, into Vicor Corporation, a Delaware Corporation, dated December 3, 1990 (1)
3.3	Certificate of Amendment of Restated Certificate of Incorporation, dated May 10, 1991 (1)
3.4	Certificate of Amendment of Restated Certificate of Incorporation, dated June 23, 1992 (1)
3.5	Bylaws, as amended (9)
4.1	Specimen Common Stock Certificate (2)
10.1*	1984 Stock Option Plan of the Company, as amended (2)
10.2*	1993 Stock Option Plan (3)
10.3*	1998 Stock Option and Incentive Plan (4)
10.4*	Amended and Restated 2000 Stock Option and Incentive Plan (5)
10.5*	Form of Non-Qualified Stock Option under the Vicor Corporation Amended and Restated 2000 Stock Option and Incentive Plan (6)
10.6*	Sales Incentive Plan (7)
10.7*	Picor Corporation 2001 Stock Option and Incentive Plan (8)
10.8*	Form of Non-Qualified Stock Option under the Picor Corporation 2001 Stock Option and Incentive Plan (8)
10.9*	VI Chip Corporation Amended 2007 Stock Option and Incentive Plan (11)
10.10*	Form of Non-Qualified Stock Option Agreement under the VI Chip Corporation Amended 2007 Stock Option and Incentive Plan (10)
10.11*	Form of Incentive Stock Option Agreement under the VI Chip Corporation Amended 2007 Stock Option and Incentive Plan (11)
10.12*	Form of Stock Restriction Agreement under the VI Chip Corporation Amended 2007 Stock Option and Incentive Plan (11)
21.1	Subsidiaries of the Company (12)
23.1	Consent of KPMG LLP (12)
31.1	Certification of Chief Executive Officer pursuant to Rule 13a-14(a) of the Exchange Act (12)
31.2	Certification of Chief Financial Officer pursuant to Rule 13a-14(a) of the Exchange Act (12)
32.1	Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (12)
32.2	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (12)
101	The following material from the Company's Annual Report on Form 10-K, for the year ended December 31, 2016, formatted in XBRL (Extensible Business Reporting Language): (i) the Consolidated Balance Sheets; (ii) the Consolidated Statements of Operations; (iii) the Consolidated Statements of Comprehensive Income (Loss); (iv) the Consolidated Statements of Cash Flows; (v) the Consolidated Statements of Equity; and (vi) the Notes to Consolidated Financial Statements.

\* Indicates a management contract or compensatory plan or arrangement required to be filled pursuant to Item 15(b) of Form 10-K.

(1)

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Filed as an exhibit to the Company's Annual Report on Form 10-K filed on March 29, 2001 and incorporated herein by reference.

- (2) Filed as an exhibit to the Company's Registration Statement on Form 10, as amended, under the Securities Exchange Act of 1934 (File No. 0-18277), and incorporated herein by reference.
- (3) Filed as an exhibit to the Company's Registration Statement on Form S-8, as amended, under the Securities Act of 1933 (No. 33-65154), and incorporated herein by reference.

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- (4) Filed as an exhibit to the Company's Registration Statement on Form S-8, as amended, under the Securities Act of 1933 (No. 333-61177), and incorporated herein by reference.
- (5) Filed as an exhibit to the Company's Proxy Statement for use in connection with its 2002 Annual Meeting of Stockholders, which was filed on April 29, 2002 (File No. 0-18277), and incorporated herein by reference.
- (6) Filed as an exhibit to the Company's Quarterly Report on Form 10-Q filed on November 4, 2004 (File No. 0-18277) and incorporated herein by reference.
- (7) Filed as an exhibit to the Company's Annual Report on Form 10-K filed on March 16, 2005 (File No. 0-18277) and incorporated herein by reference.
- (8) Filed as an exhibit to the Company's Annual Report on Form 10-K filed on March 14, 2006 (File No. 0-18277) and incorporated herein by reference.
- (9) Filed as an exhibit to the Company's Quarterly Report on Form 10-Q filed on November 8, 2006 (File No. 0-18277) and incorporated herein by reference.
- (10) Filed as an exhibit to the Company's Current Report on Form 8-K, dated June 6, 2007 (File No. 0-18277) and incorporated herein by reference.
- (11) Filed as an exhibit to the Company's Current Report and Form 8-K, dated March 6, 2008 (File No. 0-18277) incorporated herein by reference.
- (12) Filed herewith.

**ITEM 16. Form 10-K Summary**

None.

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## VICOR CORPORATION

## SCHEDULE II

## VALUATION AND QUALIFYING ACCOUNTS

Years ended December 31, 2016, 2015 and 2014

Description	Balance at Beginning of Period	Charge (Recovery) to Costs and Expenses	Other Charges, Deductions (1)	Balance at End of Period
Allowance for doubtful accounts:				
Year ended:				
December 31, 2016	\$ 171,000	\$ (22,000)	\$ 4,000	\$ 153,000
December 31, 2015	183,000	18,000	(30,000)	171,000
December 31, 2014	198,000	66,000	(81,000)	183,000

(1) Reflects uncollectible accounts written off, net of recoveries.



**Table of Contents****SIGNATURES**

Pursuant to the requirements of Section 13 or 15(d) 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.

Vicor Corporation

By: /s/ James A. Simms  
James A. Simms  
Vice President, Chief Financial Officer

Date: March 7, 2017

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 and on the dates indicated.

<b>Signature</b>	<b>Title</b>	<b>Date</b>
/s/ Patrizio Vinciarelli	President, Chief Executive Officer	March 7, 2017
Patrizio Vinciarelli	and Chairman of the Board (Principal Executive Officer)	
/s/ James A. Simms	Chief Financial Officer and Vice President	March 7, 2017
James A. Simms	(Principal Financial Officer and Principal Accounting Officer)	
/s/ Estia J. Eichten	Director	March 7, 2017
Estia J. Eichten		
/s/ David T. Riddiford	Director	March 7, 2017
David T. Riddiford		
/s/ Barry Kelleher	Director	March 7, 2017
Barry Kelleher		
/s/ Samuel J. Anderson	Director	March 7, 2017
Samuel J. Anderson		
/s/ Claudio Tuozzolo	Director	March 7, 2017

Claudio Tuozzolo		
/s/ Jason L. Carlson	Director	March 7, 2017
Jason L. Carlson		
/s/ Liam K. Griffin	Director	March 7, 2017
Liam K. Griffin		
/s/ H. Allen Henderson	Director	March 7, 2017
H. Allen Henderson		