VICOR CORP
Form 10-K
March 09, 2018
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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, 2017

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	**04-2742817**
(State or other jurisdiction of incorporation or organization)	*(IRS employer identification no.)*
25 Frontage Road, Andover, Massachusetts	**01810**
(Address of principal executive offices)	*(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	**The NASDAQ Stock Market LLC**
(Title of Class)	*(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, a smaller reporting company, or an emerging growth company. See the definitions of large accelerated filer, accelerated filer, smaller reporting company, and emerging growth company in Rule 12b-2 of the Exchange Act.

Large Accelerated Filer Accelerated Filer Non-accelerated Filer Smaller Reporting Company
(Do not check if a smaller reporting company)
Emerging growth company
If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

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

The aggregate market value of 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, 2017) was approximately $301,433,000.

	Number of Shares of Common Stock
Title of Each Class	*Outstanding as of February 28, 2018*
Class A Common Stock	27,748,045
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 2018 annual meeting of stockholders are incorporated by reference into Part III.

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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 its 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, intends, estimates, plans, assumes, may, 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; 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

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combined to enable a complete power system. We serve customers with applications for which the high conversion efficiency (i.e., the ratio of output power in watts to the power consumed by the component) and high power density (i.e., the amount of output power in watts divided by the volume of the component) 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 engineering support to enable the rapid design of comprehensive power conversion and management systems.

Our website, 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 three reporting segments, the 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 this now-former 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 92.5%-owned Japanese subsidiary, which is engaged in sales and customer support activities exclusively for the sale of certain products customized by VJCL for the Japanese market, is headquartered in Tokyo, Japan. Vicor B.V., a wholly-owned subsidiary incorporated in the Netherlands, provides logistical and administrative support for a limited volume of orders placed directly with the Company by customers in the European Union. We have established individual subsidiaries or branch offices outside of the United States, Technical Support Centers (TSCs), to conduct preparatory and auxiliary services in support of the Company.

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.

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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.

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 currents 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 and diverse loads requiring lower voltages, higher currents, and faster responsiveness to rapidly changing power demands of varied loads. 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

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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 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 legacy products were well-suited, in market segments such as aerospace and defense electronics, industrial automation, industrial 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 more and diverse on-board voltages, higher current requirements, 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. FPA increases system conversion efficiency, density, and power delivery by dedicating regulation and transformation functions into separate power modules. This re-partitioning of power conversion enables higher input voltages, 48V as an example, to be converted directly to the point of load reducing the number of conversion stages required (i.e., duplicated functions requiring separate components), reducing system distribution losses, and reducing power dissipation at the point-of-load. 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 advantageous system design and board layout flexibility.

To support implementation of FPA, we introduced our initial range of advanced products, our VI Chip modules exploiting our proprietary expertise in soft switching topologies and control, power semiconductors,

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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, with an expanded portfolio of advanced products from our VI Chip and Picor subsidiaries, we began to focus our strategic efforts toward higher-volume opportunities with global OEMs and the Original Design Manufacturers (ODMs) and contract manufacturers serving these OEMs, as FPA and our advanced products offered superior power density, conversion 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, our initially limited 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 product format, with lower manufacturing costs, which could be leveraged to efficiently and quickly broaden product offerings. 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 improved manufacturability and design leveragability, we are able to offer much broader ranges of performance specifications within existing and new functional families. Because ChiPs were designed to be manufactured in volume 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 advanced products can be used).

At the same time, we developed a high-performance family of point-of-load regulators, in System in Package (SiP) format, to be integrated into our expanding product portfolio, truly enabling comprehensive power management solutions to point(s)-of-load. These ZVS point-of-load regulators have been designed to meet the requirements of high-volume customers for differentiated performance and cost effectiveness.

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 and circuitry, offering superior thermal management characteristics. 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 for certain applications with challenging form factor and thermal management requirements, such as those often associated with defense electronics. 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, allowing us to target applications ranging from those addressed by our legacy brick products to the most challenging emerging applications.

In 2015, we introduced a family of non-isolated, fixed conversion ratio, bi-directional, bus converter modules (the NBM family). Highly differentiated NBMs exploit our latest innovations in magnetics and semiconductors, enabling improved efficiency and power density, and represent, we believe, a competitively important element of our Power Component Design Methodology, complementing other advanced products to expand the range of board-level

applications served by our integrated solutions.

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In 2017, we introduced a surface mount variant of the ChiP platform, the SM-ChiP, which provides added thermal management and design flexibility in addition to the same performance benefits as the through-hole ChiP platform upon which it is based. The addition of surface mounting both expands the range of applications for which our ChiP products may be used, and affords our customers faster development and lower manufacturing costs, given the absence of mounting pins. The Modular Current Multiplier Driver™ (MCD) and Modular Current Multiplier™ (MCM), both based on the SM-ChiP platform, are the two modules making up our Power-on-Package™ solution, which we believe will be a source of revenue growth for the Company. Additionally, in 2017, the Company introduced other surface mount derivatives of the ChiP platform, including a surface mount extension of the NBM family.

Since the introduction of our advanced products, we have been 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 our focus to an advanced product portfolio based largely on the ChiP platform, targeting higher growth opportunities.

Today, we target customer applications for which the high conversion efficiency and high power density of our products are well suited within the following commercial and military market segments: aerospace and aviation; defense electronics; enterprise and high performance computing (including large scale datacenters and supercomputers); industrial automation; industrial equipment; instrumentation and test equipment; medical diagnostics; telecommunications and network equipment and infrastructure; transportation infrastructure, and vehicles (including autonomous driving and electric and hybrid electric vehicles). With our advanced products, we also are pursuing opportunities in emerging market segments, including commercial solid state lighting and 380 volt DC-based facility infrastructure (also referred to as micro-grids).

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 $44,924,000, $41,848,000, and $41,472,000 in research and development expenses in 2017, 2016, and 2015, respectively, representing approximately 19.7%, 20.9%, and 18.8% of revenues in 2017, 2016, and 2015, respectively.

As stated, our strategy involves maintaining high levels of customer engagement and design and engineering 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 $40,438,000, $37,967,000, and $37,336,000 in marketing and sales expenses in 2017, 2016, and 2015, respectively, representing approximately 17.7%, 19.0%, and 17.0% of revenues in 2017, 2016, and 2015, 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 in comparison to historical percentage levels.

Competition

Despite significant consolidation of our competitors in the markets we serve with legacy products, the growth of large-scale, low-cost foreign competitors in the commoditized segments of those markets, and increased application overlap with vendors of solutions based on semiconductors and discrete components in the markets we serve with advanced products, the total global merchant market for AC-DC and DC-DC power conversion solutions remains

fragmented, with over 1,000 merchant (i.e., non-captive) vendors. The markets we

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serve, among which some overlap exists for our legacy and advanced products, are 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 markets we serve with legacy products, typically through sales representatives and distribution partners, are generally characterized by relatively long (i.e., greater than three years) product life cycles, offset by increasing commoditization and price competition. The markets we serve with advanced products, typically on a direct basis, are generally characterized by relatively short (i.e., less than three years) product life cycles, and competitors that are primarily far larger vendors of integrated circuits and discrete components competing on price.

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 commercial and military market segments and niches within those segments. We believe, based on these third party estimates, 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 currently 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. These third party industry studies set forth estimates of varying levels of annual, dollar-based, nominal revenue growth across the merchant market segments in which we compete. These studies indicate most of the market segments we serve with legacy products have experienced low single-digit growth over the past three years. These studies further indicate most of the market segments we serve with advanced products have experienced high single-digit and low double-digit growth over the past three years.

Despite our minor share in the overall merchant market and the competitive presence of numerous, far larger vendors in the market segments and niches we serve with both legacy and advanced products, we believe we maintain an advantageous competitive position in those market segments and niches. Notably, we believe we have the largest share of the 48 Volt to point-of-load niches within the served segments of the enterprise and high performance computing market. However, numerous competitors across these market segments and niches have significantly greater engineering, financial, manufacturing, and marketing and sales resources, as well as longer operating histories and longer customer relationships, 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. With our legacy products, we emphasize our highly differentiated responsiveness to individual customer requirements, enabled by our mass customization capabilities, broad range of solution offerings, and relatively high level of customer engagement. As we shift our strategy, increasing our focus on higher volume, OEM and ODM opportunities, we are emphasizing what we believe are our sustainable competitive advantages going forward: the differentiation of our advanced products superior performance and power densities, enabled by our patented and proprietary technologies; a compelling value proposition based on lower total cost of ownership enabled by superior power conversion efficiencies; and the advantageous design flexibility enabled by our advanced products and our Power Component Design Methodology.

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 precise needs. Since introducing and popularizing the encapsulated brick package format during the 1980s, our product focus

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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 our development of FPA, significant enhancement of our manufacturing capabilities, and the introduction of an expanding range of advanced products, 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 have historically generated the majority of our revenue, and are manufactured by our BBU reporting segment. 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 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, IBCs, 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. These products are well-established as important, reliable elements of conventional power systems architectures.

We currently offer seven families of high power density, component-level DC-DC converters, representing what we believe to be the broadest selection of encapsulated 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 densities. Wide ranges of input voltages, output voltages, and output power are offered, allowing end users to select components appropriate to their individual applications. The products differ in dimensions, temperature grades, maximum power ratings, performance characteristics, pin configuration, and, in certain cases, characteristics specific to the targeted market.

We also offer a line of open-frame (i.e., not encapsulated) intermediate bus converters (IBCs) for implementation of multi-stage power conversion. IBCs utilize the same Sine Amplitude Converter switching topology utilized in many of our advanced products. These low profile, isolated, fixed-ratio bus converters conform to industry standard quarter-brick and eighth-brick pin-compatible dimensions, but offer performance superior to competitive offerings.

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. We also offer numerous accessories to meet customer requirements.

These legacy products generally are targeted at applications requiring high performance and reliability in the following market segments: aerospace and aviation; defense electronics; industrial automation; industrial equipment;

instrumentation and test equipment; medical diagnostics; telecommunications infrastructure; transportation infrastructure, and vehicles.

High Density ZVS DC-DC Converters

We offer a family of isolated DC-DC converters delivering up to 60 watts in a small (22 x 16.5 x 6.7 mm) surface-mount package. These converters utilize our proprietary ZVS topology to achieve high-switching

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frequencies enabling best-in-class power density, while reducing input and output filtering requirements. Because these small devices are packaged in an 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.

Configurable Products

Utilizing our modular brick components to provide system function, we offer numerous higher valued-added standard AC-DC and DC-DC 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. 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 standard products. These low-volume, high value-add system solutions 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. Historically, we have utilized products from our legacy product portfolio in our custom power systems. However, during 2017, all new custom designs utilized products from our advanced product portfolio, thereby extending the advantages of our advanced products to the turnkey solutions offered by the Vicor Custom Power organization.

Annual revenue associated with the sale of legacy products represented approximately 66.4%, 75.5%, and 78.5% of the Company s consolidated revenue for the years ended December 31, 2017, 2016, and 2015, respectively.

Advanced Products

The following advanced product groups reflect our vision of the direction of the market segments we serve with our Power Component Design Methodology. These products have been designed by our VI Chip and Picor reporting segments, with VI Chip modules manufactured by the BBU, and Picor modules manufactured by third parties. Many of these products are targeted toward FPA implementations, but our more recently introduced advanced products are suitable for other distributed architectures.

ChiPs (Modular Power Components)

Introduced in 2013, the ChiP platform has been designed to be a scalable product format, with lower manufacturing costs, which could be leveraged to efficiently and quickly broaden product offerings. 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 platform 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.

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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 over 100 specific ChiP module variants, reflecting a broad range of configurations based on dimensions, lead formats, and performance specifications, enabled by the flexible module format. As highlighted above, we have introduced, beginning in 2015, products in the NBM family of non-isolated, fixed conversion ratio, bi-directional, bus converter modules. Highly differentiated NBMs exploit our latest innovations in magnetics and semiconductors. Based on our current design and development activities, we anticipate further expansion of the range of package sizes, board or chassis mounting alternatives, lead formats, and performance characteristics of our ChiP product offerings, notably within the SM-ChiP line of surface mount modules. 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 and range of our addressable markets.

ChiP modules are targeted at 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, at the sophisticated applications for which ChiPs are appropriate include: aerospace and aviation (e.g., for 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 autonomous driving applications, electric vehicles, and hybrid electric vehicles, due to their form factor, light weight, differentiated performance, and cost/performance profile). As stated, we also are pursuing applications in market segments and niches for which the advantages of ChiPs are most compelling (e.g., solid state signage, for which high performance, small form factor and design flexibility are required).

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.

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, such as those associated with defense electronics.

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

Our Cool-Power brand of non-isolated, point-of-load regulators 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, all in surface mount packaging.

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 voltages of 12, 24, or 48 volts. These regulators, based on our patented and proprietary technologies, have been optimized for loads requiring high conversion efficiency, power density, and precise regulation, such as computer and graphic processors and specialized ASICs.

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 an upstream VTM serving as a current multiplier, delivering low voltage, high, precisely regulated current to the point-of-load. Our 48 volt to point-of-load solutions for datacenter servers is representative of such an integrated FPA solution.

Front-End (AC DC) Solutions

During 2017, we expanded the range and capabilities of our solutions for the conversion of alternating currents to direct currents, enhancing our positioning as a supplier of highly-differentiated power management solutions from the AC source to the point(s) of load. Such solutions include our ChiP PFM® (Power Factor Module) and the VIA PFM. Representing a significant improvement over our legacy front-end solutions, the VIA PFM achieves a market-leading power density, supplying from a universal AC input an isolated DC output , with active power factor correction at 93% peak conversion efficiency, which is an unmatched level for an AC-DC converter of this size and power density. We pair the VIA PFM with our VIA AIM™ (AC Input Module), which provides AC rectification, filtering, transient protection, and inrush limiting capabilities, thereby creating a high-performance AC-DC front-end solution of differentiated small size. This solution has been well-received in market segments for which it is especially well-suited, including small-cell base stations and commercial solid state lighting and signage.

During the second half of 2017, we recognized revenue associated with the shipment of significant prototype volumes of our latest front-end innovation, a three-phase front-end module (the RFM ™), which provides superior conversion efficiency and unmatched power density. We anticipate formally introducing the new RFM product line during the first quarter of 2018, with specific RFM products to be announced throughout 2018. We expect the RFM will become a meaningful element of our Power Component Design Methodology, as it represents a highly differentiated solution for enabling fully integrated power conversion and management in the most demanding applications, such as high performance computing and supercomputing.

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 may be limited primarily to shipments to existing customers during the life cycles of the applications into which these

products have been designed. However, we expect the life cycles of many of these applications may continue for several years.

During 2017, the Company discontinued the production and sale of many power path management components, originally developed by our Picor subsidiary, having determined the volumes sold of these

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circuit protection products no longer represented a compelling complement to the adoption and sale of our other advanced products. The revenues and profits associated with the sale of such components were not material to the Company s consolidated results for the years ended December 31, 2017, 2016 and 2015.

Annual revenue associated with the sale of advanced products, including the power path components referenced immediately above, represented approximately 33.1%, 24.2%, and 21.1% of the Company s consolidated revenue for the years ended December 31, 2017, 2016, and 2015, respectively.

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 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; and automated equipment and methods for circuit and product assembly.

As of December 31, 2017, in the United States, we have been issued 98 total patents. These patents have expirations scheduled between 2018 and 2035. We also have a number of patent applications pending in the United States and certain countries of Europe and Asia, including applications that would extend the life of current patents. 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. With our legacy product lines, we serve customers concentrated in aerospace and aviation, defense electronics, industrial automation, industrial equipment, medical diagnostics, rail transportation, and test and measurement instrumentation. With our advanced product lines, we serve customers concentrated in the datacenter and supercomputer segments of the computing market, although we also target applications in aerospace and aviation, defense electronics, networking equipment, solid state lighting and signage, test and measurement instrumentation, and vehicles (notably in the autonomous driving, electric vehicle, and hybrid vehicle niches of the vehicle segment). With our strategic emphasis on larger, high-volume customers, we expect to experience a greater concentration of sales among relatively fewer customers.

For the years ended December 31, 2017, 2016 and 2015, NuPower Electronic, Ltd., our authorized distributor for China, accounted for approximately 13.0%, 16.4%, and 16.2% of net revenues, respectively, and our five largest customers represented approximately 35.2%, 26.5%, and 33.4% of net revenues, respectively.

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International revenues, as a percentage of total revenues, were approximately 63.2%, 59.8%, and 60.0% in 2017, 2016, and 2015, respectively. Net revenues from customers in China, our largest international market, accounted for approximately 35.8% of total net revenues in 2017, approximately 32.1% in 2016, and approximately 34.2% in 2015, respectively. International sales have increased from historical levels primarily due to higher volumes of shipments to foreign ODMs and 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. (See Note 16 to the Consolidated Financial Statements for additional information on our reporting segments).

As of December 31, 2017, we had a backlog of approximately $73,054,000, compared to $48,371,000 as of December 31, 2016. Backlog, as presented here, consists of orders for products for which shipment is scheduled 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 one third of our quarterly revenue, as we typically only build products to customer specifications upon receipt and acceptance of a purchase order (i.e., we typically do not maintain significant inventories of finished goods of either legacy or advanced products).

The lead times between receipt and acceptance of an order and our shipment of the product continued to lengthen during 2017, reflecting overall conditions across the global electronics supply chain. As of December 31, 2017, we were quoting average lead times to customers of 14 weeks, up from averages, as of December 31, 2016, of four weeks for legacy products and eight weeks for advanced products. We do not expect current supply chain uncertainties to be resolved in the foreseeable future, allowing us to uniformly reduce lead times. Accordingly, we continue to build inventory levels for certain components and raw materials to offset the risks of supply chain uncertainties that might impact our ability to meet customer scheduling requirements.

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 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; Tokyo, Japan; Seoul, South Korea; Taipei, Taiwan (Republic of China); and Camberley, United Kingdom. Customers do not place purchase orders with TSCs, but do so 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 our channel partners in support of existing and potential customers. Product Line Engineers, located in our Andover headquarters, support Field Application Engineers assigned to all of our TSCs.

Vicor also reaches customers through the electronic commerce capabilities of our website, www.vicorpower.com. Registered, qualified customers in the United States, Canada, and certain European countries

are able to purchase 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 with and support customers. Within our website, *PowerBench*™ is a workspace of tools and references allowing engineers to

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select, architect, and implement power systems using Vicor s products. During 2017, we continued to enhance our highly differentiated *Whiteboard*™ 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.

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 products 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 distributor.

Manufacturing, Quality Assurance, and Supply Chain Management

Our manufacturing facilities are located in Andover, Massachusetts, where we are headquartered. Products designed and sourced by our Picor subsidiary, given its fabless model, are manufactured, packaged, and tested by third party contractors 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 continue to make investments in automated manufacturing equipment, particularly for our ChiP modules. Based on current estimates of legacy and advanced product manufacturing volumes and our capacity requirements, we do not expect to incur capital expenditures during 2018 significantly higher than we incurred during recent years. However, we have stated publicly our intent to significantly expand our production capabilities through the construction of a new manufacturing facility, dedicated to the ChiP platform. During the fourth quarter of 2017, we concluded our original plan, to construct a facility of approximately 75,000 to 100,000 square feet, starting in 2018, would not be functional in time to meet our short-term requirements or of sufficient scale to meet our longer-term forecast of capacity requirements. As such, we revised our expansion plan at that time, focusing on construction of a larger facility, roughly equal to our current square footage, to meet longer-term forecast capacity requirements. We do not yet have a targeted date for breaking ground on this larger facility, but we anticipate doing so by early 2019.

As stated above, we introduced the SM-ChiP in 2017. This surface mount variant of the ChiP platform requires a number of process steps not included in the manufacture of a through-hole ChiP module. To date, we have relied on several third party contractors to perform such steps in relatively low volumes, thereby limiting our ability to scale production and appropriately control quality and costs. In December 2017, we entered into a production agreement with a highly sophisticated contractor capable of delivering the short term volumes expected, while meeting our quality and cost requirements. We anticipate the agreement will enable us to meet our forecast needs for SM-ChiP production until our planned manufacturing facility is fully functional.

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

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performance) of our products using automated equipment. Incoming components, assemblies, and other parts are subjected to several levels of inspection procedures, and we maintain robust data on our raw material inventories in order to support our quality assurance procedures.

Components and materials used in our products are purchased from a variety of domestic and international vendors. The global electronics supply chain has been slowed due to capacity constraints, among other influences, and the lead times for delivery of many of the raw materials required for the manufacture of our products substantially lengthened during 2017. Most of these raw materials are available from multiple sources, whether directly from suppliers or indirectly through distributors, and during 2017 we opportunistically expanded certain raw material inventories to offset the uncertainties associated with lengthening lead times.

Our Picor subsidiary, 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. Similarly, many of the proprietary semiconductors we use, for which we have either a manufacturing license or ownership of the designs, are sourced from third parties through Picor.

See Note 16 *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, 2017, we had 970 full time employees and 10 part time employees. The number of part time employees varies throughout any year, largely based on the number of production shifts we may require at a particular time, as well as the number of college and graduate students participating in short term co-op programs. None of our employees are subject to a collective bargaining agreement. We believe our continued success depends, in part, on our ability to attract and retain qualified personnel. Although there is strong demand for qualified personnel, we have not to date experienced meaningful 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 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, ODMs, and 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. Despite our results for the fourth quarter of 2017, we cannot predict when, or if, we will return to sustained profitability. Our future operating results may be materially influenced 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 accepted 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 legacy products to advanced products;

our ability to provide and maintain a high level of sales and engineering 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 ongoing efforts to continuously reduce product costs and manage operating expenses;

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

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

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, notably the equity markets in the United States;

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, reflecting a relatively low trading float and relatively low average trading volumes;

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, particularly in light of our strategic transition, as discussed above.

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. As of December 31, 2017, we have no plans to declare or pay a cash dividend.

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The ownership of our Common Stock is concentrated between Dr. Vinciarelli and a limited number of institutional investors. As of December 31, 2017, Dr. Vinciarelli owned 9,861,605 shares of our Common Stock, as well as 11,023,648 shares of our unregistered Class B Common Stock (which may only be sold or transferred after required conversion, on a one-for-one basis, into registered shares of Common Stock), together representing 54.0% of our total issued and outstanding shares on a fully converted basis. Accordingly, the market float for our Common Stock and average daily trading volumes are relatively small, which may negatively impact investors ability to buy or sell shares of our Common Stock in a timely manner.

Dr. Vinciarelli owns 93.8% of the issued and outstanding shares of our Class B Common Stock, which possess 10 votes per share. Dr. Estia J. Eichten, a member of our Board of Directors, owns the majority of the balance of the Class B Common Stock issued and outstanding. As such, Dr. Vinciarelli, controlling in aggregate 82.5% 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.

Despite the breadth of global economic growth in 2017, certain markets and geographies we serve performed below our expectations, as the level and timing of capital spending, particularly spending associated with publicly funded projects, remained uncertain and difficult to forecast. Disruption and further deterioration of global economic conditions, including relative strength of the U.S. Dollar and rising interest rates, 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, and sales and marketing resources than we possess or have access to. We compete with domestic and foreign manufacturers of integrated power supplies and power conversion components. With the growth of our advanced 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 product pricing, availability and capacity, the design and quality of products, and product performance, features and functionality, 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 advanced products addressing what we believe to be the long-term limitations of

traditional power architectures, while at the same time sustaining sales and profitability of legacy

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products. The development of new, innovative 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 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 continue to shift our go-to-market strategy to focus on larger opportunities with global OEMs, ODMs, and contract manufacturers. Our growth is therefore dependent on: the pace at which these OEMs and ODMs develop their own new products; the acceptance of our products by these OEMs and ODMs; and the success of the customers products incorporating our advanced 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 offer any assurance the markets we serve will grow in the future, our legacy and advanced products will meet the respective market requirements, 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 the introduction of our advanced products, the Company has derived a substantial portion of its revenue from advanced products in any given year from one customer, whether through sales directly to the customer or indirectly to the customer s contract manufacturers. This concentration of revenue is a reflection of the relatively early stage of adoption of the advanced products and the associated technologies and power system architectures, and our targeting of market leading innovators as initial customers. Our current sales and marketing efforts are focused primarily on accelerating the adoption of advanced products by a diversified customer base, across a number of identified market segments. However, we cannot assure you our strategy will be successful and such diversification of customers will be achieved.

We may not be able to procure necessary key components or raw materials, or we may purchase excess raw material inventory or unusable inventory, which increases the risk of reserve charges to reduce the value of any inventory deemed excess or obsolete, thereby reducing our profitability.

The power systems industry, and the electronics industry as a whole, can be subject to pronounced, lengthy business cycles and otherwise subject to sudden and sharp changes in demand. Our success, in part, is dependent on our ability to forecast and procure inventories of components and materials 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 raw materials to manufacture products for our customers has reduced, in the past, our revenue and profitability and

could do so again. We may choose, and have chosen, to mitigate this risk by increasing the levels of inventory for certain components and materials. 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

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inventory or determine certain inventory is obsolete (i.e., unusable), we likely will 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 expand revenue, we likely will need to identify and qualify new suppliers and subcontractors to supplant or replace existing suppliers and subcontractors, which may be 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 manufacturing 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, 2017, 2016, and 2015, revenues from sales outside the United States were 63.2%, 59.8%, and 60.0%, respectively, of our total revenues. Net revenues from customers in China, our largest international market, accounted for approximately 35.8% of total net revenues in 2017, approximately 32.1% in 2016, and approximately 34.2% in 2015, respectively. We expect international sales will continue to be a significant component of total sales, since many of the OEMs and ODMs we target as customers are domiciled offshore, 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 a residual volume of sales of 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, 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 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.

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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 influence 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, 2017, 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 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 legacy products 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 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 influence our operating results. If any of our products contain defects, or have

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reliability, quality, or compatibility problems, the Company s 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.

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 their products. We began to implement processes within our supply chain to comply with 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 certain 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.

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 controlling 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 to offset financial losses from such an interruption, such insurance may be insufficient to compensate us for the potentially significant costs or liabilities incurred. Any such events, if prolonged, could have a material and adverse effect on our operating results and financial condition.

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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 cyberterrorism. 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 and/or receive confidential information from third-party business partners in certain circumstances when doing so is necessary to conduct business. As of December 31, 2017, we were compliant with the comprehensive requirements for the protection of controlled unclassified information (CUI) as set forth in Special Publication 800-171 of the National Institute of Standards and Technology. While we employ confidentiality agreements to protect other sensitive information (i.e., information not considered CUI), 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 or Chief Financial Officer, our certifying officers under the Sarbanes-Oxley Act, or our 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 harm our business. In addition, we may be subject to sanctions or investigation by government authorities or self-regulatory organizations, such as the SEC, the Financial Industry Regulatory Authority, 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.

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 influence our business and financial results. In

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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, our research and development and marketing and sales activities depend on highly skilled engineers and other personnel with technical skills, who 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 such employees, our ability to successfully implement our business strategy may be harmed.

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.

We own and lease a single-story industrial building of approximately 31,000 square feet in Sunnyvale, California, to 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.

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

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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. On June 22, 2017, the examiner issued a determination under 37 C.F.R. § 41.77(d), finding that the remaining claim of the 190 patent was unpatentable. That decision is expected to be further reviewed by the PTAB pursuant to 37 C.F.R. § 41.77(f).

On May 2, 2016, the PTAB also 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. 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.

On August 30, 2017, the Federal Circuit issued rulings with regard to PTAB s reexamination decisions for the 021, 702 and 290 patents. With respect to the 021 patent, the Federal Circuit affirmed the PTAB s determination that all of the challenged claims of the 021 patent were invalid. The Federal Circuit remanded the case to the PTAB for further consideration of the patentability of certain claims that had been added by amendment during the reexamination. With respect to the 702 patent, the Federal Circuit affirmed the PTAB s determination that all of the challenged claims of the 702 patent were patentable. With respect to the 290 patent, the Federal Circuit vacated the PTAB s decision upholding the patentability of the 290 patent claims, and remanded the case to the PTAB for further consideration.

On October 31, 2017, we filed a request with the USPTO for ex parte reexamination of the 702 patent, based on different prior art references than had been at issue in the previous inter parte reexamination of the 702 patent. On December 6, 2017, the USPTO issued a decision granting our request for ex parte reexamination of the 702 patent, finding that the Company s request was warranted because it raised substantial new questions of patentability of the 702 patent.

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. 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.

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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:

2017	**High**	**Low**
First Quarter	$ 16.60	$ 14.15
Second Quarter	20.30	15.60
Third Quarter	23.60	17.05
Fourth Quarter	24.95	20.60

2016	**High**	**Low**
First Quarter	$ 10.60	$ 7.19
Second Quarter	11.06	8.94
Third Quarter	12.16	9.74
Fourth Quarter	16.05	11.50

As of February 28, 2018, there were 139 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, 2017 or 2016.

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. During the year ended December 31, 2016, one of our subsidiaries paid a total of $750,000 in cash dividends, all of which was paid to us.

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Issuer Purchases of Equity Securities

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Maximum Number (or Approximate Dollar Value) of Shares that May Yet Be Purchased Under the Plans or Programs
October 1 31, 2017		$		$ 8,541,000
November 1 30, 2017		$		$ 8,541,000
December 1 31, 2017		$		$ 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.

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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, 2012, 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

	2012	2013	2014	2015	2016	2017
Vicor Corporation	$100.00	$ 247.60	$ 223.25	$ 168.27	$ 278.60	$ 385.61
S&P 500 Index	$100.00	$ 132.39	$ 150.51	$ 152.59	$ 170.84	$ 208.14
S&P SmallCap 600 Index	$100.00	$ 141.31	$ 149.45	$ 146.50	$ 185.40	$ 209.94

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.

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ITEM 6. ***SELECTED FINANCIAL DATA***

The following selected consolidated financial data with respect to our statements of operations for the years ended December 31, 2017, 2016, and 2015, and with respect to our balance sheet as of December 31, 2017 and 2016, 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, 2014 and 2013, and with respect to our balance sheets as of December 31, 2015, 2014, and 2013, 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.

	Year Ended December 31,				
Statement of Operations Data	**2017**	**2016**	**2015**	**2014**	**2013**
	(In thousands, except per share data)				
Net revenues	$ 227,830	$ 200,280	$ 220,194	$ 225,731	$ 199,160
Loss from operations	(1,360)	(6,314)	(267)	(14,763)	(20,467)
Consolidated net income (loss)	258	(6,261)	5,159	(14,070)	(23,504)
Net income (loss) attributable to noncontrolling interest	91	(14)	232	(183)	136
Net income (loss) attributable to Vicor Corporation	167	(6,247)	4,927	(13,887)	(23,640)
Net income (loss) per share basic and diluted attributable to Vicor Corporation	0.00	(0.16)	0.13	(0.36)	(0.60)
Weighted average shares basic	39,228	38,842	38,754	38,569	39,195
Weighted average shares diluted	39,933	38,842	39,146	38,569	39,195

	As of December 31,				
Balance Sheet Data	**2017**	**2016**	**2015**	**2014**	**2013**
	(In thousands)				
Working capital	$ 90,796	$ 89,545	$ 94,905	$ 90,321	$ 97,869
Total assets	165,724	154,067	157,545	155,542	165,640
Total liabilities	29,305	23,050	21,460	24,990	23,303
Total equity	136,419	131,017	136,085	130,552	142,337

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 the Original Design Manufacturers (ODM s) and contract manufacturers serving them, 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

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through VJCL and our Vicor Custom Power subsidiaries. The BBU has customers concentrated in aerospace and aviation, defense electronics, industrial automation, industrial equipment, medical diagnostics, rail transportation, and test and measurement instrumentation.

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 the 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, autonomous driving, 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 for use in a variety of power management and power system applications. Picor discontinued the production and sale of solid-state power management devices during 2017. Picor is a fabless manufacturer, as its products are manufactured, assembled, packaged, and tested by third parties in Asia and the United States. Picor develops integrated circuits 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, and are 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 2017 showed a small profit, driven by an increase in net revenues and improved gross margins, notably in the second half of the year, for VI Chip. Our operating performance, though, continues to reflect the general weakness of demand for our legacy products, as well as increased customer price sensitivity for these products. Customer interest in our expanding portfolio of recently-introduced advanced products continues to increase, as evidenced by the year s higher bookings and higher year-end backlog, both reflecting accelerated market uptake of our advanced products, notably our 48 volt to point-of-load solutions for datacenters and supercomputers.

While improved bookings reflected increasing demand for our advanced products, with shipments scheduled well into 2018, global demand for our legacy brick converters, configurable products, and associated components remains at volumes lower than historical trend, which we attribute to the ongoing macroeconomic conditions specific to the industries and geographies we serve, as well as increased customer price sensitivity in certain industries and geographies in which commoditized products have established a strong competitive position. Our legacy products commonly are used in defense electronics, high-value capital goods, and sizeable infrastructure projects, the end demand for which has been unpredictable, reflecting budgetary uncertainty and low-growth economies.

Although the number of identified opportunities for our new products continues to expand, as evidenced by booking patterns, the sales cycles associated with these products continue to be longer than we anticipated, in part due to the same macroeconomic trends and industry-specific conditions influencing bookings and sales of our legacy product lines. In many mature markets, existing and potential customers remain risk-averse and have slowed or curtailed their own new product development. We believe such caution has limited their near-term interest in our new products, although we are experiencing increasing interest in our new products as replacements for legacy power modules, whether our own or those of competitors, when customers are refreshing or upgrading existing designs.

In more robust markets, such as those we are targeting with our advanced products, existing and potential customers are actively pursuing their own growth strategies, developing products with higher performance enabled by our new products and the modular component approach of our Factorized Power Architecture. As such, we increasingly are asked by existing and potential customers to collaborate on the development of new or highly modified implementations of our new products. While such collaborations are attractive opportunities to enhance customer

relationships and gain competitive advantage, they also are resource and time intensive.

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Additionally, when we have successfully designed-in our advanced product solutions, we may encounter delays and uncertainty associated with scheduling production of such solutions. For example, we are collaborating with several large-scale OEMs in the hyperscale datacenter segment of the computing market and have been engaged with these potential customers on development and design work for multiple quarters. However, only during the second half of 2017 did we begin to receive pre-production prototype orders or early production orders associated with certain engagements. Further, several additional datacenter OEMs raised their level of engagement with us, placing prototype orders and/or non-recurring engineering orders. Given the number of such opportunities and the progress being made on associated development and design work, we expect to receive more such early-stage orders from additional customers in throughout 2018.

We believe the following considerations may influence our performance in 2018:

Operational Considerations

We operate a highly automated electronics manufacturing facility in Andover, Massachusetts, and our profitability is closely aligned with production unit volumes. We have invested significantly in state-of-the-art systems, equipment, and robotics, which allow us to generate relatively higher profitability when operating at or near factory capacity, even with a high mix of products produced. However, periods of low volume production and/or brief, low volume production runs contribute to lower profitability, largely due to lower absorption of relatively high manufacturing overhead costs associated with our manufacturing model. While direct labor and associated variable costs correlate with volume, manufacturing overhead costs are inflexible and, therefore, problematic during periods of low volume or brief production runs. We have invested in the production capacity to meet our internal volume projections, and believe these projections are reasonable. However, if sustained, uniform, high volume production levels are not achieved, our product-level profitability likely will not reach the levels necessary to cover our fixed spending, consisting of manufacturing overhead costs and operating costs.

Our ability to achieve sustained, high volume production levels is tied to our ability to forecast manufacturing requirements of a range of inputs, notably raw material inventories. Because we utilize a number of components and other materials of proprietary design, our ability to sustain targeted production schedules and meet customer delivery requirements has been vulnerable to delays or shortages of such inventories. Over the last two years, we have made progress in reducing potential vulnerabilities to stock-outs, vendor shortages, and similar supply chain disruptions. We reorganized our supply chain management effort, which we strengthened with new hires. We also have implemented safety-stock programs for certain critical components and materials and have established second-source supply relationships in order to reduce these vulnerabilities. However, the global electronics supply chain is experiencing lengthened lead times, and our product-level profitability and overall performance could be negatively influenced by an unplanned shortage of a particular component or material.

We expect our operating expenses, notably in engineering and sales, to remain relatively high, as percentages of revenue, for the foreseeable future. If revenue reaches our forecasted levels, these percentages are expected to decline, although we do not expect such expenses to decline on an absolute basis from current levels. We have expanded and focused our engineering and sales organizations to pursue the promising opportunities afforded by our innovative, advanced products, and we believe our current level of

spending is necessary to achieve our strategic goals. However, many of these opportunities are in early phases of development, and near-term revenue growth may not be sufficient to reduce the percentages of revenue represented by our operating expenses to forecast levels or levels comparable to our high volume competitors.

Market and Macroeconomic Considerations

Customer adoption of certain new products has been delayed by unanticipated influences beyond our control. For example, our leadership position in the transition of datacenter computing to 48 volt to

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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 customers and opportunities. However, various delays in customer adoption and production, as well as supply chain disruption have caused unexpected delays in customer purchase orders and our shipments over the past three years.

Based on current customer activity, an expanding customer list, and an expanding backlog, we believe the 48 volt to point-of-load opportunity has entered an accelerated, second phase of development, with a broadening of interest, notably associated with our Power on Package solution, as well as the entry of new vendors. As such, we face a more complex competitive landscape, with additional challenges. We continue to believe our new products will be adopted in volume by multiple, leading customers. However, we cannot control the actions by, or the timing of, our customers, their contract manufacturers, or the significant vendors also participating in the market. Many of these vendors possess resources far greater than Vicor and have operational and financial flexibility we do not.

We anticipate aggregate demand for the mature markets we serve with our legacy products will grow, at most, only at the rate of the overall economy (i.e., in the United States, for example, at the rate of growth of gross domestic product) for the foreseeable future. Given our long-standing customer relationships and the status of our legacy products in long-lived customer applications, we anticipate maintaining our share in many of these mature markets. While we are pursuing opportunities to replace our legacy products used in existing customers applications with advanced products and, similarly, to replace competitors products in existing applications, we believe such opportunities may not cumulatively contribute to expanding, in 2018, our share of the mature markets we serve with our legacy products.

In 2016, we completed two years of restructuring initiatives to reduce our exposure to certain problematic market segments, notably the custom systems portion of the defense electronics market, and have experienced improved resource allocation, operating efficiencies, and asset utilization. We also have substantially restructured our distribution channels, notably across Europe, with the goal of improving our breadth of presence across important geographies and targeted market segments. However, while we expect these undertakings will contribute to improved performance of the BBU over the longer term, we do not expect the BBU s financial results will significantly improve until macroeconomic conditions improve in industries and geographies served by the BBU.

2017 Financial Highlights

Net revenues increased 13.8% to $227,830,000 for 2017, from $200,280,000 for 2016, primarily due to an overall 20.2% increase in bookings in 2017, compared to 2016, with significant increases in Picor and VI Chip bookings, and an encouraging recovery in BBU bookings.

Export sales, as a percentage of total revenues, represented approximately 63.2% in 2017 and 59.8% in 2016.

Gross margin increased to $101,656,000 for 2017, from $91,209,000 for 2016, primarily due to the increase in net revenues.

Gross margin, as a percentage of net revenues, despite the increase in net revenues, decreased to 44.6% for 2017 from 45.5% for 2016, primarily due to a less favorable product mix for the full year, most notably a higher proportion of lower margin VI Chip revenues.

Backlog, representing the total of orders for products received for which shipment is scheduled within the next 12 months, was approximately $73,054,000 at the end of 2017, as compared to $48,371,000 at the end of 2016. The increase in backlog was due to increased bookings across all business units, particularly for the 48 volt to point-of-load solutions of Picor and VI Chip.

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Operating expenses for 2017 increased $5,493,000, or 5.6%, to $103,016,000 from $97,523,000 for 2016, due to an increase in research and development expenses of $3,076,000 and an increase in selling, general, and administrative expenses of $2,417,000.

We reported net income for 2017 of $167,000, or $0.00 per diluted share, compared to a net loss of $(6,247,000), or $(0.16) per share, for 2016.

In 2017, depreciation and amortization totaled $8,893,000, and capital additions were $12,545,000, compared to $8,438,000 and $8,428,000, respectively, for 2016. The increase in capital spending was largely associated with the purchase and installation of equipment associated with SM-Chip production.

Inventories increased by approximately $9,363,000, or 34.5%, to $36,499,000 at the end of 2017, as compared to $27,136,000 at the end of 2016. This increase was primarily associated with increases in VI Chip, Picor, and BBU inventories of $5,004,000, $3,578,000, and $781,000 respectively, to meet increased bookings and to ensure adequate levels of key components with long lead times are maintained.

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.

	Year Ended December 31,		
	2017	2016	2015
Net revenues	100.0%	100.0%	100.0%
Gross margin	44.6%	45.5%	45.2%
Selling, general and administrative expenses	25.5%	27.8%	26.5%
Research and development expenses	19.7%	20.9%	18.8%
Loss before income taxes	(0.0)%	(3.0)%	(0.1)%

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. 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

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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. 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. 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 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.

On December 22, 2017, the U.S. government enacted comprehensive tax legislation, referred to as the Tax Cuts and Jobs Act (the Tax Act). The Tax Act makes broad and complex changes to the U.S. tax code, including, but not limited to: (1) reducing the U.S. federal corporate tax rate from 35% to 21%; (2) elimination of the corporate alternative minimum tax (AMT) and changing how existing AMT credits can be realized; (3) changing rules related to the usage and limitation of net operating loss carryforwards created in tax years beginning after December 31, 2017; and (4) implementing a territorial tax system, which generally eliminates the U.S. federal income tax on dividends from foreign subsidiaries, and imposes a one-time transition tax on certain earnings of foreign subsidiaries previously untaxed in the United States. We recognized the provisional tax impacts related to the re-measurement of our deferred tax assets and liabilities, and one-time transition tax, for the year ended December 31, 2017. The ultimate impact may

differ from these provisional amounts due to, among other things, additional analysis, changes in interpretations and assumptions we have made, additional regulatory guidance that may be issued, and actions we may take as a result of the Tax Act.

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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 requires 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, replaces most of the prior revenue recognition guidance under U.S. Generally Accepted Accounting Principles. Our assessment of the new standard s impact is substantially complete. We will adopt the new guidance as of January 1, 2018 using the modified retrospective method. The most significant impact of the adoption is on the timing of recognition of sales to our stocking distributors. Through December 31, 2017, we deferred revenue and the related cost of sales on shipments to stocking distributors until the distributors resold the products to their customers. Upon adoption, we are no longer permitted to defer revenue until sale by the stocking distributor to the end customer, but rather, are 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 cumulative effect of adopting this guidance, to be recognized as an increase to the balance of retained earnings as of January 1, 2018, is currently estimated to be approximately $3,300,000. The implementation team s remaining tasks are to complete documentation for the systems and controls to support the revenue recognition and disclosure requirements under the new standard, and to complete the required disclosures in preparation for filing our Form 10-Q for the quarter ending March 31, 2018.

Year ended December 31, 2017 compared to Year ended December 31, 2016

Net revenues for 2017 were $227,830,000, an increase of $27,550,000, or 13.8%, as compared to $200,280,000 for 2016.

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

			Increase	
	2017	**2016**	**$**	**%**
BBU	$ 151,702	$ 151,429	$ 273	0.2%
VI Chip	59,017	38,369	20,648	53.8%
Picor	17,111	10,482	6,629	63.2%
Total	$ 227,830	$ 200,280	$ 27,550	13.8%

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The overall increase in consolidated net revenues was primarily due to an overall 20.2% increase in bookings for the year ended December 31, 2017, compared to the year ended December 31, 2016. BBU, VI Chip, and Picor bookings increased by 6.9%, 54.5% and 57.0%, respectively. In fact, total bookings have increased sequentially each quarter since the first quarter of 2016. The increase in BBU revenues was primarily attributable to an increase in Vicor Custom Power revenues of $3,803,000, partially offset by a decrease in BBU module and configurable product revenues of approximately $3,455,000. Increases in revenues recorded by VI Chip and Picor for the year ended December 31, 2017 were associated largely with fulfillment of increased orders for our 48 volt to point-of-load solutions. Customer bookings and scheduling patterns continue to be unpredictable, particularly for the VI Chip and Picor segments.

Gross margin for 2017 increased $10,447,000, or 11.5%, to $101,656,000 from $91,209,000 in 2016. Despite the increase in net revenues, gross margin as a percentage of net revenues decreased to 44.6% in 2017 from 45.5% in 2016, primarily due to a less favorable product mix, most notably a higher proportion of lower margin VI Chip revenues.

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

			Increase (decrease)	
	2017	2016	$	%
BBU	$ 5,615	$ 11,750	$ (6,135)	(52.2)%
VI Chip	(11,495)	(16,494)	4,999	30.3%
Picor	5,400	(637)	6,037	947.7%
Corporate	(880)	(933)	53	5.7%
Total	$ (1,360)	$ (6,314)	$ 4,954	78.5%

The decrease in BBU operating profit in 2017 compared to 2016 was primarily due to a decrease in gross margin, despite the increase in revenues, and an increase in operating expenses. The primary increases in operating expenses were compensation expenses and royalty expenses in connection with a reassessment of our contingent consideration obligations. The decrease in VI Chip operating loss in 2017 compared to 2016 was due to the increase in revenues and the related increase in gross margin, partially offset by increases in operating expenses. The primary increases in operating expenses were compensation expenses and project and pre-production materials expenses. 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 improvement in Picor operating results in 2017 compared to 2016 was due to the increase in revenues and the related increase in gross margin. 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 $58,092,000 for 2017, an increase of $2,417,000, or 4.3%, as compared to $55,675,000 for 2016. As a percentage of net revenues, selling, general, and administrative expenses decreased to 25.5% in 2017 from 27.8% in 2016, primarily due to the increase in net revenues.

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The components of the $2,417,000 increase in selling, general, and administrative expenses were as follows (dollars in thousands):

	Increase (decrease)	
Compensation	$ 1,954	5.8%(1)
Royalty expense	650	100.0%(2)
Advertising expenses	422	18.7%(3)
Audit, tax, and accounting fees	(150)	(7.9)%(4)
Depreciation and amortization	(160)	(5.9)%(5)
Telephone expense	(166)	(14.5)%(6)
Outside services	(172)	(8.6)%(7)
Legal fees	(273)	(17.4)%(8)
Other, net	312	3.0%
	$ 2,417	4.3%

(1) Increase primarily attributable to annual compensation adjustments in May 2017, increases in headcount and the reversal of VI Chip performance-based stock compensation expense in the third quarter of 2016.

(2) Increase attributable to an increase in contingent consideration obligations. See Note 9 to the Consolidated Financial Statements.

(3) Increase primarily attributed to increases in sales support expenses, direct mailings, and advertising in trade publications.

(4) Decrease primarily attributable to the timing of the 2017 audit process.

(5) Decrease attributable to certain BBU segment fixed assets becoming fully depreciated during 2016.

(6) Decrease attributable to reduced service provider costs.

(7) Decrease primarily attributable to a decrease in the use of outside consultants at certain international locations.

(8) Decrease attributable to reduced activity associated with the patent infringement claims filed against the Company during the first quarter of 2011 by SynQor. See Note 15 to the Consolidated Financial Statements.

Research and development expenses increased $3,076,000, or 7.4%, to $44,924,000 in 2017 from $41,848,000 in 2016. As a percentage of net revenues, research and development decreased to 19.7% in 2017 from 20.9% in 2016,

primarily due to the increase in net revenues.

The components of the $3,076,000 increase in research and development expenses were as follows (in thousands):

	Increase (decrease)	
Compensation	$ 2,121	7.3%(1)
Project and pre-production materials	1,151	19.9%(2)
Facilities expenses	316	16.4%(3)
Supplies expense	(167)	(18.4)%(4)
Deferred costs	(213)	(22.7)%(5)
Outside services	(245)	(23.5)%(6)
Other, net	113	2.8%
	$ 3,076	7.4%

(1) Increase primarily attributable to annual compensation adjustments in May 2017, increases in headcount and the reversal of VI Chip performance-based stock compensation expense in the third quarter of 2016.

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(2) Increase primarily attributable to increases in spending for new product development by the VI Chip segment.

(3) Increase primarily attributable to an increase in utilities and building maintenance expenses, of which a portion of the increase was due to Picor s occupancy of a larger facility in January 2017.

(4) Decrease primarily attributable to a decrease in spending by the VI Chip segment.

(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.

(6) Decrease primarily attributable to decreased use of outside contractors associated with the pre-production development of certain VI Chip and Picor products.

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

	2017	2016	Increase (decrease)
Rental income	$ 792	$ 462	$ 330
Foreign currency gains (losses), net	323	(268)	591
Interest income	124	68	56
Gain (loss) on disposal of equipment	14	(4)	18
Credit gains on available-for-sale securities	11	13	(2)
Other	(2)	13	(15)
	$ 1,262	$ 284	$ 978

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 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.

Loss before income taxes was $(98,000) in 2017, as compared to $(6,030,000) in 2016.

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

	2017	2016

(Benefit) provision for income taxes	$ (356)	$ 231
Effective income tax rate	(363.3)%	3.8%

In 2017, the benefit for income taxes was primarily due to our AMT credit carryforwards of approximately $736,000 becoming fully refundable in future years, due to the repeal of the corporate AMT under the recently enacted Tax Act, discussed below. The provisions for income taxes in each 2017 and 2016 period included estimated foreign income taxes and estimated state taxes in jurisdictions in which we do not have net operating loss carryforwards. No tax benefit could be recognized for the majority of our losses during the periods as we maintain a full valuation allowance against all net domestic deferred tax assets due to our inability to project net future taxable income. In addition, in connection with our acquisition of 100% ownership of certain operating assets and cash of our consolidated subsidiary, 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). We continue to maintain a full valuation allowance against all domestic net deferred tax assets.

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On December 22, 2017, the U.S. government enacted comprehensive tax legislation, referred to as the Tax Cuts and Jobs Act (the Tax Act). The Tax Act makes broad and complex changes to the U.S. tax code, including, but not limited to: (1) reducing the U.S. federal corporate tax rate from 35% to 21%; (2) elimination of the corporate AMT and changing how existing AMT credits can be realized; (3) changing rules related to the usage and limitation of net operating loss carryforwards created in tax years beginning after December 31, 2017; and (4) implementing a territorial tax system, which generally eliminates the U.S. federal income tax on dividends from foreign subsidiaries, and imposes a one-time transition tax on certain earnings of foreign subsidiaries previously untaxed in the United States.

As described in Note 2 *Impact of recently issued accounting standards* to the Consolidated Financial Statements, we adopted new guidance for employee stock-based payment accounting during the first quarter of 2017. The new guidance, among other considerations, requires excess tax benefits and tax deficiencies related to employee stock-based compensation to now be recorded in earnings when the awards vest or are settled, rather than in stockholders equity under previous guidance. In addition, it eliminates the requirement that excess tax benefits be realized with the taxing authority before they can be recognized. In connection with the adoption of this new guidance, we recorded a cumulative-effect adjustment as of January 1, 2017 to increase gross deferred tax assets and the related valuation allowance against deferred tax assets by $3,485,000. This amount was allocated and added to deferred tax assets for research and development tax credit carryforwards, net operating loss carryforwards and the alternative minimum tax credit carryforward but, as noted above, was fully offset by a corresponding increase in the valuation allowance against deferred tax assets, resulting in no net effect on our Consolidated Financial Statements.

Net income per diluted share attributable to Vicor Corporation was $0.00 for the year ended December 31, 2017, compared to a net loss per share of $(0.16) for the year ended December 31, 2016.

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.

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

			Increase (decrease)	
	2016	**2015**	**$**	**%**
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 continued 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.

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

			Increase (Decrease)	
	2016	2015	$	%
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)	(2264.8)%

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 continued to incur significant operating losses as revenue volume and related gross margins were not sufficient to cover fixed manufacturing costs and operating expenses, particularly research and development expenses. The cash needs for each segment were primarily for working capital and capital expenditures.

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.

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

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

	$ (2,638)	(4.5)%

(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.

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(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 15 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.
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 (dollars in thousands):

	Increase (decrease)	
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%
	$ 376	0.9%

(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, net for the years ended December 31 were as follows (in thousands):

	2016	2015	Increase (decrease)
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)
	$ 284	$ 25	$ 259

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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 as we maintained a full valuation allowance against all domestic deferred tax assets due to our inability to project net future taxable income. 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). In both years, we continued to maintain a full valuation allowance against all 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 Corporation acquired Great Wall Semiconductor Corporation (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.

LIQUIDITY AND CAPITAL RESOURCES

At December 31, 2017, we had $44,230,000 in cash and cash equivalents. The ratio of current assets to current liabilities was 4.2:1 at December 31, 2017, as compared to 5.0:1 at December 31, 2016. Working capital increased $1,251,000 to $90,796,000 at December 31, 2017 from $89,545,000 at December 31, 2016.

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

	Increase (decrease)
Cash and cash equivalents	$ (11,940)
Accounts receivable	9,271
Inventories	9,363
Other current assets	366
Accounts payable	(1,477)
Accrued compensation and benefits	(926)
Accrued expenses	(810)
Income taxes payable	(208)
Deferred revenue	(2,388)
	$ 1,251

The primary uses of cash for the year ended December 31, 2017 was for operating activities of $2,464,000 and the purchase of equipment of $12,545,000. The primary sources of cash for the year ended December 31, 2017 was from proceeds from the issuance of Common Stock associated with the exercise of options for the purchase of shares of our Common Stock of $3,300,000.

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, 2017. As of December 31, 2017, we had approximately $8,541,000 remaining for share purchases under the November 2000 Plan.

During the year ended December 31, 2016, one of our subsidiaries paid a total of $750,000 in cash dividends, all of which was paid to us.

As of December 31, 2017, we had no off-balance sheet arrangements.

The table below summarizes our contractual obligations as of December 31, 2017 (in thousands):

		Payments Due by Period			
Contractual Obligations	Total	Less than 1 Year	Years 2 & 3	Years 4 & 5	More Than 5 Years
Operating lease obligations	$ 5,235	$ 1,742	$ 2,024	$ 808	$ 661

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 $1,911,000 of capital expenditure commitments, principally for manufacturing equipment, as of December 31, 2017, which we intend to fund with

existing cash.

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.

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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, 2017, 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 income (loss) , a component of Vicor Corporation 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, 2017.

We estimate our annual interest income would change by approximately $30,000 in 2017 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, 2017, 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 $139,000. 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:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Vicor Corporation and subsidiaries (the Company) as of December 31, 2017 and 2016, 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, 2017, and the related notes, and the financial statement schedule listed in Item 15(a)(2) (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2017 and 2016, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2017, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company s internal control over financial reporting as of December 31, 2017, based on criteria established in Internal Control Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated March 9, 2018 expressed an unqualified opinion on the effectiveness of the Company s internal control over financial reporting.

Basis for Opinion

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

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

/s/ KPMG LLP

We have served as the Company s auditor since 2013.

Boston, Massachusetts

March 9, 2018

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VICOR CORPORATION

CONSOLIDATED BALANCE SHEETS

December 31, 2017 and 2016

(In thousands, except per share data)

	2017	2016
ASSETS		
Current assets:		
Cash and cash equivalents	$ 44,230	$ 56,170
Accounts receivable, less allowance of $159 in 2017 and $153 in 2016	34,487	25,216
Inventories, net	36,499	27,136
Other current assets	3,616	3,250
Total current assets	118,832	111,772
Long-term deferred tax assets	210	38
Long-term investments, net	2,525	2,508
Property, plant and equipment, net	41,356	37,574
Other assets	2,801	2,175
Total assets	$ 165,724	$ 154,067
LIABILITIES AND EQUITY		
Current liabilities:		
Accounts payable	$ 9,065	$ 7,588
Accrued compensation and benefits	9,891	8,965
Accrued expenses	2,989	2,179
Income taxes payable	300	92
Deferred revenue	5,791	3,403
Total current liabilities	28,036	22,227
Long-term deferred revenue	303	374
Contingent consideration obligations	678	253
Long-term income taxes payable	195	196
Other long-term liabilities	93	
Total liabilities	29,305	23,050
Commitments and contingencies (Note 15)		
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 2017 and 2016	118	118
	401	397

Common Stock: 1 vote per share, $.01 par value, 62,000,000 shares authorized 39,324,029 shares issued and 27,652,543 shares outstanding (38,922,489 shares issued and 27,251,003 shares outstanding in 2016)		
Additional paid-in capital	181,395	176,344
Retained earnings	93,605	93,438
Accumulated other comprehensive loss	(478)	(561)
Treasury stock at cost: 11,671,486 shares in 2017 and 2016	(138,927)	(138,927)
Total Vicor Corporation stockholders equity	136,114	130,809
Noncontrolling interest	305	208
Total equity	136,419	131,017
Total liabilities and equity	$ 165,724	$ 154,067

See accompanying notes.

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VICOR CORPORATION

CONSOLIDATED STATEMENTS OF OPERATIONS

Years Ended December 31, 2017, 2016 and 2015

(In thousands, except per share amounts)

	2017	2016	2015
Net revenues	$ 227,830	$ 200,280	$ 220,194
Cost of revenues	126,174	109,071	120,676
Gross margin	101,656	91,209	99,518
Operating expenses:			
Selling, general and administrative	58,092	55,675	58,313
Research and development	44,924	41,848	41,472
Total operating expenses	103,016	97,523	99,785
Loss from operations	(1,360)	(6,314)	(267)
Other income (expense), net:			
Total unrealized gains (losses) on available-for-sale securities, net	17	(18)	(49)
Portion of (losses) gains recognized in other comprehensive income (loss)	(6)	31	61
Net credit gains recognized in earnings	11	13	12
Other income (expense), net	1,251	271	13
Total other income (expense), net	1,262	284	25
Loss before income taxes	(98)	(6,030)	(242)
Less: (Benefit) provision for income taxes	(356)	231	(401)
Gain from sale of equity method investment, net of tax			5,000
Consolidated net income (loss)	258	(6,261)	5,159
Less: Net income (loss) attributable to noncontrolling interest	91	(14)	232
Net income (loss) attributable to Vicor Corporation	$ 167	$ (6,247)	$ 4,927
Net income (loss) per common share attributable to Vicor Corporation:			
Basic	$ 0.00	$ (0.16)	$ 0.13
Diluted	$ 0.00	$ (0.16)	$ 0.13
Shares used to compute net income (loss) per common share attributable to Vicor Corporation:			
Basic	39,228	38,842	38,754
Diluted	39,933	38,842	39,146

See accompanying notes.

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VICOR CORPORATION

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

Years Ended December 31, 2017, 2016 and 2015

(In thousands)

	2017	2016	2015
Consolidated net income (loss)	$ 258	$ (6,261)	$ 5,159
Foreign currency translation gains (losses), net of tax benefit (1)	83	52	(52)
Unrealized gains (losses) on available-for-sale securities, net of tax (1)	6	(31)	(59)
Other comprehensive income (loss)	89	21	(111)
Consolidated comprehensive income (loss)	347	(6,240)	5,048
Less: Comprehensive income (loss) attributable to noncontrolling interest	97	(9)	227
Comprehensive income (loss) attributable to Vicor Corporation	$ 250	$ (6,231)	$ 4,821

(1) The deferred tax assets associated with cumulative foreign currency translation gains (losses) and cumulative unrealized gains (losses) on available for sale securities are completely offset by a tax valuation allowance as of December 31, 2017, 2016, and 2015. Therefore, there is no income tax benefit (provision) recognized for the three years ended December 31, 2017.

See accompanying notes.

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VICOR CORPORATION

CONSOLIDATED STATEMENTS OF CASH FLOWS

Years Ended December 31, 2017, 2016 and 2015

(In thousands)

	2017	2016	2015
Operating activities:			
Consolidated net income (loss)	$ 258	$ (6,261)	$ 5,159
Adjustments to reconcile consolidated net income (loss) to net cash (used for) provided by operating activities:			
Depreciation and amortization	8,893	8,438	9,142
Stock-based compensation expense	1,735	506	1,782
Increase in refundable income taxes	(736)		
Increase in contingent consideration obligations	650		
(Decrease) increase in long-term income taxes payable	(1)	4	(675)
Deferred income taxes	(172)	(78)	(183)
Decrease in long-term deferred revenue	(71)	(94)	(139)
Increase in other long-term liabilities	93		
(Gain) loss on disposal of equipment	(14)	4	(60)
Provision (benefit) for doubtful accounts	6	(22)	(18)
Credit gain on available-for-sale securities	(11)	(13)	(12)
Gain from sale of equity method investment			(5,000)
Increase in other assets		(505)	
Gain from disposition of consolidated subsidiary			(28)
Change in current assets and liabilities, net	(13,094)	(1,435)	1,499
Net cash (used for) provided by operating activities	(2,464)	544	11,467
Investing activities:			
Additions to property, plant and equipment	(12,545)	(8,428)	(9,090)
Proceeds from sale of equipment	14	2	60
Increase (decrease) in other assets	5	(93)	(204)
Sales and maturities of investments			360
Proceeds from sale of equity method investment			5,000
Deconsolidation of subsidiary			(392)
Net cash used for investing activities	(12,526)	(8,519)	(4,266)
Financing activities:			
Proceeds from issuance of Common Stock	3,300	1,584	820
Payment of contingent consideration obligations	(225)	(99)	
Deconsolidation of subsidiary		(372)	
Acquisition of noncontrolling interest			(216)
Net cash provided by financing activities	3,075	1,113	604

Effect of foreign exchange rates on cash	(25)	52	(12)
Net (decrease) increase in cash and cash equivalents	(11,940)	(6,810)	7,793
Cash and cash equivalents at beginning of year	56,170	62,980	55,187
Cash and cash equivalents at end of year	$ 44,230	$ 56,170	$ 62,980
Change in current assets and liabilities, excluding effects of disposition of consolidated subsidiary:			
Accounts receivable	$ (9,210)	$ 780	$ 2,201
Inventories, net	(9,309)	(3,677)	1,880
Other current assets	(357)	(158)	(111)
Accounts payable and accrued liabilities	3,186	339	(1,301)
Accrued severance charges		(195)	(1,709)
Income taxes payable	208	61	(10)
Deferred revenue	2,388	1,415	549
Change in current assets and liabilities, net	$ (13,094)	$ (1,435)	$ 1,499
Supplemental disclosures:			
Cash paid during the year for income taxes, net of refunds	$ 373	$ 230	$ 675

See accompanying notes.

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VICOR CORPORATION

CONSOLIDATED STATEMENTS OF EQUITY

Years Ended December 31, 2017, 2016 and 2015

(In thousands)

	Class B Common Stock	Common Stock	Additional Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Treasury Stock	Total Vicor Corporation Stockholders' Equity	Noncontrolling Interest	Total Equity
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)
Disposition of consolidated subsidiary			(5)				(5)	(1,737)	(1,742)
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
Sales of Common Stock		4	3,296				3,300		3,300
Stock-based compensation expense			1,735				1,735		1,735
Other			20				20		20
Components of comprehensive income, net of tax									
Net income				167			167	91	258
Other comprehensive income					83		83	6	89
Total comprehensive income							250	97	347
Balance on December 31, 2017	$ 118	$ 401	$ 181,395	$ 93,605	$ (478)	$ (138,927)	$ 136,114	$ 305	$ 136,419

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. One of the Company s subsidiaries was not majority owned by the Company prior to 2016, and a second 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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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, 2017, the Company had gross deferred revenue of approximately $4,659,000 and gross deferred cost of revenues of approximately $2,135,000 under agreements with stocking distributors ($3,337,000 and $1,445,000, respectively, as of December 31, 2016).

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 2017, 2016, and 2015, 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 gains (losses) included in other income (expense), net, were approximately $323,000, $(268,000), and $(161,000) in 2017, 2016, and 2015, 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.

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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, 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 Consolidated 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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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, 2017, consist of a single auction rate security with a par value of $3,000,000, which is collateralized by student loans. Through December 31, 2017, 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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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, 2017 and 2016, one customer accounted for approximately 17.5% and 14.2%, respectively, of trade account receivables.

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 $2,150,000, $1,818,000, and $1,762,000 in advertising costs during 2017, 2016 and 2015, respectively.

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

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VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

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):

	2017	2016	2015
Numerator:			
Net income (loss) attributable to Vicor Corporation	$ 167	$ (6,247)	$ 4,927
Denominator:			
Denominator for basic net income (loss) per share-weighted average shares (1)	39,228	38,842	38,754
Effect of dilutive securities:			
Employee stock options (2)	705		392
Denominator for diluted net income (loss) per share adjusted weighted-average shares and assumed conversions (3)	39,933	38,842	39,146
Basic net income (loss) per share	$ 0.00	$ (0.16)	$ 0.13
Diluted net income (loss) per share	$ 0.00	$ (0.16)	$ 0.13

(1) Denominator represents weighted average number of Common Shares and Class B Common Shares outstanding.

(2) Options to purchase 53,913, 1,696,222 and 238,792 shares of Common Stock in 2017, 2016, and 2015, 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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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 fair value of stock option awards, whether they possess time-based vesting provisions or performance-based vesting provisions, and options granted under the Company s Employee Stock Purchase Plan, as of their grant date. 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 May 2017, the Financial Accounting Standards Board (FASB) issued guidance about which changes to the terms or conditions of a stock-based payment award require an entity to apply modification accounting in Topic 718, *Compensation Stock Compensation*. The new guidance is effective for annual and interim periods beginning after December 15, 2017, with early adoption permitted. The Company does not expect the adoption of the new guidance will have a material impact on its consolidated financial statements and related disclosures.

In August 2016, the 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.

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VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

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 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 and related disclosures.

In March 2016, the FASB issued new guidance for employee stock-based payment accounting, which makes several modifications to existing guidance related to the accounting for forfeitures, employer tax withholding on stock-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 stock-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 Company adopted the new standard on January 1, 2017. (See Note 14 Income Taxes for additional details on the impact of adoption).

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 majority of the Company s leases are for certain of its office and manufacturing space. The Company is currently developing an implementation plan and gathering information, including compiling an inventory of all leasing arrangements, to assess the impact of the new standard on its financial statements. 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 May 2014, the FASB issued new guidance for revenue recognition, which requires 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, replaces most of the prior revenue recognition guidance under U.S. Generally Accepted Accounting Principles (U.S. GAAP). The Company s assessment of the new standard s impact is substantially complete. The Company will adopt the new guidance as of January 1, 2018 using the modified retrospective method. The most significant impact of the adoption is on the timing of recognition of sales to its stocking distributors. Through December 31, 2017, the Company deferred revenue and the related cost of sales on shipments to stocking distributors until the distributors resold the products to their customers. Upon adoption, the Company is no longer permitted to defer revenue until sale by the stocking distributor to the end customer, but rather, is 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 cumulative effect of adopting this guidance, to be recognized as an increase to the balance of retained earnings as of January 1, 2018, is currently estimated to be approximately

$3,300,000. The implementation team s remaining tasks are to complete documentation for the systems and controls to support the revenue recognition and disclosure requirements under the new standard, and to complete the required disclosures in preparation for filing the Company s Form 10-Q for the quarter ending March 31, 2018.

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VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Other new pronouncements issued but not effective until after December 31, 2017 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 plan that is stockholder-approved:

Amended and Restated 2000 Stock Option and Incentive Plan, as amended and restated (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 10,000,000 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:

Amended and Restated 2001 Stock Option and Incentive Plan (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, 2017. 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:

Amended and Restated 2007 Stock Option and Incentive Plan (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, 2017. 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. All stock option awards must be approved by both the VI Chip Board of Directors and the Compensation Committee of the Company s Board of Directors. A total of 14,000,000 shares of VI Chip Common Stock have 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.

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VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

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 (the 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. 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 had 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.

On April 26, 2017, the Company s Board of Directors approved the Vicor Corporation 2017 Employee Stock Purchase Plan (the Plan or the ESPP). The ESPP became effective on June 16, 2017, the date the Company s stockholders approved the Plan at the 2017 Annual Meeting of Stockholders. The Company has reserved 2,000,000 shares of Common Stock under the Plan for issuance to eligible employees who elect to participate. The ESPP is intended to qualify as an employee stock purchase plan under Section 423 of the Code. The ESPP operates in successive periods of approximately six months, each referred to as an offering period. Generally, offering periods commence on or around September 1 and March 1 and end on or around the following February 28 or August 31, respectively. Under the ESPP, an option is granted to participating employees on the first day of an offering period to purchase shares of the Company s Common Stock at the end of that offering period at a purchase price equal to 85% of the lesser of the fair market value of a share of Common Stock on either the first day or the last day of that offering period. The purchase of shares is funded by means of periodic payroll deductions, which may not exceed 15.0% of the employee s eligible compensation, as defined in the Plan. Among other provisions, the Plan limits the number of shares that can be purchased by a participant during any offering period and cumulatively for any calendar year.

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

	2017	2016	2015
Cost of revenues	$ 187	$ 95	$ 230
Selling, general and administrative	1,125	412	1,246
Research and development	423	(1)	306
Total stock-based compensation	$ 1,735	$ 506	$ 1,782

The increase in stock-based compensation expense in 2017 compared to 2016, and the decrease in 2016 compared to 2015, was primarily due to the reversal of previously recorded stock-based compensation for VI Chip performance-based options in 2016, as described above.

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VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Compensation expense by type of award for the years ended December 31 was as follows (in thousands):

	2017	2016	2015
Stock options	$ 1,546	$ 506	$ 1,782
ESPP	189		
Total stock-based compensation	$ 1,735	$ 506	$ 1,782

The fair value for non performance-based stock 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:

Vicor:	**2017**	**2016**	**2015**
Risk-free interest rate	2.1%	1.5%	2.0%
Expected dividend yield			
Expected volatility	43%	45%	51%
Expected lives (years)	7.1	7.2	7.2

VI Chip:	**2017**	**2016**	**2015**
Risk-free interest rate	1.9%	1.7%	2.1%
Expected dividend yield			
Expected volatility	32%	34%	37%
Expected lives (years)	6.5	6.5	6.5

Picor:	**2017**	**2016**	**2015**
Risk-free interest rate	1.9%	1.5%	1.9%
Expected dividend yield			
Expected volatility	48%	42%	41%
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.

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VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

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.

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 85% of its options will actually vest. An annual forfeiture rate of 5.25% has been applied to all unvested options as of December 31, 2017. For 2016 and 2015, the Company expected 86% and 88%, respectively, of its options would actually vest and applied an annual forfeiture rate of 5.00% and 4.25%, respectively.

Picor The Company currently expects, for Picor options, based on an analysis of historical forfeitures, approximately 93% of its options will actually vest. An annual forfeiture rate of 2.50% has been applied to all unvested options as of

December 31, 2017. For 2016 and 2015, the Company expected 92% and 93%, respectively, of its options would actually vest and applied an annual forfeiture rate of 2.50% to both years.

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, 2017. For 2016 and 2015, the Company expected 76% and 78%, respectively, of its options would actually vest and applied an annual forfeiture rate of 9.00% and 8.50%, respectively.

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VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Vicor Stock Options

A summary of the activity under the 2000 Plan as of December 31, 2017 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, 2016	1,696,222	$ 8.82		
Granted	96,322	$ 18.41		
Forfeited and expired	(25,087)	$ 10.92		
Exercised	(401,540)	$ 8.21		
Outstanding on December 31, 2017	1,365,917	$ 9.63	6.21	$ 15,409
Exercisable on December 31, 2017	707,244	$ 8.01	5.82	$ 9,116
Vested or expected to vest as of December 31, 2017(1)	1,332,671	$ 9.54	6.19	$ 15,161

(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, 2016 and 2015 the Company had options exercisable for 730,388 and 565,861 shares respectively, for which the weighted average exercise prices were $7.74 and $7.24, respectively.

During the years ended December 31, 2017, 2016, and 2015 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 $4,395,000, $1,392,000 and $928,000, respectively. The total amount of cash received by the Company from options exercised in 2017, 2016, and 2015, was $3,295,000, $1,572,000, and $805,000, respectively. The total grant-date fair value of stock options that vested during the years ended December 31, 2017, 2016, and 2015 was approximately $774,000, $365,000, and $1,194,000, respectively.

As of December 31, 2017, there was $920,000 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 1.4 years for those awards. The expense will be recognized as follows: $488,000 in 2018, $249,000 in 2019, $116,000

in 2020, $52,000 in 2021, and $15,000 in 2022.

The weighted-average fair value of Vicor options granted was $8.71, $4.94, and $6.76, in 2017, 2016, and 2015, 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, 2017 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, 2016	9,530,987	$ 0.62		
Granted	673,000	$ 0.62		
Forfeited and expired	(126,000)	$ 0.73		
Exercised	(12,000)	$ 0.41		
Outstanding on December 31, 2017	10,065,987	$ 0.62	3.80	$ 493
Exercisable on December 31, 2017	8,384,987	$ 0.61	3.31	$ 400
Vested or expected to vest as of December 31, 2017(1)	9,996,810	$ 0.62	3.78	$ 492

(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, 2016 and 2015, Picor had options exercisable for 7,915,219 and 8,053,490 shares, respectively, for which the weighted average exercise prices were $0.62 and $0.64, respectively.

During the years ended December 31, 2017, 2016 and 2015, the total intrinsic value of Picor options exercised was $3,000, $24,000 and $72,000, respectively. The total amount of cash received by Picor from options exercised in 2017, 2016 and 2015 was $5,000, $17,000 and $14,000, respectively The total grant-date fair value of stock options that vested during the years ended December 31, 2017, 2016, and 2015 was approximately $180,000, $155,000, and $39,000, respectively.

As of December 31, 2017, there was $322,000 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 3.1 years for all Picor awards. The expense will be recognized as follows: $117,000 in 2018, $83,000 in 2019, $61,000 in 2020, $45,000 in 2021, and $16,000 in 2022.

The weighted-average fair value of Picor options granted was $0.27 in 2017, $0.26 in 2016, and $0.48 in 2015.

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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, 2017 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, 2016	9,933,750	$ 1.00		
Granted	9,771,500	$ 0.96		
Forfeited and expired	(6,613,000)	$ 1.00		
Exercised		$		
Outstanding on December 31, 2017 (1)	13,092,250	$ 0.97	5.78	$
Exercisable on December 31, 2017	810,700	$ 1.00	4.46	$
Vested or expected to vest as of December 31, 2017(2)	11,210,701	$ 0.97	5.67	$

(1) Of the total VI Chip options outstanding on December 31, 2017, 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, 2016 and 2015, VI Chip had options exercisable for 7,074,650 and 7,042,600 shares, respectively, for which the weighted average exercise price was $1.00.

There were no VI Chip options exercised in 2017 and 2016. 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. The total grant-date fair value of stock options that vested during the years ended December 31, 2017, 2016, and 2015 was approximately $2,900,000, $0, and $1,000, respectively.

As of December 31, 2017, there was $2,395,000 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 4.0 years

for all VI Chip awards. The expense will be recognized as follows: $603,000 in 2018, $544,000 in 2019, $503,000 in 2020, $483,000 in 2021, and $262,000 in 2022.

The weighted-average fair value of VI Chip options granted was $0.29, $0.01, and $0.01 in 2017, 2016, and 2015, 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 $937,000, $882,000, and $854,000 in 2017, 2016, and 2015, 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, 2017, 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, 2017 and 2016, the Company held one 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. The Failed Auction Security held by the Company is Aaa/AA+ rated by 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. Through December 31, 2017, 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, 2017.

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

December 31, 2017	Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Failed Auction Security	$ 3,000	$	$ 475	$ 2,525

December 31, 2016	Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Failed Auction Security	$ 3,000	$	$ 492	$ 2,508

As of December 31, 2017 and 2016, 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, 2017, by contractual maturities, are shown below (in thousands):

	Cost	Estimated Fair Value
Due in twenty to forty years	$ 3,000	$ 2,525

Based on the fair value measurements described in Note 5, the fair value of the Failed Auction Security on December 31, 2017, with a par value of $3,000,000, was estimated by the Company to be approximately $2,525,000. The gross unrealized loss of $475,000 on the Failed Auction Security consists of two types of estimated loss: an aggregate credit loss of $48,000 and an aggregate temporary impairment of $427,000. In

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VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

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):

	2017	2016	2015
Balance at the beginning of the period	$ 59	$ 72	$ 84
Reductions in the amount related to credit gain for which other-than-temporary impairment was not previously recognized	(11)	(13)	(12)
Balance at the end of the period	$ 48	$ 59	$ 72

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, 2017 (in thousands):

Using

	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total Fair Value as of December 31, 2017
Cash equivalents:				
Money market funds	$ 9,279	$	$	$ 9,279
Long-term investments:				
Failed Auction Security			2,525	2,525
Liabilities:				
Contingent consideration obligations			(678)	(678)

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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, 2016 (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, 2016
Cash equivalents:				
Money market funds	$ 10,114	$	$	$ 10,114
Long-term investments:				
Failed Auction Security			2,508	2,508
Liabilities:				
Contingent consideration obligation			(253)	(253)

As of December 31, 2017, 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, 2017. 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 time frame 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, 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.

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.

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VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

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, 2017 are as follows (dollars in thousands):

	Fair Value	Valuation Technique	Unobservable Input	Weighted Average
Failed Auction Security	$ 2,525	Discounted cash flow	Cumulative probability of earning the maximum rate until maturity	0.06%
			Cumulative probability of principal return prior to maturity	93.71%
			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, 2017 was as follows (in thousands):

Balance at the beginning of the period	$ 2,508
Credit gain on available-for-sale security included in Other income (expense), net	11
Gain included in Other comprehensive income (loss)	6
Balance at the end of the period	$ 2,525

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 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, 2017 was as follows (in thousands):

Balance at the beginning of the period	$ 253
Increase in estimated contingent consideration obligations (see Note 9)	650
Payments	(225)
Balance at the end of the period	$ 678

There were no transfers between Level 1 and Level 2 of the fair value hierarchy during the year ended December 31, 2017.

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VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

6. INVENTORIES

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

	2017	2016
Raw materials	$ 27,400	$ 18,648
Work-in-process	3,596	3,361
Finished goods	5,503	5,127
Net balance	$ 36,499	$ 27,136

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):

	2017	2016
Land	$ 2,089	$ 2,089
Buildings and improvements	45,147	43,950
Machinery and equipment	243,392	237,434
Furniture and fixtures	6,320	5,656
Construction in-progress and deposits	4,120	2,471
	301,068	291,600
Accumulated depreciation and amortization	(259,712)	(254,026)
Net balance	$ 41,356	$ 37,574

Depreciation expense for the years ended December 31, 2017, 2016 and 2015 was approximately $8,763,000, $8,304,000, and $9,028,000 respectively. As of December 31, 2017, the Company had approximately $1,911,000 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 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

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VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

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). Therefore, the Company s gross investment value of $4,999,719 was recorded as a Gain from sales of equity method investment, net of tax in the Consolidated Statements of Operations.

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.

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, 2017, is $478,000 (initially $208,000, as of March 31, 2016). The Company increased the liability by approximately $448,000 in 2017 based on a reassessment of the total obligation through the end of license agreement. The amount was included in selling, general, and administrative expenses. 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

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VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

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 as of December 31, 2017 is $200,000 (initially $144,000 as of December 31, 2015). The Company increased the liability by approximately $202,000 in 2017, based on a reassessment of the total obligation under the royalty arrangement. The amount was included in selling, general, and administrative expenses. 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.

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 Consolidated Balance Sheets, as of December 31 were as follows (in thousands):

	2017	2016
Patent costs	$ 2,093	$ 2,427
Accumulated amortization	(1,386)	(1,598)
	$ 707	$ 829

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

Amortization expense was approximately $130,000, $134,000 and $145,000 in 2017, 2016 and 2015, respectively. The estimated future amortization expense from patent assets held as of December 31, 2017, is projected to be $112,000, $107,000, $102,000, $93,000 and $61,000, in fiscal years 2018, 2019, 2020, 2021, and 2022, respectively.

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VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

11. PRODUCT WARRANTIES

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

	2017	2016	2015
Balance at the beginning of the period	$ 214	$ 585	$ 204
Accruals for warranties for products sold in the period	346	358	715
Fulfillment of warranty obligations	(194)	(527)	(334)
Revisions of estimated obligations	(76)	(202)	
Balance at the end of the period	$ 290	$ 214	$ 585

12. 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 2017, 2016, and 2015. On December 31, 2017, 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.

On December 31, 2017, 2016, and 2015, there were 21,976,340, 14,377,880, and 14,594,805, respectively, shares of Vicor Common Stock reserved for issuance upon exercise of Vicor stock options, upon conversion of Class B Common Stock and under the ESPP.

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VICOR CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

13. 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):

	2017	2016	2015
Rental income	$ 792	$ 462	$
Foreign currency gains (losses), net	323	(268)	(161)
Interest income	124	68	47
Gain (loss) on disposal of equipment	14	(4)	60
Credit gains on available-for-sale securities	11	13	12
Other	(2)	13	67
	$ 1,262	$ 284	$ 25

During the second quarter of 2016, the Company began recognizing rental income under a leasing agreement with a third party for its facility in Sunnyvale, California.

14. INCOME TAXES

The tax provision includes estimated federal, state and foreign income taxes on the Company s pre-tax income and, in 2015, 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.

On December 22, 2017, the U.S. government enacted comprehensive tax legislation, referred to as the Tax Cuts and Jobs Act (the Tax Act). The Tax Act makes broad and complex changes to the U.S. tax code, including, but not limited to: (1) reducing the U.S. federal corporate tax rate from 35% to 21%; (2) elimination of the corporate alternative minimum tax (AMT) and changing how existing AMT credits can be realized; (3) changing rules related to the usage and limitation of net operating loss carryforwards created in tax years beginning after December 31, 2017; and (4) implementing a territorial tax system, which generally eliminates the U.S. federal income tax on dividends from foreign subsidiaries, and imposes a one-time transition tax on certain earnings of foreign subsidiaries previously untaxed in the United States.

U.S. GAAP requires the impact of tax legislation to be recorded in the period of enactment. The Tax Act, though, did not have a significant impact on the Company s consolidated financial statements, primarily because it continues to maintain a full valuation allowance against all domestic net deferred tax assets, as discussed below. While the Company re-measured its net deferred tax assets using the lower U.S. corporate income tax rate at which it is now expected to reverse in the future, the adjustment was offset by a corresponding change in the Company s valuation

allowance. The one-time transition tax is based on total post 1986 earnings and profits which were not previously subject to U.S. income taxes. While the Company recorded a provisional amount for the one-time transition tax liability for all its controlled foreign corporations, it was fully offset by existing net operating losses in the U.S. The Company did record a benefit in the fourth quarter of 2017 due to the elimination of the AMT, as discussed below.

Certain impacts of the Tax Act would generally require accounting to be completed in the period of enactment. However, in response to the complexities of the Tax Act, the Securities and Exchange Commission (SEC) issued guidance through Staff Accounting Bulletin No. 118 to provide companies with relief.

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Specifically, when the initial accounting for items under the Tax Act is incomplete, the guidance allows companies to include provisional amounts when reasonable estimates can be made. The SEC has provided up to a one-year measurement period for companies to finalize the accounting for the impact of the new legislation and the Company expects to finalize the accounting over the coming quarters. The Company has recognized the provisional tax impacts related to the re-measurement of its deferred tax assets and liabilities, and one-time transition tax, for the year ended December 31, 2017. The ultimate impact may differ from these provisional amounts due to, among other things, additional analysis, changes in interpretations and assumptions the Company has made, additional regulatory guidance that may be issued, and actions the Company may take as a result of the Tax Act.

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:

	2017	2016	2015
Statutory federal tax rate	(34.0)%	(34.0)%	(34.0)%
State income taxes, net of federal income tax benefit	97.2	1.9	46.4
Rate change due to tax reform	3,441.1		
Tax credits	(1,222.3)	(13.6)	29.9
Increase (decrease) in valuation allowance	(936.1)	46.5	(138.4)
Permanent items	(861.2)	0.9	21.2
Refundable income taxes AMT credit	(751.0)		
Foreign rate differential and deferred items	(91.8)	(0.8)	(18.2)
Decrease in tax reserves	(5.1)		(248.6)
Capital gain on sale to noncontrolling interest		3.9	237.8
Decrease in unremitted Vicor Custom Power earnings		(0.9)	(108.7)
Book income attributable to noncontrolling interest		0.1	47.0
Other	(0.1)	(0.2)	(0.1)
	(363.3)%	3.8%	(165.7)%

In 2017, 2016, and 2015, the Company did not recognize a tax benefit for the majority of its losses as it maintained a full valuation allowance against all net domestic deferred tax assets due to the inability to project net future taxable income, as described below.

In 2017, the benefit for income taxes was primarily due to the Company s AMT credit carryforwards of approximately $736,000 becoming fully refundable in future years, due to the repeal of the corporate AMT under the Tax Act.

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).

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).

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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):

	2017	2016	2015
Domestic	$ (1,591)	$ (6,034)	$ 1,373
Foreign	1,493	4	(1,615)
	$ (98)	$ (6,030)	$ (242)

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

	2017	2016	2015
Current:			
Federal	$ (736)	$	$ 144
State	156	172	(473)
Foreign	396	137	111
	(184)	309	(218)
Deferred:			
Federal		(55)	(274)
Foreign	(172)	(23)	91
	(172)	(78)	(183)
	$ (356)	$ 231	$ (401)

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 Tax Act eliminates the deferral of U.S. income tax on accumulated foreign earnings by imposing a one-time mandatory transition tax on such earnings. As a result, we recorded a provisional amount of approximately $122,000 in additional taxable income related to approximately $813,000 of untaxed accumulated unremitted foreign earnings. As noted above, the additional taxable income of $122,000 was fully offset by existing net operating losses in the U.S.

Going forward, the Company intends to continue to reinvest certain of its foreign earnings indefinitely.

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As noted above, the change in the U.S. federal corporate tax rate, which is effective January 1, 2018, is reflected in the Company s deferred tax table below. Significant components of the Company s deferred tax assets and liabilities as of December 31 were as follows (in thousands):

	2017	2016
Deferred tax assets:		
Research and development tax credit carryforwards	$ 20,019	$ 13,967
Net operating loss carryforwards	4,918	4,902
Stock-based compensation	2,793	4,066
Investment tax credit carryforwards	2,181	1,576
Inventory reserves	2,059	3,143
Vacation accrual	1,255	1,928
Contingent consideration liabilities	148	
Unrealized loss on investments	135	136
Deferred revenue	79	154
Warranty reserves	45	73
Bad debt reserves	36	52
Alternative minimum tax credit carryforward		340
Other	273	331
Total deferred tax assets	33,941	30,668
Less: Valuation allowance for deferred tax assets	(33,024)	(29,274)
Net deferred tax assets	917	1,394
Deferred tax liabilities:		
Prepaid expenses	(470)	(654)
Patent amortization	(161)	(296)
Depreciation	(76)	(406)
Total deferred tax liabilities	(707)	(1,356)
Net deferred tax assets (liabilities)	$ 210	$ 38

As of December 31, 2017, the Company has a valuation allowance of approximately $33,024,000 against all domestic 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, 2017 and, as a result, management believes a full valuation allowance against all domestic net deferred tax assets is warranted as of December 31, 2017. 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.

As described in Note 2 *Impact of recently issued accounting standards*, the Company adopted new guidance for employee stock-based payment accounting during the first quarter of 2017. The new guidance, among other considerations, requires excess tax benefits and tax deficiencies related to employee stock-based compensation to now be recorded in earnings when the awards vest or are settled, rather than in stockholders

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equity under previous guidance. In addition, it eliminates the requirement that excess tax benefits be realized with the taxing authority before they can be recognized in the financial statements. In connection with the adoption of this new guidance, the Company recorded a cumulative-effect adjustment as of January 1, 2017 to increase gross deferred tax assets and the related valuation allowance against deferred tax assets by $3,485,000. This amount was allocated and added to deferred tax assets for research and development tax credit carryforwards, net operating loss carryforwards and the alternative minimum tax credit carryforward but, as noted above, was fully offset by a corresponding increase in the valuation allowance against deferred tax assets, resulting in no net effect on the Company s consolidated financial statements.

The research and development tax credit carryforwards of approximately $11,711,000 and $11,714,000, respectively, expire beginning in 2018 for state purposes and in 2022 for federal purposes. The Company has federal net operating loss carryforwards of approximately $18,351,000, which expire beginning in 2033, as well as net operating loss carryforwards in certain states of approximately $28,770,000, which expire beginning in 2018 through 2037.

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