MAXWELL TECHNOLOGIES INC
Form 10-K
February 16, 2018
UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K
(Mark One)
x ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2017
OR
o TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from to
Commission file number 001-15477

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

Delaware	95-2390133
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
3888 Calle Fortunada San Diego, California	92123
(Address of principal executive offices)	(Zip Code)

Registrant’s telephone number, including area code: (858) 503-3300
Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock, par value $0.10 per share	Nasdaq Global Market

Securities registered pursuant to Section 12(g) of the Act: None
Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. YES o NO x
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 o NO x
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 x NO o
Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). YES x NO o
Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§ 229.405 of this chapter) 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 Annual Report on Form 10-K or any amendment to this Form 10-K. o
Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or 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 o	Accelerated filer x	Non-accelerated filer o	(Do not check if a smaller reporting company)
Smaller reporting company o		Emerging growth company o	

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. o

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

The aggregate market value of common stock held by non-affiliates of the registrant was approximately $213,640,239 as of the last business day of the registrant's most recently completed second fiscal quarter (June 30, 2017), based on the closing price of the registrant's common stock on that day as reported by the NASDAQ Global Market. Shares of common stock held by each officer and director on June 30, 2017 have been excluded in that such persons may be deemed to be affiliates.

The number of shares of the registrant's Common Stock outstanding as of February 9, 2018, was 37,217,666 shares.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the proxy statement for the registrant's annual meeting of stockholders (the "Proxy Statement") are incorporated by reference in Part III of this Form 10-K to the extent stated herein. The Proxy Statement will be filed within 120 days of the registrant's fiscal year ended December 31, 2017.

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

Unless the context otherwise requires, all references to “Maxwell,” “the Company,” “we,” “us,” and “our” refer to Maxwell Technologies, Inc. and its subsidiaries. All references to “Maxwell SA” refer to our Swiss Subsidiary, Maxwell Technologies, SA. All references to “Nesscap Korea” refer to our Korean Subsidiary, Nesscap Korea Co., Ltd.

Some of the statements contained in this Annual Report on Form 10-K and incorporated herein by reference discuss our plans and strategies for our business or make other 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 words “anticipates,” “believes,” “estimates,” “expects,” “predicts,” “potential,” “plans,” “intends,” “may,” “coul “continue,” “seek,” “should,” “would” and similar expressions are intended to identify these forward-looking statements, but are not the exclusive means of identifying them. These forward-looking statements reflect the current views and beliefs of our management; however, various risks, uncertainties and contingencies could cause our actual results, performance or achievements to differ materially from those expressed in, or implied by, our statements. Such risks, uncertainties and contingencies include, but are not limited to, the following:

- our intentions, beliefs and expectations regarding our expenses, cost savings, sales, operations and future financial performance;
- our operating results;
- our ability to develop, introduce and commercialize new products, technologies applications or enhancements to existing products and educate prospective customers;
- anticipated growth and trends in our business;
- our ability to obtain sufficient capital to meet our operating requirements, including, but not limited to, our investment requirements for new technology and products, or other needs;
- our ability to manage our long-term debt and our ability to service our debt, including our convertible debt;
- risks related to changes in legislation, regulation and governmental policy;
- risks related to tax laws and tax changes (including U.S. and foreign taxes on foreign subsidiaries);
- risks related to our international operations;
- our expectations regarding our revenues, customers and distributors;
- our beliefs and expectations regarding our market penetration and expansion efforts, especially considering the small number of vertical markets and a small number of geographic regions;
- our expectations regarding the benefits and integration of recently-acquired businesses and our ability to make future acquisitions and successfully integrate any such future-acquired businesses;
- our ability to protect our intellectual property rights and to defend claims against us;
- dependence upon third party manufacturing and other service providers, many of which are located outside the U.S. and our ability to manage reliance upon certain key suppliers;
- our anticipated trends and challenges in the markets in which we operate; and
- our expectations and beliefs regarding and the impact of investigations, claims and litigation.

Many of these factors are beyond our control. Additionally, there can be no assurance that we will not incur new or additional unforeseen costs or risks in connection with the ongoing conduct of our business. Accordingly, any forward-looking statements included herein do not purport to be predictions of future events or circumstances and may not be realized.

For a discussion of important risks associated with an investment in our securities, including factors that could cause actual results to differ materially from expectations referred to in the forward-looking statements, see Item 1A, Risk Factors, of this document, as well as those discussed elsewhere in this Annual Report. Readers are urged not to place undue reliance on these forward-looking statements, which speak only as of the date of this Annual Report.

We do not have any obligation to update publicly any forward-looking statements, whether as a result of new information, future events or otherwise.

PART I

Item 1. Business

Overview

Maxwell was incorporated under the name Maxwell Laboratories, Inc. in 1965. The Company made an initial public offering of common stock on the NASDAQ Stock Market in 1983, and changed its name to Maxwell Technologies, Inc. in 1996. We are headquartered in San Diego, California, and have design, sales and manufacturing locations in the United States, Switzerland, Germany, China and South Korea. We develop, manufacture and market energy storage and power delivery products for transportation, industrial and other applications. We have three differentiated and unique businesses:

- Dry Battery Electrode Technology: We have developed and transformed our patented, proprietary and fundamental dry electrode manufacturing technology that we have historically used to make ultracapacitors to create a breakthrough technology that can be applied to the manufacturing of batteries. Using this technology, we believe we can create significant performance and cost benefits as compared to today's state of the art lithium-ion batteries. Our dry battery electrode technology has the potential to be a groundbreaking technology within the battery industry with a substantial market opportunity, particularly for use in electric vehicles.
- Energy Storage: Our market leading ultracapacitor products are energy storage devices that possess a unique combination of high power density, extremely long operational life and the ability to charge and discharge very rapidly. Our ultracapacitor cells, multi-cell packs, modules and subsystems provide highly reliable energy storage and power delivery solutions for applications in multiple industries, including automotive, grid energy storage, wind, bus, industrial and truck. Our lithium-ion capacitors are energy storage devices with the power characteristics of an ultracapacitor combined with the enhanced energy storage capacity approaching that of a battery and are uniquely designed to address a variety of applications in the rail, grid, and industrial markets where energy density and weight are differentiating factors.
- High-Voltage: Our CONDIS® high-voltage capacitors are designed and manufactured to perform reliably for decades in all climates. These products include grading and coupling capacitors, electric voltage transformers and metering products that are used to ensure the safety and reliability of electric utility infrastructure and other applications involving transport, distribution and measurement of high-voltage electrical energy.

Industry Trends

There are three fast approaching, disruptive megatrends which we believe will drive and create unique long-term growth opportunities in our industry. These megatrends include renewable power generation in the grid, electrification of combustion engine vehicles and the revolution of battery electric vehicles.

- First, as costs for renewable power generation continue to decline and converge on those of traditional forms, renewable penetration on the grid is increasing at accelerated rates. This increasing penetration requires advanced energy storage and power delivery technologies for successful integration and to stabilize the grid as this modernization takes effect.
- Second, as the use of premium features such as e-active suspension, autonomous driving and other power demanding applications continue to penetrate the automotive market, high power and rapid response energy storage and power delivery solutions are increasingly required to address the new technological challenges that these advanced features will create.
- Third, as global emission policies continue to tighten and the cost for lithium-ion batteries continues to fall, the automotive industry is on the verge of an electric vehicle revolution, which we believe will fundamentally change the industry and how automobiles are made and used. Advanced lithium-ion battery performance and reduced costs are at the center of this fundamental change and we believe that innovation in this area could be a major factor in determining the winners and losers in the future of the highly competitive automotive industry.

In the global high-voltage market, a paradigm shift is occurring, particularly in the United States, China, and India, where a proliferation of projects to increase the availability of electrical energy as well as infrastructure modernization and renovation will likely continue to increase demand in the years to come. Additionally, consolidation and changes in market dynamics could generate new opportunities. As the substation becomes increasingly digitized, metering solutions, which protect and control energy flows into the electrical substation through optical fiber, are developing into an additional, new growth opportunity.

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In recent years, we have also experienced a shift in customer demand from cells to sophisticated, complete subsystem solutions, which require increased intelligence and integration with existing networks, particularly in areas such as the automobile drive train and the energy grid.

Strategy

Our primary corporate objective is to offer innovative products to our customers and to diversify our business which we expect will lead to increased revenue, further positioning the Company for accelerated, profitable growth to ultimately create value for our shareholders. In order to accomplish our primary objective, in 2015 we commenced with a series of initiatives with the goal to transform the business in line with our strategy. We started with the revitalization of our core, which included multiple organizational restructurings that had the effect of right sizing the business, putting the cost structure in line with the magnitude of revenue. Next, we ramped up our innovation engine, with the goal to provide innovative products at a faster rate to our customers and partners, and strengthened the management team. We continued with the optimization of our portfolio, which included the divestiture of our Microelectronics product line in 2016 and the acquisition of the core business and operating entities of Nesscap Energy, Inc. in 2017. Also in 2017, we significantly strengthened our balance sheet by raising $46 million in a convertible debt financing. Our strategy consists of three key objectives:

Objective #1: Dry Battery Electrode

The first part of our strategy is focused on commercializing our dry battery electrode technology, which we believe is a unique and innovative technology with a potentially large market opportunity, particularly in electric vehicles. A significant megatrend is fast approaching in the automotive industry as global emission policies continue to tighten and the cost of lithium-ion batteries continues to fall. The shift towards hybrid and electric vehicles is accelerating and is likely to fundamentally change the industry, including how automobiles are made and used. Lithium-ion batteries are attracting substantial investment as auto makers drive toward lower cost electric vehicles with longer range between charges. We believe that improved lithium-ion batteries are the key enabling technology for vehicle electrification, and as such, cost reduction and performance improvement have become critical targets for the world’s leading lithium-ion battery manufacturers and automotive OEMs. We believe that our patent-protected, proprietary manufacturing process, which has been utilized through many years of ultracapacitor production, can be applied to the manufacturing of battery electrode without the use of solvents to produce a highly reliable electrode material with uniform characteristics resulting in enhanced product performance, long-term durability, and lower manufacturing cost.

By applying our proprietary dry manufacturing process and trade secrets to the production of lithium-ion batteries, we believe that we can create significant performance and cost benefits when compared to today’s state of the art technology. In 2016, we signed a joint development agreement with a leading global automotive OEM and a global tier one automotive supplier on a proof-of-concept basis to validate dry battery electrode performance on a pilot scale. This program targeted a specific electric vehicle platform expected to be released in approximately 2022. We have materially completed this proof-of-concept, which we believe has demonstrated the significant performance and cost advantages of our dry electrode manufacturing process compared with wet electrode manufacturing, while providing the required consistency and reproducibility in manufacturing a pilot-scale dry electrode roll.

As the trend toward battery electric vehicles continues to increase, efforts are accelerating in the automotive and energy storage industries to prepare for this coming demand. We believe that our dry battery electrode technology could be a central enabling technology for the battery electric vehicle market. We have experienced increasing interest from additional large, brand name, global players in the energy storage and automotive industries regarding future joint development and commercialization efforts and we are currently in discussions with potential partners regarding broader collaborations, with the ultimate goal of commercialization, which we believe could unlock significant value for our customers, partners and shareholders. Given the recent successes in the proof-of-concept and the increasing interest from global leaders from automotive and energy storage markets, we have begun to shift more investment towards the development of dry battery electrode technology. Moreover, in 2018 we intend to begin to build a state-of-the art pilot-scale manufacturing facility to further prove the benefits and manufacturability of this technology. In 2018, we also expect to be highly focused on attaining broader, scale-up agreements with our current and prospective partners that could accelerate the commercialization of this breakthrough technology.

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Objective #2: Energy Storage
The second part of our strategy is to optimize our energy storage portfolio to drive business diversification, achieve scale, and to transition our business to higher growth opportunities in a large and growing $1.35 billion addressable market by 2022. Over the last year, we have made steady progress leveraging our core competencies and diversifying our ultracapacitor products as we transition to higher growth market opportunities in automotive, grid energy storage, rail and wind. Our cumulative design wins in our target markets have tripled over the last three years. In 2017, we acquired the core business and operating entities of Nesscap Energy, Inc. in order to drive customer diversification, achieve scale and position the business to win high growth opportunities. We combined Nesscap's best-in-class small cell product portfolio with Maxwell's leadership in large cell solutions to create the most complete portfolio available in the market for our customers. Through this acquisition, we have experienced increased demand for small and medium cells such that our manufacturing facility in South Korea was close to 100% utilization at the end of 2017. In response, we are investing to expand production capabilities in 2018. We are leveraging the talent of our newly combined R&D teams and plan to launch several new products in 2018 to meet the needs of our wind and small cell industrial customers. Additionally, with the factory expansion and the transitioning of customers to our now optimized portfolio, we expect to begin to capitalize on manufacturing synergies by increasing scale, which will lead to margin expansion. As we move into 2018, we believe that the progress we are making in energy storage has positioned us to intersect megatrends in renewable power generation and vehicle electrification, which we expect will accelerate our design in momentum as well as advance our strategy to deliver long-term value to our customers, partners and shareholders. Additionally, we have begun to expand our product portfolio by adding intelligent, application specific, standard subsystem products.
We believe that our automotive business, which has historically contributed a modest, but consistent revenue stream, has the largest growth potential. As features that demand increased and reliable electrical power grow with the proliferation of hybrid electric vehicles and the advent of autonomous driving, the need for high power and rapid response energy storage and power delivery solutions is becoming increasingly important. Automakers are evaluating new electrification strategies to meet the future CO2 emission standards in vehicles while increasing the level of performance and features. Several of these new technologies will likely be adopted in mild-hybrid vehicles where an electric motor assists the combustion engine, allowing it to turn off for longer periods of time while the car is coasting, as well as during short accelerations or braking. However, there are times when additional power is required, such as when stepping on the gas pedal to accelerate the vehicle, and the combustion engine must be powered back on. In this case, we believe that ultracapacitors fit in particularly well to provide the short-term burst of power needed to turn the combustion engine on while, in parallel, the electric motor is fueling the other power needs of the vehicle. As vehicle electrification continues to accelerate, we continue to see increased interest from key OEMs, especially in our newer, complete system solutions, and particularly for autonomous driving applications. We are encouraged by the continued ramp of eActive Suspension and Back-up and Peak Power applications. In particular, we now have 14 confirmed automotive design wins at various stages of progress and in several different applications including Start/Stop, eActive Suspension, eTurbo and Back-up Power for Autonomous Driving and expect to see an initial inflection point for our products begin to take shape in late 2018 with a positive impact to top line revenue in fiscal years 2019 and 2020.
In the grid energy storage market, as costs for renewable power generation continue to fall and converge toward those of traditional forms, renewable penetration into the grid is increasing at accelerated rates. Efficient integration of renewable power sources into the existing grid requires advanced energy storage, stabilization, and power delivery technologies. We believe we are making excellent progress as we are experiencing increasing levels of engagement from customers and are moving rapidly from pilot projects to both large utility-scale as well as small to mid-scale commercial projects at the micro-grid level. Our first utility-scale power stabilization project with a leading global OEM has been confirmed and is set for deployment in the 2018 to 2019 timeframe. Additionally, the launch date of our new grid products, which include an open cell pack and a subsystem design, is planned in mid-2018. These products are configurable from sub-1 megawatt to hundreds of megawatts, directly addressing existing and growing power quality issues facing the grid infrastructure by delivering fast responding power for applications including voltage support, frequency response and renewables power smoothing for utilities, power generators, and commercial and industrial customers across the globe. Due to the high reliability and long life of ultracapacitors, our customers are

also requesting these products as support systems to improve the performance and lifetime of batteries that are already installed in the grid. We have spent multiple years developing these products due to the complex nature and increased intelligence desired by our customers. Given the demands from the megatrend of renewables entry into the grid and our new product introductions, which directly address these demands, we have a growing number of project opportunities under development in the US, Europe, and Australia for applications both in front of and behind the meter and expect to see an inflection point for our products in this market beginning in 2019.

We believe the rail market is also poised for future growth, driven by a significant light rail infrastructure build-out in China to support continued urbanization. We have partnered with China Railway Rolling Rock Corporation, or CRRC-SRI, in China to develop lithium-ion capacitor based light rail on-board systems and expect to transition from the current pilot scale production to full-scale commercial manufacturing at CRRC-SRI in late 2018. We are also investing in the advancement of our Generation 2 lithium-ion capacitor technology development and are on track to meet program milestones in 2018, including improvement in low temperature capability, lower resistance and increased energy density. We expect that the grid and rail markets could become more significant contributors to our revenue growth in the coming years.

The wind market in China continues to be a significant revenue contributor to Maxwell with growth opportunities coming from the ongoing development of offshore wind resources in China and the deployment of our new wind pitch retrofit systems for existing commercial wind farms in North America and Europe. Our retrofit modules are designed to replace existing battery-based emergency pitch control systems for reliable and fail-safe performance, and can considerably reduce the cost of ownership for operating wind energy. Already in several pilots with commercial wind farms, we see evidence of considerably increased reliability and life as well as a lower cost of ownership for operating turbines, and we expect deployment of retrofit modules to begin to ramp into commercial wind farms in 2018. Overall, we believe Maxwell is well positioned in the wind market and we anticipate the market to moderately grow in the future.

Over the past year, demand for our ultracapacitors in the China hybrid bus market significantly decreased due to changes in the government subsidy program as well a requirement to localize product manufacturing. To reduce our dependency on China government influences, we established a localized manufacturing partnership with CRRC-SRI, thus positioning the Company for future revenue opportunities.

We are constantly working on improving technical performance of our products, such as higher temperature capability, higher voltage levels and higher power density as well as increasing reliability and ruggedness of our products for an extended application lifetime. We are increasing our focus on developing entire system solutions and supporting rapid product implementations in emerging markets and applications. We expect this could lead to higher gross margin opportunities. In order to develop new, innovative solutions and accelerate time-to-market for these solutions, we are focused on developing these capabilities ourselves and on establishing technical and commercial relationships with value-added partners within our target market segments and applications, including value-added distributors, solution level integrators and tier-one suppliers.

Objective #3: High-Voltage

The third part of our strategy is to maintain and expand our leadership position and market share for our high-voltage product line, which provides the opportunity for steady long-term growth in a $150 million addressable market by 2022. Our strategy is to intersect a paradigm shift happening now in the global high-voltage market, particularly in the United States, China, and India, where we believe projects to increase the availability of electrical energy as well as infrastructure modernization and renovation may continue to increase demand for our high-voltage direct-current products and solutions in the years to come. Additionally, we believe that consolidation and changes in market dynamics will generate new opportunities. As the substation becomes increasingly digitized, metering solutions, which protect and control energy flows into the electrical substation through optical fiber, are developing into a new opportunity where we anticipate growth. Leveraging our market leadership, we intend to grow revenue over the next five years by capitalizing on new products that we introduced which offer a technological advantage for our customers. In the coming year, our top focus areas include the design in of our Ultra High-Voltage DC circuit breaker solutions, partnering with leading global OEMs, to address new electrical networks worldwide, the proliferation of our metering solutions and to maximize the market share for our high tech capacitor designs, which provide a technology leading solution as compared to existing ceramic capacitors. Factory capacity constraints have limited our revenue potential for high-voltage products to about $50 million annually, and thus to meet growing demand, we embarked on a factory expansion in 2017 that will enable an increased revenue potential. We expect the factory expansion will be completed in late 2018.

General Product Line and Technology Overview

Dry Battery Electrode Technology

Our dry battery electrode technology leverages our core dry electrode process technology currently used to manufacture ultracapacitors. This unique electrode manufacturing process expands our core technology into batteries of varying chemistry with value-added performance features over wet-coated electrode technology at a reduced production cost. The performance differentiators afforded by dry coating technology are higher energy density, longer operating lifetime, high temperature operating robustness and higher charge/discharge rate capability. As a solvent-less process technology, dry electrode manufacturing is less costly and much more environmentally friendly. We believe that the investment in manufacturing equipment for dry processing is significantly less than wet coating technology, with much lower energy consumption as there is no need to use, remove and recapture solvent from electrode during fabrication. In addition to offering benefits over today’s battery chemistries, dry process technology enables electrode production using high energy density, liquid sensitive materials that are more encumbered by wet coating processes.

Energy Storage

Our energy storage products consist primarily of ultracapacitors. Ultracapacitors enhance the efficiency and reliability of devices or systems that generate or consume electrical energy. They differ from other energy storage and power delivery products by combining rapid charge/discharge capabilities typically associated with film and electrolytic capacitors with energy storage capacity generally associated with batteries. Although batteries store significantly more electrochemical energy than ultracapacitors, they cannot charge and discharge as rapidly and efficiently as ultracapacitors. Conversely, although electrolytic capacitors can deliver bursts of high power very rapidly, they have limited energy storage capacity, and therefore cannot sustain power delivery as long as ultracapacitors. Also, unlike batteries, which store energy by means of a chemical reaction and experience gradual depletion of their energy storage and power delivery capability over hundreds to a few thousand charge/discharge cycles, ultracapacitors’ energy storage and power delivery mechanisms involve minimal chemical reactions, so they can be charged and discharged hundreds of thousands to millions of times in typical operating environments with negligible performance degradation. This ability to store energy, deliver bursts of power and perform reliably for many years, with little or no maintenance, makes ultracapacitors an attractive and efficient energy storage option for a wide range of energy-consuming and generating devices and applications.

The core of our technology for the majority of our ultracapacitor products is a proprietary, solvent-free or dry, electrode manufacturing process. This high throughput roll-to-roll process produces high-reliability electrode material with uniform thickness resulting in enhanced product performance and long-term durability. The process enables a favorable cost position versus competitors. As part of our offerings, we market our dry processed electrode material to other ultracapacitor manufacturers. We have licensed our proprietary cell architecture to manufacturers in China, Taiwan and Korea to expand and accelerate acceptance of ultracapacitor products in large and rapidly growing global markets. In addition to our dry electrode process technology, in 2017, we broadened our technology base and product portfolio through our acquisition of a Korea-based manufacturer specializing in small cell technology utilizing a wet electrode manufacturing process.

Complementary to our ultracapacitor products, lithium-ion capacitors are energy storage devices, which due to their unique materials and design, have more than three times the energy density, similar power density, and a similarly long cycle life compared with ultracapacitors, as well as very low self-discharge similar to lithium-ion batteries.

High-Voltage Capacitors

High-voltage grading and coupling capacitors and electronic voltage transformers are used mainly in the electric utility industry. Grading and coupling capacitors are key components of circuit breakers that prevent high-voltage arcing that can damage switches, step-down transformers and other equipment that transmits or distributes high-voltage electrical energy within electricity network infrastructure and also within high-voltage laboratories. Electronic voltage transformers measure voltage and power levels within electric utility infrastructure. The market for these products consists of expansion, upgrades and maintenance of existing infrastructure and new infrastructure installations in developing countries. Such initiatives are capital-intensive and frequently are subject to regulation, availability of government funding and prevailing economic conditions.

Products and Applications

Our products incorporate our know-how and proprietary energy storage and power delivery technologies at both the component and system levels for specialized, high-value applications that demand “life-of-the-application” reliability.

Dry Battery Electrode

The critical and performance governing components in a given battery are the electrodes. Battery devices are comprised of at least two electrodes, a negative electrode paired with a positive electrode, interposed by an ionically conductive film in between the electrochemical couple and filled with electrolyte in a sealed package. The incumbent wet electrode coating technology is limited by at least one of the following values: cost, electrode architecture, material platform and safety. Solvent used in wet coated electrode manufacturing imparts higher system cost, limits specific energy of the electrode due to thickness barrier, limits liquid sensitive battery material usage and is inherently toxic. As such, our dry battery electrode process technology, a solvent-free manufacturing method, is expected to deliver all the noted values since no solvent and/or liquid is required. Value-added benefits include reduction in system cost by simplifying electrode production, enablement of broad-range material use, flexibility in electrode architecture for high specific energy design and accommodation of eco-friendly manufacturing. Our patent portfolio extends to certain of these technologies. Our dry electrode process technology can be used to produce batteries for consumer electronics, healthcare products, industrial goods, grid energy storage systems and automotive applications, which comprise an enormous market potential. In applications that demand high energy density and long runtime, our dry electrode is advantageously positioned as we can furnish electrode architectures that are unmatched by today’s product offering in an economical and socially responsible fashion. The dry electrode can be further applied to advanced battery chemistries, offering well over 300 Wh/kg at the cell level.

Energy Storage

Ultracapacitors, also known as electrochemical double-layer capacitors (“EDLC”) or supercapacitors, store energy electrostatically. Although ultracapacitors are electrochemical devices, minimal chemical reactions are involved in their energy storage mechanism. Their electrostatic energy storage mechanism is fully reversible, allowing ultracapacitors to be rapidly charged and discharged hundreds of thousands to millions of times with minimal performance degradation.

Compared with batteries, which require minutes or hours to fully charge or discharge, ultracapacitors discharge and recharge in as little as fractions of a second. Although ultracapacitors store only about five to ten percent as much electrical energy as a battery of comparable size, they can deliver or absorb electric energy up to 100 times more rapidly than batteries. Because they operate reliably through hundreds of thousands to millions of charge cycles, compared with only hundreds to a few thousand equivalent cycles for batteries, ultracapacitors have significantly higher lifetime energy throughput, which equates to significantly lower cost on a life cycle basis. Our ultracapacitor products have significant advantages over batteries, including:

- the ability to charge and discharge up to 100 times faster;
- significantly lower weight per unit of power delivery;
- higher charge/discharge turnaround efficiency, minimizing energy loss;
- the ability to operate reliably and continuously in extreme temperatures (-40º C to +65º C);
- minimal to no maintenance requirements;
- “life of the application” durability; and
- minimal environmental issues associated with disposal because they contain no heavy metals.

With no moving parts and negligible chemical reactions involved in their energy storage mechanism, ultracapacitors provide a simple and highly reliable solution to buffer short-term mismatches between power available and power required. Additionally, ultracapacitors offer the advantage of storing energy in the same form in which it is used, as electricity.

Maxwell offers ultracapacitor cells with capacitances ranging from 1 to 3,400 farads. We link our ultracapacitor cells together in multi-cell modules and subsystems to satisfy energy storage and power delivery requirements of specific applications. Applications include peak power assistance and back-up power of mission critical functions in vehicles, stabilization of the grid with incremental use of solar and wind energy, and highly reliable, maintenance-free, energy storage for various types of industrial installations and heavy transportation.

In many applications, power demand varies widely from moment to moment, and peak power demand typically is much greater than the average power requirement. For example, automobiles require 10 times more power to accelerate than to maintain a constant speed, and forklifts require more power to lift a heavy pallet of material than to move from place to place within a warehouse. Engineers historically have addressed transient peak power requirements by over-sizing the engine, battery or other primary energy source to satisfy all of a system's power demands, including demands that occur infrequently and may last only fractions of a second. Sizing a primary power source to meet brief peak power requirements, rather than for average power requirements, is costly and inefficient. When a primary energy source is coupled with ultracapacitors, which can deliver or absorb brief bursts of high power on demand for periods of time ranging from fractions of a second to several minutes, the primary energy source can be smaller, lighter and less expensive.

To facilitate the adoption of ultracapacitor subsystems, we have developed integration technologies, including proprietary hardware and software solutions supported by robust mechanical designs, with a dedicated team of employee experts who are capable of translating complex customer requirements into application specific standard products. We hold patents for certain of these technologies. Our subsystem products incorporate a range from 6 to 60 of our ultracapacitor cells to provide "plug and play" solutions for applications requiring from 12 to 160 volts, and can intelligently interface with a host controller to enhance the overall performance, reliability and safety of the system.

High-Voltage Capacitors

Electric utility infrastructure includes switches, circuit breakers, step-down transformers, overvoltage protection devices and measurement instruments that transmit, distribute and measure high-voltage electrical energy.

High-voltage capacitors are used to measure the voltage or to increase the ampere interrupting capacity of the circuit breaker. With operational lifetimes measured in decades, these applications require high reliability and durability.

Under our CONDIS® line of high-voltage capacitor products, Maxwell has more than 100 years of experience in this industry, and is the world's largest producer of such products for use in utility infrastructure. Engineers with specific expertise in high-voltage systems develop, design and test our high-voltage capacitor products in our development and production facility in Rossens, Switzerland. Our high-voltage capacitors are produced through a proprietary assembly and automated winding and drying process to ensure consistent quality and reliability. We are continuously upgrading and expanding our high-voltage capacitor production facility and high-end laboratory which has resulted in a doubling of our output capacity and significant shortening order-to-delivery intervals.

We sell our high-voltage capacitor products to large systems integrators, which install and service power plants and electrical utility infrastructure worldwide.

Manufacturing

Our internal manufacturing operations are conducted in production facilities located in Peoria, Arizona; Rossens, Switzerland and Yongin, South Korea. We have made substantial capital investments to expand our internal production facilities and incorporate mechanization and automation techniques and processes. We have trained our manufacturing personnel in advanced operational techniques, added information technology infrastructure and implemented new business processes and systems to increase our manufacturing capacity and improve efficiency, planning and product quality. Our dry-processed ultracapacitor electrode material is currently produced exclusively at our Peoria facility and our wet-processed ultracapacitor electrode material is produced exclusively at our Korean facility. We outsource the assembly of our 60 mm diameter large cell ultracapacitors, and subsequently, assembly of large cell-based multi-cell modules as well as assembly of our mid-size D-cell ultracapacitor products and D-cell-based multi-cell modules to contract manufacturers based in China. Considering our plans to expand our manufacturing facility for certain product lines as further described below, we believe that we have sufficient capacity to meet near-term demand for all of our product lines.

Energy Storage

We produce our dry-processed electrode material for our own ultracapacitor products, and for sale to other ultracapacitor manufacturers such as Yeong-Long Technologies Co., Ltd. ("YEC") at our Peoria facility. In 2013, we completed a major electrode capacity expansion in our Peoria facility. This facility gives us sufficient capacity to support both our current ultracapacitor production requirements and external electrode demand in the near term. As demand increases, additional increments of electrode production capacity can be added within a year through the utilization of established equipment vendors. Additionally, in our South Korea manufacturing facility, we produce

wet-processed ultracapacitor electrode material and assemble this material into small and medium cell ultracapacitors; we plan to make investments in 2018 to expand the capacity of this plant in order to meet projected demand for these products.

As noted above, we have outsourced assembly of all other cell types and multi-cell modules to contract manufacturers in Asia.

To increase reliability, reduce cost, simplify assembly and facilitate automation, we have designed our ultracapacitor products to incorporate lower-cost materials and to reduce both the number of parts in a finished cell and the number of manufacturing process steps required to produce them. We intend to continue using outsourced cell and module assembly in countries with cost-efficient value-added services, but plan to continue to produce our proprietary electrode material only in internal production facilities to ensure the continued protection of our intellectual property.

High-Voltage Capacitors

We produce our high-voltage grading and coupling capacitors and electronic voltage transformers in our Rossens, Switzerland facility. In 2018, we plan to make investments to expand the capacity of this plant in order to meet projected demand for our high-voltage capacitor products.

We believe we are the only high-voltage capacitor producer that manufactures its products with stacking, assembly and automated winding processes. This enables us to produce consistent, high quality and highly reliable products, and gives us sufficient capacity to satisfy anticipated global customer demand. We operate the assembly portion of the manufacturing process using a “just-in-time” design, allowing us to increase production capacity without adding direct labor, and significantly shortening order-to-delivery intervals.

Suppliers

We generally purchase components and materials, such as carbon powder, certain electronic components, dielectric materials, and ceramic insulators from a variety of suppliers. For certain products, we rely on a limited number of suppliers or a single supplier for a number of reasons, including notably, the cost-effectiveness of doing business with a single supplier. Although we believe there are alternative sources for some of the components and materials that we currently obtain from a single source, there can be no assurance that we will be able to identify and qualify alternative suppliers in a timely and cost-effective manner. Therefore, for certain critical components, we utilize mitigation strategies such as, for example, maintaining an inventory of safety stock on site at our respective manufacturing locations in an effort to minimize the impact of an unforeseen disruption in supply from these outside parties.

Marketing and Sales

We market and sell our products worldwide through both direct and indirect sales channels for incorporation by integrators and OEM customers into a wide range of end products. Because the introduction of products based on emerging technologies requires customer acceptance of new and unfamiliar technical approaches, and because many OEM customers have rigorous vendor qualification processes, the design-in process and initial sale of our products often take months or even years.

Our principal marketing strategy is to identify applications for which our products and technology offer a compelling value proposition, to become a preferred vendor on the basis of service, value and price, and to negotiate supply agreements that enable us to establish long-term relationships with key OEM and integrator customers. To optimize our go-to-market strategy and tailor our products to end-user application, we organized our marketing team into two specialized ultracapacitor product line teams. One team supports Automotive and Transportation market segments which require highly rugged and robust products with very stringent automotive qualification requirements and solid change management. The other team supports all Green Infrastructure applications such as grid energy storage, wind power and other more stationary applications that require very cost sensitive products with very high service lifetimes and often very complex systems solutions. Our marketing efforts strive to develop application-specific product portfolios and solutions for our Automotive & Transportation and Green Infrastructure market segments. As these design-in sales tend to be technical and engineering-intensive, we organize market-specific teams composed of sales, applications engineering and other technical and operational personnel to work closely with our customers across multiple disciplines to satisfy their requirements for form, fit, function and environmental needs. As time-to-market often is a primary motivation for our customers to use our products, the initial sale and design-in process typically evolve into ongoing account management to ensure on-time delivery, responsive technical support and value-added problem-solving.

We design and conduct discrete marketing programs intended to position and promote each of our product lines. These include trade shows, seminars, advertising, product publicity, distribution of product literature, internet websites and social media. We utilize marketing communications specialists to develop and implement our marketing programs, design and develop marketing materials, negotiate advertising media purchases, write and place product press releases and manage our marketing websites.

We also have an alliance with YEC to assemble and market small cell ultracapacitor products. In addition, we sell electrode material to YEC, both for Maxwell-branded products and for incorporation into YEC's own ultracapacitor products.

Competition

Each of our product lines has competitors, some of whom have longer operating histories. In some of the target markets for our emerging technologies, we face competition both from products utilizing well-established, existing technologies and other novel or emerging technologies.

Dry Battery Electrode

We have focused our efforts around applying dry battery electrode technology to the production of lithium-ion batteries, which we believe can create significant performance and cost benefits when compared to today's state of the art lithium-ion batteries that are produced using wet process technology. Our dry battery electrode technology has two types of competitors: current producers of lithium-ion batteries that use wet process technology, which are the standard today in the electric vehicle market, and companies developing new, alternative technologies or processes that could gain broad market acceptance.

Energy Storage

Our ultracapacitor products have two types of competitors: other ultracapacitor suppliers and purveyors of energy storage and power delivery solutions based on batteries or other technologies. Although a number of companies are developing ultracapacitor products and technology, our principal competitors in the supply of ultracapacitor or supercapacitor products are Panasonic, a division of Matsushita Electric Industrial Co., Ltd., LS Mtron, a unit of LS Cable, Supreme Power Solutions Co., Ltd., Vina Technology Company, Ltd., Samxon, a unit of Man Yue Technology Holdings, Ltd., Skeleton Technologies, Yunasko, Ltd., and Ioxus, Inc. The key competitive factors in the ultracapacitor industry are price, performance (energy stored and power delivered per unit volume), durability and reliability, operational lifetime and overall breadth of product offerings. We believe that our ultracapacitor products and electrode material compete favorably with respect to these competitive factors. However, pricing expectations and competition in certain markets, such as auto and wind, places significant pressure on our pricing and margins for our products, and we are continually pursing opportunities to reduce the cost of our product in order to improve our competitive position and product margins. Specifically, the hybrid transit vehicle market for ultracapacitors in China, a region which has historically represented a significant portion of our sales, has become more competitive with respect to pricing and volume requirements due to changes in government subsidy programs which appear to favor battery based energy storage solutions and also place a requirement for local product manufacturing. We performed a very thorough analysis of the current market landscape and decided to very selectively target opportunities in this market in the short-term. At the same time, our partner in China, CRRC-SRI, has completed localization requirements for the manufacturing of our ultracapacitor-based modules, and we are positioned to support customer demand for any opportunities that may meet our minimum return requirements.

Ultracapacitors also compete with products based on other technologies, including advanced batteries in power quality and peak power applications, as well as with flywheels, thermal storage and batteries in backup energy storage applications. We believe that the durability, long life, performance and value of ultracapacitors gives them a competitive advantage over these alternative choices in many applications. In addition, integration of ultracapacitors with some of these competing products may provide optimized solutions that neither product can provide by itself. For example, tier 1 auto parts supplier Continental AG designed a combined solution incorporating ultracapacitors with a battery for engine starting in a start-stop-idle elimination system for “micro hybrid” autos which was introduced in 2010 and installed in approximately two million cars by French automaker PSA Peugeot Citroen and was more recently introduced by General Motors for several models under the Cadillac brand.

High-Voltage Capacitors

Maxwell's CONDIS® line of high-voltage capacitor products, is the world's largest producer of high-voltage capacitors for use in electric utility infrastructure. Our principal competitors in the high-voltage capacitor markets are in-house production groups of certain of our customers and other independent manufacturers, such as the Coil Product Division of Trench Limited in Canada and Europe. We believe that we compete favorably, both as a consistent supplier of highly reliable high-voltage capacitors, and in terms of our expertise in high-voltage systems design. Over the last ten years, our largest customer has transitioned from producing its grading and coupling capacitors internally to outsourcing substantially all of its requirements to us.

Research and Development

We maintain active research and development programs to improve existing products and to develop new products. For the year ended December 31, 2017, our research and development expenditures totaled approximately $18.4 million, compared with $20.9 million and $24.7 million in the years ended December 31, 2016 and December 31, 2015, respectively. In general, we focus our research and product development activities on:

- designing and producing products that perform reliably for the life of the application or systems into which they are integrated;
- designing efficient manufacturing with low scrap rates to achieve improved profit margins and to enable us to reduce prices to allow our products to penetrate new and price-sensitive applications;
- designing our products to have superior technical performance;
- designing our products to be compact and light;
- designing new products that provide novel solutions to expand our market opportunities; and
- designing new products that convert customer requirements into fully integrated system solutions with built-in intelligence and interface capabilities.

Our current research, development and engineering activities are focused on:

- electrode fabrication and material science, including activated carbon, electrolyte, electrically conductive materials, dielectric materials and ceramics to reduce cost and improve performance, reliability and ease of manufacturing;
- product design and manufacturing processes for high-volume manufacturing; and
- development of integration technologies, including proprietary hardware and software solutions and robust mechanical designs, that are incorporated into complete “plug and play” system solutions.

Dry Battery Electrode

The principal focus for our dry battery electrode development efforts is to demonstrate the applicability of our high volume, low cost dry electrode fabrication process as it relates to state of the art lithium-ion battery electrode materials. Upon demonstration of this process in large scale, it is expected that our dry electrodes will deliver performance and cost advantages when compared to state of the art lithium-ion battery technology.

Energy Storage

The principal focus of our ultracapacitor development activities is to increase power and energy density, reduce internal resistance, extend operational life, reduce manufacturing cost and increase integration with host applications. Our ultracapacitor designs focus on low-cost, high-capacity cells in standard sizes ranging from 1 to 3,400 farads, multi-cell modules based on various form factors and complete subsystem solutions using proprietary hardware, software and mechanical designs. Our system designs may be specific to a single customer or be intended for more general use by a variety of customers.

High-Voltage Capacitors

The principal focus of our high-voltage capacitor development efforts is to enhance performance and reliability while reducing the size, weight and manufacturing cost of our products. We also are directing our design efforts to develop high-voltage capacitors and dividers for additional applications and solutions.

Intellectual Property

We place a strong emphasis on inventing, protecting and exploiting proprietary technologies, processes and designs which bring intrinsic value and uniqueness to our product portfolio. We place a high priority on obtaining patents to provide the broadest and strongest possible protection for our products, technologies and other strategic initiatives. Our continued success will depend in part on our ability to protect our existing patents and to secure patent protection on developing technologies. As of December 31, 2017, we held 93 issued U.S. patents and 20 published pending U.S. patent applications which relate to our core technologies, processes and designs. Of these issued patents, 86 relate to our dry battery electrode and ultracapacitor products and technology and 7 relate to our high-voltage capacitor products and technology.

Our pending and any future patent applications may not survive the challenges of patent prosecution in the jurisdictions in which we file throughout the world; however, our strategy is to focus on countries generating revenue as well as markets which we deem key to our business strategies and objectives. We routinely seek patent protection in the United States and the principal countries of Europe and Asia. At present, we do not rely on licenses from any third parties to produce our products.

Our existing patent portfolios and pending patent applications relate primarily to:

Dry Battery Electrode

- compositions of the electrode, including its formulation, design and fabrication techniques; and
- materials science associated with raw material components.

Energy Storage

- compositions of the electrode, including its formulation, design and fabrication techniques;
- materials science associated with raw material components;
- physical cell package designs as well as the affiliated processes used in cell assembly;
- cell-to-cell and module-to-module interconnect technologies that minimize equivalent series resistance and enhance the functionality, performance and longevity of ultracapacitor products including system level electronics; and
- module and system designs that facilitate applications of ultracapacitor technology.

High-Voltage Capacitors

- physical cell package designs as well as the affiliated processes used in cell assembly;
- component selection to enable compliance with environmental regulations with minimal sacrifice to product performance; and
- manufacture of capacitors in a manner which significantly reduces exposure of internal components to impurities, moisture and other undesirable materials in an effort to avoid longer manufacturing times and reduced performance characteristics without these technological advancements.

Historically, our high-voltage capacitor products have been based on our know-how and trade secrets rather than on patents. We filed our first patent application covering our high-voltage capacitor technology in 2003, and we continue to pursue patent protection in addition to trade secret protection of certain aspects of our products' design and production.

While our primary strategy for protecting our proprietary technologies, processes and designs is related to obtaining patents, we also apply for trademark registrations which identify us as the source of the products. Additionally, we promote our technologies, processes and designs in association with these registered trademarks to further distinguish our products from those of our competitors. As of December 31, 2017, we had seven formal trademark registrations within the U.S.

Establishing and protecting proprietary products and technologies is a key element of our corporate strategy. Although we attempt to protect our intellectual property rights through patents, trademarks, copyrights, trade secrets and other measures, there can be no assurance that these steps will be adequate to prevent infringement, misappropriation or another misuse by third parties, or will be adequate under the laws of some foreign countries, which may not protect our intellectual property rights to the same extent as do the laws of the U.S.

We use employee and third-party confidentiality and nondisclosure agreements to protect our trade secrets and unpatented know-how. We require each of our employees to enter into a proprietary rights and nondisclosure agreement in which the employee agrees to maintain the confidentiality of all our proprietary information and, subject to certain exceptions, to assign to us all rights in any proprietary information or technology made or contributed by the employee during his or her employment with us. In addition, we regularly enter into nondisclosure agreements with third parties, such as potential product development partners and customers, to protect any information disclosed in the pursuit of securing possible fruitful business endeavors.

Financial Information by Geographic Areas

	Years ended December 31,								
	2017			2016			2015		
	Amount	Percent		Amount	Percent		Amount	Percent	
Revenue from external customers located in[1]:	(Dollars in thousands)								
China	$44,945	35	%	$48,191	40	%	$87,856	53	%
United States	13,874	11	%	12,041	10	%	20,836	12	%
Germany	16,287	12	%	12,854	10	%	13,972	8	%
Hungary	13,454	10	%	11,473	9	%	11,630	7	%
All other countries [2]	41,808	32	%	36,685	31	%	33,078	20	%
Total	$130,368	100	%	$121,244	100	%	$167,372	100	%

(1) Location is determined by shipment destination

(2) Revenue from external customers located in countries included in “All other countries” does not individually comprise more than 10% of total revenue for any of the years presented.

	Years ended December 31,								
	2017			2016			2015		
	Amount	Percent		Amount	Percent		Amount	Percent	
Long-lived assets:	(Dollars in thousands)								
United States	$14,443	51	%	$19,267	74	%	$22,267	69	%
China	1,107	4	%	1,477	6	%	4,148	13	%
South Korea	4,398	16	%	—	—	%	—	—	%
Switzerland	8,096	29	%	5,376	20	%	6,021	18	%
Total	$28,044	100	%	$26,120	100	%	$32,436	100	%

Revenue by Product Line:

	Years ended December 31,								
	2017			2016			2015		
	Amount	Percent		Amount	Percent		Amount	Percent	
	(Dollars in thousands)								
Ultracapacitors	$87,709	67	%	$71,491	59	%	$114,525	68	%
High-voltage capacitors	42,659	33	%	45,177	37	%	41,718	25	%
Microelectronic products [1]	—	—	%	4,576	4	%	11,129	7	%
Total	$130,368	100	%	$121,244	100	%	$167,372	100	%

(1) The microelectronics product line was sold in April 2016.

Risks Attendant to Foreign Operations and Dependence

We have substantial operations in Switzerland and South Korea, and we derive a significant portion of our revenue from sales to customers located outside the U.S. We expect our international sales to continue to represent a significant amount of our future revenue. As a result, our business will continue to be subject to certain risks, such as those imposed by domestic laws and regulations related to topics such as export controls and interactions with foreign officials as well as foreign government regulations, including, notably, changes in tax laws, tax treaties, tariffs and freight rates. To the extent that we are unable to respond effectively to political, economic and other conditions in the countries where we operate and do business, our results of operations and financial condition could be materially adversely affected. Some of our business partners also have international operations and are subject to the risks described above. Even if we are able to successfully manage the risks of international operations, our business may be adversely affected if our business partners are not able to successfully manage these risks as well.

Having substantial international operations also increases the complexity of managing our financial reporting and internal controls and procedures. Additionally, as a result of our extensive international operations and significant revenue generated outside the U.S., the dollar amount of our current and future revenue, expenses and debt may be materially affected by fluctuations in foreign currency exchange rates. Similarly, assets and liabilities of our Swiss and South Korean subsidiaries that are not denominated in their functional currencies are subject to effects of currency fluctuations, which may affect our reported earnings. Also, changes in the mix of income from our domestic and foreign operations, expiration of tax holidays and changes in tax laws and regulations could increase our tax expense. If we are unable to manage these risks effectively, it could impair our ability to achieve our targets for revenue and profitability.

As a result of our status as a publicly traded company within the U.S., we are subject to the U.S. Foreign Corrupt Practices Act ("FCPA"), which prohibits companies from making improper payments to foreign officials for the purpose of obtaining or retaining business. Additionally, as a result of our international operations, we could also be subject to the anti-bribery laws of other jurisdictions which vary slightly from jurisdiction to jurisdiction and may be different than the FCPA. If we fail to comply with anti-bribery laws and regulations, we could be subject to civil and/or criminal penalties as well as expenses related to any internal investigation.

Backlog

Product backlog as of December 31, 2017 was approximately $21.4 million, compared with $26.1 million as of December 31, 2016. Backlog consists of firm orders for products that will be delivered within 12 months. The actual amount of backlog at any particular time may not be a meaningful indicator of future business prospects as this amount is impacted by a number of factors including potential cancellations of orders by our customers.

Significant Customers

One customer, ABB Ltd., accounted for 12% of total revenue in 2017. No customers accounted for 10% or more of total revenue in the year ended December 31, 2016. One customer, Shenzhen Xinlikang Supply China Management Co. Ltd., accounted for 19% of total revenue in 2015.

Government Regulation

Due to the nature of our operations, including, notably, the use of hazardous substances in some of our manufacturing and research and development activities, we are subject to stringent federal, state and local laws, rules, regulations and policies governing workplace safety and environmental protection. These include the use, generation, manufacture, storage, air emission, effluent discharge, handling and disposal of certain materials and wastes. In the course of our historical operations, materials or wastes may have spilled or been released from properties owned or leased by us or on or under other locations where these materials and wastes have been taken for disposal. These properties and the materials and wastes spilled, released, or disposed thereon are subject to environmental laws which may impose strict liability, without regard to fault of the original conduct, for remediation of contamination resulting from such releases. Under such laws and regulations, we could be required to remediate previously spilled, released, or disposed substances or wastes, or to make capital improvements to prevent future contamination. Failure to comply with such laws and regulations also could result in the assessment of substantial administrative, civil and criminal penalties and even the issuance of injunctions restricting or prohibiting our activities. It is also possible that implementation of stricter environmental laws and regulations in the future could result in additional costs or liabilities to us as well as the industry in general. While we believe we are in substantial compliance with existing environmental laws and regulations, we cannot be certain that we will not incur substantial costs in the future related to unknown liabilities.

Employees

As of December 31, 2017, we had 461 employees in five countries, as follows: 197 full-time, 1 part-time and 1 temporary employees in the U.S.; 136 full-time employees in South Korea; 84 full-time, 8 part-time and 1 temporary employees in Switzerland; 22 full-time employees in China; and 11 full-time employees in Germany. We are unable to estimate the percent of our Swiss employees that are members of a labor union, as Swiss law prohibits employers from inquiring into the union status of employees. We consider our relations with our employees to be amicable.

Available Information

We file annual, quarterly and current reports, proxy statements and other information with the Securities and Exchange Commission ("SEC"). Our SEC filings are available free of charge to the public over the Internet at the SEC's website at http://www.sec.gov. Our SEC filings are also available free of charge on our website at http://www.maxwell.com as soon as reasonably practicable following the time that they are filed with the SEC. You may also read and copy any document we file with the SEC at the SEC's Public Reference Room at 450 Fifth Street, NW, Washington, DC 20549. You may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The information found on our website is not part of this or any report that we file with the SEC.

Item 1A. Risk Factors

An investment in our common stock involves a high degree of risk. Our business, financial condition and results of operations could be seriously harmed if potentially adverse developments, some of which are described below, materialize and cannot be resolved successfully. In any such case, the market price of our common stock could decline and you may lose all or part of your investment in our common stock.

The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties, including those not presently known to us or that we currently deem immaterial, may also result in decreased revenue, increased expenses or other adverse impacts that could result in a decline in the price of our common stock. You should also refer to the other information set forth in this Annual Report on Form 10-K, including our consolidated financial statements and the related notes.

A substantial percentage of our total revenue depends on the sale of products within a small number of vertical markets and a small number of geographic regions, and the decline in the size of a vertical market or reduction of consumption within a geographic region, without offsetting growth in emerging markets, could impede our growth and profitability.

Sales within a relatively small number of vertical markets and a small number of geographic regions make up a large portion of our revenue. Our ability to grow our sales within this limited number of markets and regions depends on our ability to compete on price, delivery and quality. If a particular market into which we sell experiences a decline, then our customers will decrease their own consumption of our products thereby reducing our revenue. Additionally, a substantial portion of our revenue stems from sales to customers within a limited number of geographic regions including, notably, China and Germany. If certain factors were to arise including, for example, a catastrophic event or shift in economic health and stability within a particular region, then customers within these regions may reduce their consumption of our products resulting in reduced revenue for us. While we have focused efforts targeting growth of product acceptance in other smaller market segments, there can be no assurance that the revenue associated with these emerging markets will be able to fully or partially offset any down turn in the vertical markets where we currently maintain substantial business.

The market for dry battery electrode technology is unproven. Moreover, the successful management of dry battery electrode and other new business lines, new market applications and new product and technology introductions will be necessary for our growth, and such activities could fail to attract or retain customers or generate revenue.

The market for dry battery electrode technology is developing and may not develop as we expect. The market for new technology such as dry battery electrode technology compared to traditional lithium-ion batteries is new and evolving. Considering that the market for dry better electrode technology is unproven, it is uncertain whether it will achieve and sustain high levels of demand, consumer acceptance and market adoption in a timely fashion.

Given our position as the technology leader for certain products, solutions and technologies we offer, we have a considerable number of new product and technology concepts in the pipeline, including, among others, dry battery electrode. A critical component of our growth strategy and our future success is dependent upon our ability to effectively and accurately develop and ultimately market our dry battery electrode technology and determine which other new products, applications or technologies to pursue. Pursuing product or technology applications targeted at a specific customer base should enable our products to cross over from a narrower range of acceptance by early technology adopters to acceptance by a majority of customers in the application space. Commercial success frequently depends on being the first provider to identify the applicable market opportunities. Consequently, if we are not able to fund our research and development activities appropriately and deliver our dry battery electrode technology or other new products or technologies which address the needs of the markets we serve on a timely basis, our growth prospects will be harmed. Additionally, we must balance the benefits of gaining market acceptance in new or existing markets with the goal of optimizing growth and profitability. That is, it is critical to ensure that the products, technologies and markets we select for development are aimed at large volume or high profile applications which can provide a significant return on our investment. If we fail to identify and pursue the appropriate markets for our products and technologies, our growth potential and operating results could be adversely affected.

In addition, we have invested and expect to continue to invest in new lines of business, new products, and other initiatives to generate revenue. The investment into our dry battery electrode technology is a good example. There is no guarantee that investing in new lines of business, new products, and other initiatives will succeed. If we do not

successfully develop new approaches to monetization, we may not be able to maintain or grow our revenue as anticipated or recover any associated development costs, and our business could be seriously harmed.

Our failure to develop and introduce new products and applications or enhancements to existing products and applications on a timely basis could harm our ability to attract and retain customers.

Our industry is characterized by rapidly evolving technology, frequent product introductions and ongoing demands for greater performance and functionality. Therefore, we must continually identify, design, develop and introduce new and updated products and applications with improved features to remain competitive. Part of our strategy is to continue to develop and commercialize of our dry battery electrode technology. To introduce dry battery electrode technology and other products and applications on a timely basis we must:

- design innovative and performance-improving features that differentiate our products and applications from those of our competitors;
- identify emerging technological trends in our target markets, including new standards for our products and applications in a timely manner;
- accurately define and design new products and applications to meet market needs;
- anticipate changes in end-user preferences with respect to our customers' products;
- rapidly develop and produce these products and applications at competitive prices;
- anticipate and respond effectively to technological changes or product announcements by others; and
- provide effective technical and post-sales support for these new products and applications as they are deployed.

The process of developing dry battery electrode technology, ultracapacitor technology, high-voltage capacitor products and other new technology products and applications and enhancing existing products and applications is complex, costly and uncertain. If we fail to anticipate our customers' changing needs and emerging technological trends, our market share and results of operations could suffer. We must make long-term investments, develop or obtain appropriate intellectual property and commit significant resources before knowing whether our predictions will accurately reflect customer demand for our products and applications. If we are unable to extend our core technologies into new applications and new platforms and to anticipate or respond to technological changes, the market's acceptance of our products and applications could decline and our results would suffer. Additionally, any delay in the development, production, marketing or offering of a new product or application or enhancement to an existing product or application could result in customer attrition or impede our ability to attract new customers, causing a decline in our revenues, earnings or stock price and weakening our competitive position. We maintain strategic relationships with third parties to market certain of our products and applications and support certain functionality. If we are unsuccessful in establishing or maintaining our strategic relationships with these third parties, our ability to compete in the marketplace, to reach new customers and geographies or to grow our revenues would be impaired and our operating results would suffer.

To remain competitive and stimulate customer demand, we must introduce and commercialize new products successfully as well as adequately educate our prospective customers on the products we offer.

Our ability to compete successfully depends heavily on our ability to ensure a continuing and timely introduction of innovative new products and technologies to the marketplace. We believe that we are unique in that we are a technology leader for the technologies we deliver and typically must first educate the customer regarding the implementation of our solution in their systems before the customer is capable of designing in our products. As a result, we must make significant investments in research and development efforts, including related to our dry battery electrode technology, as well as sales and marketing efforts, including applications engineering resources. By contrast, many of our competitors, including some which are well capitalized with significant financial resources at their disposal, seek to compete primarily through aggressive pricing and very low cost structures. Moreover, current producers of lithium-ion batteries that use wet process technology, and companies developing new, alternative technologies or processes, may be developing dry battery electrode technology thereby adding to the number of competitors in the market, many of which are well-capitalized and some of which may be existing partners of ours. If we are unable to continue to develop and sell innovative new products or if we are unable to effectively educate the prospective customer on the value proposition offered by the implementation of our products, then our ability to maintain a competitive advantage could be negatively affected and our financial condition and operating results could be adversely affected.

Many of our customers are currently the benefactors of government funding or government subsidies.
Our products are currently sold into a limited number of vertical markets, some of which are either directly funded by or partially subsidized with government funding. Our dry battery electrode technology and the use of our ultracapacitor technology in certain applications is still relatively immature, and the costs associated with producing the products is perceived to be high as compared with more mature and readily understood solutions. However, many government entities have determined that they view certain prevailing interests, including, for example, reduction of pollution, to outweigh the economic costs associated with incorporating these clean technologies and therefore are willing to allocate government funding to encourage companies to produce goods which reduce pollution and energy consumption. These markets have and may continue to experience volatility when there are changes or delays in government policies and subsidy programs that support our sales into these markets. For example, over the past year, demand for our ultracapacitors in the China hybrid bus market significantly decreased due to changes in the government subsidy program as well a requirement to localize product manufacturing. Accordingly, in 2017, our sales into this market were not significant. However, to reduce our dependency on China government influences, we established a localized manufacturing partnership with CRRC-SRI, thus positioning the Company for future revenue opportunities. However, despite our efforts, it is uncertain whether our sales into the China hybrid bus market will resume or recover to historical levels.
Similarly, our high-voltage capacitor products are primarily consumed by markets which are either directly funded by or controlled by the respective government bodies in the jurisdictions where our customers do business. For example, our high-voltage capacitor products are largely used for electric utility infrastructures which are largely controlled by the respective governments supplying power and electricity to its populations. If these government entities elect to change their policies on government subsidies or decide to cancel or reduce certain government funding programs, then our customers could cancel or reduce orders for our products.
Uncertainty in the global geopolitical landscape may impede the implementation of our strategy outside the United States.
There may be uncertainty as to the position the United States will take with respect to world affairs and events following recent political and economic developments and related change in political agenda, coupled with the transition of administrations. This uncertainty may include such issues as U.S. support for existing treaty and trade relationships with other countries, including, notably, China. This uncertainty, together with other key global events during 2017 (such as recently enacted currency control regulations in China, the continuing uncertainty arising from the Brexit referendum in the United Kingdom as well as ongoing terrorist activity), may adversely impact (i) the ability or willingness of non-U.S. companies to transact business in the United States, including with us, (ii) our ability to transact business in other countries, (iii) regulation and trade agreements affecting U.S. companies, (iv) global stock markets (including The Nasdaq Global Market on which our common shares are traded), and (v) general global economic conditions. All of these factors are outside of our control, but may nonetheless cause us to adjust our strategy in order to compete effectively in global markets.
There may be changes in, and uncertainty with respect to, legislation, regulation and governmental policy due to recent elections in the United States.
The recent presidential and congressional elections in the United States have resulted and may continue to result in significant changes in, and uncertainty with respect to, legislation, regulation and government policy. While it is not possible to predict whether and when any such additional changes will occur, changes at the local, state or federal level could impact fuel cell market adoption in the U.S. and the alternative energy technologies sector in the U.S., generally. Specific legislative and regulatory proposals that could have a material impact on us include, but are not limited to, infrastructure renewal programs; and modifications to international trade policy, such as approvals by the Committee on Foreign Investment in the United States; public company reporting requirements; environmental regulation and antitrust enforcement.
The U.S. tax reform legislation, commonly referred to as the Tax Cuts and Jobs Act, was recently enacted, and we continue to analyze the implications of this new legislation.
On December 22, 2017, President Trump signed U.S. tax reform legislation, commonly referred to as the Tax Cuts and Jobs Act. The legislation significantly changes U.S. tax law by, among other things, reducing the U.S. federal corporate tax rate from 35% to 21%, implementing a territorial tax system and imposing a repatriation tax on deemed

repatriated earnings of foreign subsidiaries. While we have recorded a provisional decrease related to our deferred tax assets and liabilities of $34.7M with a corresponding adjustment to our valuation allowance for the year ended December 31, 2017, we are still analyzing certain aspects of this legislation and refining our calculations, which could potentially affect the measurement of these balances or potentially give rise to new deferred tax amounts. Moreover, there can be no assurances that this new tax reform legislation will have a favorable impact to us.

We may not be successful in growing through acquisitions or integrating effectively any businesses and operations we may acquire.

Our success depends on our ability to continually enhance and broaden our product offerings in response to changing customer demands, technology, and competitive pressures as well as entry into new vertical markets. In 2017, we completed our acquisition of substantially all of the assets and business of Nesscap Energy, Inc. (“Nesscap”), which acquisition included complementary businesses providing for the expansion of our portfolio of products. We do not know if we will be able to complete any future acquisitions or whether we will be able to successfully integrate any acquired businesses, operate them profitably, or retain their key employees.

There can be no assurance that we will be able to generate sufficient cash flow from any future acquisitions or realize any other anticipated benefits. In addition, there can be no assurance that the due diligence undertaken in connection with an acquisition will uncover all liabilities relating to the acquired business. Nor can there be any assurance that our profitability will be improved as a result of acquisitions. Any acquisition may involve operating risks, such as:

- the difficulty of assimilating the acquired operations and personnel and integrating them into our current business;
- the potential impairment of employee morale;
- the potential disruption of our ongoing business;
- preserving important strategic and customer relationships;
- the diversion of management’s attention and other resources;
- the risks of entering markets in which we have little or no experience;
- the possibility that acquisition-related liabilities that we incur or assume may prove to be more burdensome than anticipated;
- the risks associated with possible violations of the Foreign Corrupt Practices Act, the United Kingdom Bribery Act of 2010, and other anti-corruption laws as a result of any acquisition or otherwise applicable to our business; and
- the possibility that any acquired businesses do not perform as expected.

Our acquisition integration and restructuring and reorganization activities could result in management distractions, operational disruptions and other difficulties.

In the past, we have initiated restructuring and reorganization activities in an effort to improve operational efficiency, and such efforts are expected to continue in the future. These actions are intended to better align our cost structure with near-term revenue, and also to improve engineering and operational efficiencies throughout the organization. Additional reductions-in-force or reorganizations may be required as we continue to realign our business organization, operations and product lines.

While we have made significant progress in our efforts to integrate manufacturing and other operations with the acquired business of Nesscap, we are continuing these integration efforts, and they may not be successful. For example, we may encounter issues with integrating the prior management style and workplace culture of Nesscap to be more aligned with our view of management and workplace culture. We may encounter issues with the transition of products delivered to our customers from the higher cost solutions, either from our legacy facilities or Nesscap’s facility, as the case may be, to the integrated cost efficient solutions. Such difficulties, even if managed correctly, could result in delays in the actual integration of our manufacturing operations and therefore a delay in realizing anticipated reductions in expenses. Any restructuring efforts could also disrupt our ability to supply products to customers, detriment relationships with customers and other business partners, divert the attention of management away from other priorities, harm our reputation, expose us to increased risk of legal claims by terminated employees, increase our expenses, increase the workload placed upon remaining employees and cause employees to lose confidence in our future performance and decide to leave. In addition, if we continue to reduce our workforce, it may adversely impact our ability to respond rapidly to new growth opportunities or to remain competitive. Further, employees whose positions were or will be eliminated in connection with these restructuring activities or who otherwise determine to leave may seek employment with our competitors, customers or suppliers. Although each of our employees is required to sign a confidentiality agreement with us at the time of employment, which agreement contains covenants prohibiting, among other things, the disclosure or use of our confidential information and the solicitation of our employees, we cannot guarantee that the confidential nature of our proprietary information will be maintained in the course of such future employment, or that our key continuing employees will not be solicited to terminate their employment with us. We cannot guarantee that any restructuring activities undertaken in the future will

be successful, or that we will be able to realize the anticipated cost savings and other anticipated benefits from our restructuring plans.

We may not be able to obtain sufficient capital to meet our operating or other needs, which could require us to change our business strategy and result in decreased profitability and a loss of customers.

In 2017, we issued Senior Convertible Notes due in 2022 for net proceeds of $43.0 million. While we believe this funding will be sufficient to support our operations and investment priorities in the near-term, we believe that in the future we may need a substantial amount of additional capital for a number of potential purposes in furtherance of our strategic missions and growth objectives. Namely, the development of dry battery electrode technology requires a substantial amount of capital. Moreover, to meet potential growth in demand for our products, particularly for our ultracapacitor products, we will need significant resources for customized production equipment. Further, additional capital may be required to execute on our strategies related to continued expansion into commercial markets, development of new products and technologies, and acquisitions of new or complementary businesses, product lines or technologies. While we currently have a credit facility with East West Bank, this facility is scheduled to expired in July 2018, and it is uncertain whether we will be able to renew this facility on favorable terms. We also must comply with certain conditions, including, notably, certain financial covenants, in order to have access to such funds. If adequate funds are not available when needed, we may be required to change or delay our planned growth, which could result in decreased revenue and profits and loss of customers. Also, if we are to raise additional funds by issuing equity, the issuance of additional shares will result in dilution to our current stockholders. If additional financing is accomplished by the issuance of additional debt, the service cost, or interest, will reduce net income or increase net loss, and we may also be required to issue warrants to purchase shares of common stock in connection with issuing such debt.

The sale of our 5.50% Senior Convertible Notes due 2022 significantly increased our amount of long-term debt, and our financial condition and results of operations could be adversely affected if we do not efficiently manage our liabilities.

In September 2017, we issued $40.0 million aggregate principal amount of our 5.50% Senior Convertible Notes due in 2022 (the “Notes”) and an additional $6.0 million of Notes upon exercise of the initial purchaser’s option in October 2017. As a result of the sale of the Notes, we have a substantial amount of long-term debt. Our maintenance of such debt could adversely affect our financial condition and results of operations.

In addition, there are a large number of shares of common stock reserved for issuance upon the potential conversion of our Notes and the issuance of these shares may depress the market price of our common stock.

Servicing our debt requires a significant amount of cash, and we may not have sufficient cash flow from our business to pay our substantial debt.

Our ability to make scheduled payments of the principal of, to pay interest on or to refinance our indebtedness, including the Notes, depends on our future performance, which is subject to economic, financial, competitive and other factors beyond our control. Our business may not continue to generate cash flow from operations in the future sufficient to service our debt and make necessary capital expenditures. If we are unable to generate such cash flow, we may be required to adopt one or more alternatives, such as selling assets, restructuring debt or obtaining additional equity capital on terms that may be onerous or highly dilutive. Our ability to refinance our indebtedness will depend on the capital markets and our financial condition at such time. We may not be able to engage in any of these activities or engage in these activities on desirable terms, which could result in a default on our debt obligations.

The conditional conversion feature of the Notes, if triggered, may adversely affect our financial condition and operating results.

In the event the conditional conversion feature of the Notes is triggered, holders of Notes will be entitled to convert the Notes at any time during specified periods at their option. If one or more holders elect to convert their notes, unless we elect to satisfy our conversion obligation by delivering solely shares of our common stock (other than paying cash in lieu of delivering any fractional share), we would be required to settle a portion or all of our conversion obligation through the payment of cash, which could adversely affect our liquidity. In addition, even if holders do not elect to convert their notes, we could be required under applicable accounting rules to reclassify all or a portion of the outstanding principal of the Notes as a current rather than long-term liability, which would result in a material reduction of our net working capital.

Downward pressures on product pricing or changes to our product mix could adversely impact our financial condition and operating results, and such pressures or changes could even result in loss of revenue in exchange for avoidance of gross margin pressures.

We strive to manage gross margin for the products we sell. There can be no assurance that targeted gross margin percentage levels will be achieved. In general, gross margins will remain under downward pressure due to increased competition as well as a potential shift in our sales mix to lower margin business. For example, if we increase sales of our products into markets which traditionally have lower margin rates than our current business, such as the automotive market, we may be forced to reduce our margins to remain competitive. Further, we are beginning to experience significant downward pricing pressure in the Chinese hybrid transit vehicle market, which has historically represented a significant portion of our sales, as a result of changes in the government subsidy program and other market factors. If our cost reduction efforts do not keep pace with these price pressures, or if we continue to pursue certain vertical markets and reduce our margins to maintain or increase sales, then we could experience degradation in our overall profit margins. In addition, gross margins could be negatively impacted by an increase in raw materials, components and labor costs, or by changes to our product mix.

Unfavorable results of legal proceedings and regulatory investigations could materially adversely affect us.

We are subject to various legal proceedings and claims that have arisen out of the ordinary conduct of our business and are not yet resolved, and additional claims may arise in the future. Results of legal proceedings cannot be predicted with certainty. Regardless of merit, litigation may be both time-consuming and disruptive to our operations and could cause significant expense and diversion of management attention. From time to time, we are involved in major lawsuits concerning intellectual property, torts, contracts, shareholder litigation, administrative and regulatory proceedings and other matters, as well as governmental inquiries and investigations, the outcomes of which may be significant to our results of operations and may limit our ability to engage in our business activities. In recognition of these considerations, we may enter into material settlements to avoid ongoing costs and efforts in defending or pursuing a matter. Should we fail to prevail in certain matters, or should several of these matters be resolved against us in the same reporting period, we may be faced with significant monetary damages or injunctive relief against us that could adversely affect our business, financial condition and operating results. While we have insurance related to our business operations, it may not apply to or fully cover any liabilities we incur as a result of these lawsuits. We record reserves for potential liabilities where we believe the liability to be probable and reasonably estimable. However, our actual costs may be materially different from these estimates.

For example, as articulated in Item 3 - Legal Proceedings, we have several pending legal matters in the form of both government and regulatory investigations. In early 2013, we voluntarily provided information to the Enforcement Division of the SEC related to our announcement that we intended to file restated financial statements for fiscal years 2011 and 2012. On June 11, 2015 and June 16, 2016, we received subpoenas from the SEC requesting certain documents related to, among other things, the facts and circumstances surrounding the restated financial statements. We have provided documents and information to the SEC in response to the subpoenas. We entered into a tolling agreement with the SEC effective for the period beginning on September 12, 2016, and currently running through March 2, 2018. We are cooperating with the investigation and recently made an offer of settlement to resolve the matter, which is subject to approval by the SEC Commissioners. The proposed settlement would be entered into by the Company without admitting or denying the SEC’s findings and would resolve alleged violations of certain anti-fraud and books and records provisions of the federal securities laws and related rules. Under the terms of the proposed settlement, we would pay $2.8 million in a civil penalty and agree not to commit or cause any violations of certain anti-fraud and books and records provisions of the federal securities laws and related rules. There is no assurance that the proposal will be approved by the SEC Commissioners.

Further, the Swiss federal prosecutor initiated an investigation into the Company in 2013 for actions which we believe are related to the U.S. Foreign Corrupt Practices Act (“FCPA”) investigation previously settled with the SEC and Department of Justice (“DOJ”) in 2011. At this time, the Company continues to cooperate with the Swiss prosecutor and while there continues to be no resolution of this matter, the incurrence of excessive fines in accordance with Swiss bribery laws could occur and have a material adverse impact on the Company’s financial condition and results of operation. .

Additionally, these legal matters could be both time-consuming and disruptive to our business and our reputation could be harmed as a result of the allegations asserted in public statements and court documents throughout the course of the action. Consequently, our financial condition or operating results could be materially adversely affected.

Activist stockholders may attempt to effect changes to our company, which could adversely affect our corporate governance, results of operations and financial condition.

Campaigns by stockholders to effect changes at publicly traded companies are sometimes led by investors through various corporate actions, including Board nominations and proxy contests. We may become subject to one or more campaigns by stockholders who desire to increase stockholder value in the short term. If we become engaged in a proxy contest with an activist stockholder in the future, our business and operations could be adversely affected as responding to such contests or other activist stockholder actions would be costly and time-consuming, and we would expect that such actions would disrupt our operations and divert the attention of management and our employees from executing our strategic plans and product launch. In addition, if individuals are elected to our Board with a specific agenda or without relevant experience or expertise, it may adversely affect the ability of the Board to function effectively, as well as our ability to effectively and timely implement our strategic plans, which are focused on building shareholder value. Any perceived uncertainties as to our future direction as a result of stockholder activism or changes to the composition of our Board may lead to the perception of a change in the direction of our business and instability or lack of continuity with respect to our products which may cause concerns for our customers or be exploited by our competitors. As a result, we could experience significant volatility and a decline of our stock price, the loss of potential business opportunities and difficulties in attracting and retaining qualified personnel and customers. For example, we entered into an amended and restated settlement agreement with an activist stockholder in September 2017 pursuant to which, among other things, we agreed to keep the authorized number of our Board of Director's at eight (8) members through the conclusion of the 2018 Annual Meeting. There can be no assurance that we will not be subject to additional campaigns by the same or other stockholders now or in the future.

Our business is subject to risks related to its international operations, including risks related to changing rules and regulations in countries where our business is conducted.

We derive a significant portion of our revenue and earnings from international operations. Such operations outside the U.S. are subject to special risks and restrictions, including: fluctuations in currency values and foreign currency exchange rates, import and export requirements and trade policy, anti-corruption laws, tax laws (including U.S. and foreign taxes on foreign subsidiaries), foreign exchange controls, cash repatriation restrictions, tax implications on inter-company arrangements, data privacy requirements, labor laws, anti-competition regulations, and other potentially detrimental domestic and foreign governmental practices or policies affecting U.S. companies doing business abroad. Compliance with these U.S. and foreign laws and regulations increases the costs of doing business in foreign jurisdictions and these costs may continue to increase in the future as a result of changes in such laws and regulations or in their interpretation. Furthermore, we have implemented policies and procedures designed to ensure compliance with these laws and regulations, but there can be no assurance that our employees, contractors, or agents will not violate such laws and regulations or our policies. Any violations of rules and regulations could individually or in the aggregate materially adversely affect our financial condition or operating results. Some of our business partners also have international operations and are subject to the risks described above. Even if we are able to successfully manage the risks of international operations, our business may be adversely affected if our business partners are not able to successfully manage these risks.

Our success could be negatively impacted if we fail to control, oversee and direct foreign subsidiaries and their operations.

We currently own foreign subsidiaries located within Europe and Asia where the employees and cultures represent certain vast differences from employees and cultures within the United States where our corporate headquarters is situated. While the cultural values and philosophies of the people located in Europe and portions of Asia are generally viewed to be in alignment with that of U.S. persons, there are still some significant differences. For example, the respective European data privacy laws take a harsher position regarding the protection of employee personal data and, consequently, there is less information shared with the U.S. parent corporation regarding employees working for our European subsidiaries. Additionally, the human resources and the systems our foreign entities use can be vastly different; notably, our Swiss, Korean, German, and Chinese subsidiaries utilize a primary language other than English for communications. Having substantial international operations also increases the complexity of managing our financial reporting and internal controls and procedures. If we are unable to manage these risks effectively, it could negatively impact our operating performance and our reputation.

Our exposure to fluctuations in foreign currency exchange rates arising from international operations could harm our financial condition and operating results.

As a result of our extensive international operations and significant revenue generated outside the U.S., the dollar amount of our current and future revenue, expenses and debt may be materially affected by fluctuations in foreign currency exchange rates. Our primary exposure to movements in foreign currency exchange rates relates to non-U.S. dollar denominated sales in Europe as well as non-U.S. dollar denominated operating expenses incurred throughout the world. Weakening of foreign currencies relative to the U.S. dollar will adversely affect the U.S. dollar value of our foreign currency-denominated sales and earnings, and generally could lead us to raise international pricing, potentially reducing demand for our products. In some circumstances, due to competition or other reasons, we may decide not to raise local prices to the full extent to offset unfavorable exchange rate fluctuations, or at all, which would adversely affect the U.S. dollar value of our foreign currency denominated sales and earnings. Conversely, a strengthening of foreign currencies, while generally beneficial to our foreign currency-denominated sales and earnings, could cause us to realize a reduction in our overall gross margin as the U.S. dollar value of our foreign currency-denominated expenses increases. In an effort to minimize volatility in our statement of operations from transactions denominated in foreign currencies, we employ efforts to maintain our significant operating activities in the local currencies of our each of our operating entities, and minimize activities in non-local currencies for which foreign currency exchange rate changes would impact our operating results, however, we cannot assure that our efforts will be successful.

As a result of the recent inflation in the value of the Swiss Franc against many other currencies, the prices for our high-voltage products, which are denominated primarily in Swiss Francs, became less affordable to customers that trade in these other currencies. This may result in a decrease in sales of our high-voltage products, or we could be required to reduce our prices, and thereby our profit margins, to maintain our market share.

Our business activities are subject to the FCPA and other anti-bribery laws. If we fail to comply with anti-bribery laws and regulations, we could be subject to civil and/or criminal penalties as well as further expenses related to an additional internal investigation.

Due to our status as a U.S. issuer, we are subject to the FCPA, which prohibits companies from making, promising or offering improper payments or other things of value to foreign officials for the purpose of obtaining or retaining business or a business advantage. In January 2011, we reached settlements with the SEC and DOJ with respect to charges asserted regarding certain payments made to an independent third-party sales agent in China for our high-voltage capacitor products produced by our Swiss subsidiary, Maxwell SA. As a result, we were required to pay monetary fines totaling $14.4 million, and to implement additional remedial measures to strengthen our compliance program concerning anti-bribery.

Due to our operations in Switzerland, we are subject to Swiss anti-bribery regulations. In August 2013, our Swiss subsidiary was served with a search warrant from the Swiss federal prosecutor’s office. Based upon our exposure to the case, we believe this action to be related to the same or similar facts and circumstances as the FCPA action previously settled with the SEC and the DOJ. At this time, the Company continues to cooperate with the Swiss prosecutor and while there continues to be no resolution of this matter, the incurrence of excessive fines in accordance with Swiss bribery laws could occur and have a material adverse impact on the Company’s financial condition and results of operation.

We depend upon component and product manufacturing and logistical services provided by third parties, many of whom are located outside of the U.S.

Substantially all of our components and products are manufactured in whole or in part by a few third-party manufacturers. Many of these manufacturers are located outside of the U.S. and are all located within a relatively small geographic location. If a catastrophic event occurs within this area, or the social or economic conditions shift within this geography, we could experience business interruptions, delayed delivery of products, or other adverse impacts to our ongoing business. We have also outsourced much of our transportation and logistics management. While these arrangements may lower operating costs, they also reduce our direct control over production and distribution. Such diminished control could have an adverse effect on the quality or quantity of our products as well as our flexibility to respond to changing conditions. In addition, we rely on third-party manufacturers to adhere to the terms and conditions of the agreements in place with each party. For example, although arrangements with such

manufacturers may contain provisions for warranty expense reimbursement, we may remain responsible to the customer for warranty service in the event of product defects. Any unanticipated product defect or warranty liability, whether pursuant to arrangements with contract manufacturers or otherwise, could adversely affect our reputation, financial condition and operating results.

Our success as a reliable supplier to our customers is highly dependent upon our ability to effectively manage our reliance upon certain suppliers of key component parts, finished goods and specialty equipment.

Because we currently obtain certain key components including, but not limited to binder, separator, paper, aluminum piece parts, die, printed circuit boards and certain finished goods, including, notably, ultracapacitor finished goods, from single or limited sources, we are subject to significant supply and pricing risks. If the particular supplier is unable to provide the appropriate quantity and/or quality of the raw material or the finished goods at the prices required, then we will be unable to produce and deliver our goods to customers, thereby losing out on revenue generation and, potentially, incurring penalties for failing to timely perform. For example, a substantial portion of our revenue is generated from finished goods supplied to us from a single contract manufacturer. If this contract manufacturer is unable to supply the finished goods to us to meet our customer demand, then we could be forced to decline acceptance of customer orders, which could lead to, among other things, a reputation that we are an unreliable supplier and a decline in future demand for our products. Additionally, if we are not aware of potential constraints upon our contract manufacturer for these finished goods before we enter into binding supply commitments with our own customers, then we could be required to pay damages to the customers. While we have established mitigation strategies to attempt to minimize the likelihood and impact of an inability to supply finished goods due to supplier constraints, we cannot be certain that such mitigation strategies will eliminate an adverse effect to our financial condition.

Additionally, we use some custom components that are not common to the rest of the industries served by our suppliers and which are often available from only one source. Also, when a component or product uses new technologies, initial capacity constraints may exist until the particular supplier’s yield has matured or manufacturing capacity has increased. Continued availability of these components at acceptable prices, or at all, may be affected if those suppliers decide to concentrate on the production of common components instead of components customized to meet our unique requirements. If the supply of a key single-sourced component for a new or existing product were delayed or constrained, if such components were available only at significantly higher prices, or if a key manufacturing vendor delayed shipments of completed products to us, then our financial condition and operating results could be adversely affected.

Conversely, diversifying our supplier base to ensure that we have multiple suppliers for each key raw material typically involves additional costs including, but not limited to: higher prices for the raw materials as a direct consequence of purchasing lower volumes from each supplier; additional costs associated with qualifying additional suppliers; and increased resource expense in managing an additional supplier for factors including quality, timely delivery and other standards. If we fail to balance the interests between the reliance upon a single supplier and expense associated with diversifying the supply chain base, then our actual gross profit could fail to meet our targets.

Competition in the energy storage domain has significantly affected, and will continue to affect, our sales.

Many companies are engaged in or are starting to engage in designing, developing and producing energy storage solutions as a consequence of the movement towards clean energy solutions in both the commercial and public sectors. Consequently, more companies are pursuing opportunities in the energy storage domain and are beginning to compete in the markets in which we do business. The success of these new competitors could render our products less competitive, resulting in reduced sales compared with our expectations or past results. Certain companies which recently initiated efforts to enter the markets in which we do business, including, notably, in China, possess greater access to capital resources or utilize different product development strategies which vary in both time to market and innovation methodologies. Consequently, these companies could develop products that are superior to ours, more competitively priced than ours or faster to market than ours. Additionally, significant amounts of U.S. government funds are being invested in the development of batteries with better performance characteristics or lower manufacturing costs than battery technologies currently on the market and, consequently, these new, advanced batteries that include power delivery functionality could compete for market share with our dry battery electrode technology or ultracapacitor products. Moreover, as the market leader for certain markets for energy storage, competitors often follow our lead in the advancement of technologies for energy storage or customers attempt to facilitate second sources of comparable products, thereby requiring us to innovate rapidly in order to continue to serve as the market leader. The success of the technologies and products offered by our competitors could reduce our market share, thereby negatively impacting our financial results.

Our success depends largely on the acquisition of, as well as the continued availability and service of, key personnel.
Much of our future success depends on the continued availability and service of key personnel, including our chief executive officer and senior executive management team as well as highly-skilled employees in technical, marketing and staff positions. Due to the complexity and immaturity of the technologies involved in the products we produce and the markets we serve, we may be unable to find the right personnel with the background needed to serve our goals and objectives. As a market leader for the technologies we develop, there are limited opportunities to hire personnel from competitors or other technology companies with substantial background and experience in our technology fields. Consequently, we seek to hire individuals who are capable of performing well in an environment with limited resources and references to past experiences. We may struggle to find such talented personnel who also thrive in a high growth business atmosphere and who are capable of keeping pace with the rapidly changing environment encouraged by the technologies we create and the markets we serve. These uniquely talented personnel are in high demand in the technology industry and competition for acquiring such individuals is intense. Some of our scientists and engineers are the key developers of our products and technologies and are recognized as leaders in their area of expertise. Without attracting and retaining personnel with the appropriate skill sets, we could fail to maintain our technological and competitive advantage.

Our products and services may experience quality or implementation problems from time to time that could result in decreased sales and operating margin, and could tarnish our reputation.

Our dry battery electrode technology is new, and our ultracapacitor products also represent a relatively new technology, in each case which could contain defects in design or manufacture, or could be implemented incorrectly in the end use application. As a direct consequence of the introduction of new features for our technology as well as new implementations by our customer base, we are still learning about the potential quality issues that could arise during operation in certain applications. Consequently, we are not always capable of anticipating the quality or implementation problems which the products may experience in the field. Products sold into high performance environments such as heavy transportation, automotive markets or grid infrastructure installations could experience additional operating characteristics that could unexpectedly interfere with the intended operation of our products. For example, if the end use application is in an environment which subjects the products to levels of vibration above our internal design and qualification levels, then the products could fail to achieve the customer’s performance requirements. With this sometimes limited understanding of the application and operation of our products in varying end user implementations, our customers may perceive our products as exhibiting quality problems, which could harm our reputation. We strive to respond quickly in addressing the concerns of our customers by modifying our products and assisting our customers in designing new implementation or installation strategies to achieve higher performance characteristics or to satisfy new or modified applications of our products. As such, the release time of next generation products or application solutions can be relatively quick, and we may assume additional risks associated with expediting the release of new or modified products.

We are also building our infrastructure to adequately and efficiently handle any potential recall and the reverse logistics involved in returning our products to our facilities in the event that any defects are found. There can be no assurance that we will be able to detect and fix all defects in the products we sell or will be able to efficiently handle all issues related to product returns or implementation concerns. As we continue to pursue additional vertical markets, we are gaining a better understanding of certain business practices of these markets with respect to potential product recalls. For example, certain portions of the transportation industry are sensitive to product recall issues as they relate to both government regulations as well as customer satisfaction and safety. Failure to successfully prevent a defect in our products which prompts a recall or a failure to successfully manage expenses associated with any recalls could cause lost revenue, harm to our reputation, and significant warranty and other expenses, and result in an adverse impact on our financial condition and operating results.

Efforts to protect our intellectual property rights and to defend claims against us could increase our costs and will not always succeed; any failures could adversely affect sales and profitability and restrict our ability to do business.
Intellectual property ("IP") rights are crucial to maintaining our competitive advantage and growing our business. We endeavor to obtain and protect our IP rights which we feel will allow us to retain or advance our competitive advantage in the marketplace. However, there can be no assurance that we will be able to adequately identify and protect the portions of IP which are strategic to our business, including, without limitation, IP related to dry battery electrode technology which remains under development and a key part of our strategy. Generally, when strategic IP rights are identified, we will seek formal protection in jurisdictions in which our products are produced or used, jurisdictions in which competitors are producing or importing their products, and jurisdictions into which our products are imported. Different nations may provide limited rights and inconsistent duration of protection for our products. Additionally, we may be unable to obtain protection for or defend our IP in key jurisdictions. For example, the patent prosecution and enforcement system within China is less mature than the systems in other jurisdictions and therefore we may be more limited in our ability to enforce our rights. This disadvantage would likely be compounded by the challenge of any enforcement attempts by us as a foreign entity seeking protection against a Chinese company infringing on our IP in China.
Even if protection is obtained, competitors or others in the chain of commerce may raise legal challenges to our rights or illegally infringe our rights, including through means that may be difficult to prevent or detect. For example, a certain portion of our IP portfolio is related to unique process steps performed during the manufacture of our products which are not readily recognizable in the physical embodiment of the final product. It may be difficult to identify and prove that a competitor is infringing on our rights to such process steps. Further, we are required to divulge certain of our IP to our business partners to enable them to provide quality products or raw materials to us or enable the exploitation and success of strategic partnerships. To the extent that such disclosure occurs in China or other jurisdictions in which the ability to protect IP is more limited, existing or new competitors in this region could begin to use our IP in the development of their own products, which could reduce our competitive edge. Even in jurisdictions in which IP is highly valued, and therefore protected, the financial burden of asserting or defending our IP rights could prove to be cost prohibitive for us thereby putting us in a position in which we must sacrifice our competitive edge.
In addition, because of the rapid pace of technology advancements, and the confidentiality of patent applications in some jurisdictions, competitors may be issued patents stemming from pending patent applications that were unknown to us prior to issuance of the patents. This could reduce the value of our commercial or pipeline products or, to the extent they cover key technologies on which we have unknowingly relied, require that we seek to obtain a license or cease using the technology, no matter how valuable to our business. We may not be able to obtain such a license on acceptable terms. The extent to which we succeed or fail in our efforts to protect our IP will affect our financial condition and results of operations.
Our inability to effectively identify, enter into, manage and benefit from strategic alliances, may limit our ability to pursue certain growth objectives and/or strategies.
Our reputation is important to our growth and success. As a leader in an emerging technology industry, we recognize the value in identifying, selecting and managing key strategic alliances. We are mainly focusing our business on the specific products we deliver and pursuit of strategic alliances with other companies could allow us to provide customers with integrated or other new products, services, or technology advancements derived from the alliances. To be successful, we must first be able to define and identify opportunities which align with our growth plan. Additionally, we cannot be certain that our alliance partners will provide us with the support we anticipate, that such alliance or other relationships will be successful in advancing technology, or that any alliances or other relationships will be successful in manufacturing and marketing new or improved products. Our success is also highly dependent upon our ability to manage the respective parameters of all strategic alliances, promote the benefits to us, and to not prohibit or discourage other opportunities which may be beneficial to us in the future. Also, certain provisions of alliance agreements may include restrictions that limit our ability to independently pursue or exploit the developments under such strategic alliances. Currently, we have alliances with several partners both in the U.S. and throughout the world. We anticipate that future alliances may also be with foreign partners or entities. As a result, such alliances may be subject to the political climate and economies of the foreign countries where such partners reside and operate. If the

strategic alliances we pursue are not successful, our business and prospects could be negatively affected.

Should a catastrophic event or other significant business interruption occur at any of our facilities, we could face significant reconstruction or remediation costs, penalties, third-party liability and loss of production capacity, which could adversely affect our business.

Weather conditions, natural disasters or other catastrophic events could cause significant disruptions in operations, including, specifically, disruptions at our manufacturing facilities or those of our major suppliers or customers. In turn, the quality, cost and volumes of the products we produce and sell could be unexpectedly, negatively affected, which will impact our sales and profitability. Natural disasters or industrial accidents could also damage our manufacturing facilities or infrastructure, or those of our major suppliers or major customers, which could affect our costs, production volumes and demand for our products. However, we have implemented certain mitigation strategies to ensure that certain components and processes involved in the manufacture of our component materials and finished goods are somehow temporarily available so as to reduce the impact of such a catastrophic event.

War, terrorism, geopolitical uncertainties, public health issues, and other business interruptions have caused and could cause damage or disruption to international commerce and the global economy, and thus could have a strong negative effect on us, our suppliers, logistics providers, manufacturing partners and customers. Our business operations could be subject to interruption by power shortages, terrorist attacks and other hostile acts, labor disputes, public health issues, and other events beyond our control. Such events could decrease demand for our products, make it difficult or impossible for us to produce and deliver products to our customers, or to receive components from our suppliers, thereby creating delays and inefficiencies in our supply chain. Should major public health issues, including pandemics, arise, we could be negatively affected by more stringent employee travel restrictions, additional limitations in freight services, governmental actions limiting the movement of products between regions, and disruptions in the operations of our manufacturing partners and component suppliers. The majority of our research and development activities, our corporate headquarters, information technology systems, and other critical business operations, including certain component suppliers and manufacturing partners, are in locations that could be affected by natural disasters. In the event of a natural disaster, losses could be incurred and significant recovery time could be required to resume operations and our financial condition and operating results could be materially adversely affected. While we may purchase insurance policies to cover the direct economic impact experienced following a natural disaster occurring at one of our own facilities, there can be no assurance that such insurance policies will cover the full extent of our financial loss nor will they cover losses which are not economic in nature such as, for example, our business and reputation as a reliable supplier.

We may be subject to information technology systems failures, network disruptions, breaches in data security and computer crime and cyber-attacks.

Information technology system failures, network disruptions, breaches of data security and sophisticated and targeted computer crime and cyber-attacks could disrupt our operations by impeding the manufacture or shipment of products, the processing of transactions or reporting of financial results, or by causing an unintentional disclosure of confidential information. Despite our security measures, our information technology and infrastructure may be vulnerable to attacks by hackers or breached due to employee error, malfeasance or other disruptions. Any such breach could compromise our networks and the information stored there could be accessed, publicly disclosed, lost or stolen. In the ordinary course of our business, we collect and store sensitive data in our data centers and on our networks, including IP, proprietary business information, and personal information of our business partners and employees. Despite our efforts to protect sensitive, confidential or personal data or information, our facilities and systems and those of our third-party service providers may be vulnerable to security breaches, theft, misplaced or lost data, programming and/or human errors that could potentially lead to the compromising of sensitive, confidential or personal data or information, improper use of our systems, software solutions or networks, unauthorized access, use, disclosure, modification or destruction of information, defective products, production downtimes and operational disruptions, which in turn could adversely affect our reputation, competitiveness and results of operations. While management has taken steps to address these concerns by employee training, implementing certain data and system redundancy, hardening and fail-over along with other network security, comprehensive monitoring of our networks and systems, maintenance of backup and protective systems and other internal control measures, there can be no assurance that the measures we have implemented to date would be sufficient in the event of a system failure, loss of data or security breach. As a result, in the event of such a failure, loss of data or security breach, our financial

condition and operating results could be adversely affected.

Security breaches and other disruptions could compromise our information and expose us to liability, which would cause our business and reputation to suffer.
In the ordinary course of our business, we collect and store sensitive data, including IP, our proprietary business information and that of our customers, suppliers and business partners, and personally identifiable information of our customers and employees, in our data centers and on our networks. The secure processing, maintenance and transmission of this information is critical to our operations and business strategy. Despite our security measures, our information technology and infrastructure may be vulnerable to attacks by hackers or breached due to employee error, malfeasance or other disruptions. Any such breach could compromise our networks and the information stored there could be accessed, publicly disclosed, lost or stolen. Any such access, disclosure or other loss of information could result in legal claims or proceedings, liability under laws that protect the privacy of personal information, regulatory penalties, disruption of our operations and the services we provide to customers, and damage to our reputation, which could adversely affect our financial results and competitive position.
Our ability to match our production plans for our ultracapacitor products to the level of product actually demanded by customers has a significant effect on our sales, costs and growth potential.
Customers' decisions are affected by market, economic and government regulation conditions which can be difficult to accurately gauge in advance. In addition, many of the markets for our ultracapacitor products are within emerging industries as well as within project-oriented business models and, as such, it can be difficult to predict our future customer demand. Failure to provide customers and channel partners with demanded quantities of our products could reduce our sales. Conversely, increased capacity which exceeds actual customer demands for our products increases our costs and, consequently, reduces our profit margins on the products delivered. Although we have implemented policies and procedures for refining our forecasting methods, including a more sophisticated mechanism for gauging the sales pipeline to better project timing of new customer demand, there can be no assurance that these policies and procedures will provide accurate intelligence to align our production plans with customer demands. As a result of all of these factors, we could fail to meet revenue or profit margin targets.
Our reputation could be damaged as a result of negative publicity due to the restatement of prior periods financial statements contained within our Annual Report on Form 10-K for the fiscal year ended December 31, 2012, and the underlying business causes of such restatement.
We depend upon our reputation to compete for customers, suppliers, investors, strategic partners and personnel. Unfavorable publicity can damage our reputation and negatively impact our economic performance. Our restatement of our prior periods financial statements contained within our Annual Report on Form 10-K for the fiscal year ended December 31, 2012, and the underlying business causes of such restatement, could damage our reputation. For example, in June 2015 and June 2016, the Company received subpoenas from the SEC requesting certain documents related to, among other things, the facts and circumstances surrounding the restated financial statements. The Company has provided documents and information to the SEC in response to the subpoenas. We entered into a tolling agreement with the SEC effective for the period beginning on September 12, 2016, and currently running through March 2, 2018. We are cooperating with the investigation and recently made an offer of settlement to resolve the matter, which is subject to approval by the SEC Commissioners. The proposed settlement would be entered into by the Company without admitting or denying the SEC's findings and would resolve alleged violations of certain anti-fraud and books and records provisions of the federal securities laws and related rules. Under the terms of the proposed settlement, we would pay $2.8 million in a civil penalty and agree not to commit or cause any violations of certain anti-fraud and books and records provisions of the federal securities laws and related rules. However, we cannot ensure that the ultimate outcome of this investigation will align with this proposed settlement, and there can also be no assurance that unfavorable publicity arising from this matter will not have a material adverse effect on our business.
Our ability to use our tax net operating loss carryforwards is dependent upon the generation of future taxable income, and the absence of significant ownership changes to our common stock.
As of December 31, 2017, we had U.S. federal tax and state tax net operating loss carryforwards of approximately $219.0 million and $37.7 million, respectively. Realization of any benefit from our tax net operating losses is dependent on both our ability to generate future taxable income before our net operating loss carryforwards expire, as well as the absence of certain "ownership changes" to our common stock. An "ownership change," as defined in the

applicable federal income tax rules, would place significant limitations, on an annual basis, on the use of such net operating losses to offset any future taxable income we may generate. The issuance of shares of our common stock, including the issuance of shares of common stock upon future conversion or exercise of outstanding stock options, could cause such an "ownership change." Such limitations triggered by an "ownership change," in conjunction with the net operating loss expiration provisions, could effectively eliminate our ability to use a substantial portion of our net operating loss carryforwards to offset any future taxable income.

Our stock price continues to be volatile.

Our stock has at times experienced substantial price volatility due to a number of factors, including but not limited to the various factors set forth in this “Risk Factors” section, as well as variations between our actual and anticipated financial results, announcements by us or our competitors, and uncertainty about future global economic conditions. The stock market as a whole also has experienced extreme price and volume fluctuations that have affected the market price of many technology companies in ways that may have been unrelated to these companies’ operating performance. Furthermore, we believe our stock price may reflect certain future growth and profitability expectations. If we fail to meet these expectations, our stock price may significantly decline which could have an adverse impact on investor confidence and employee retention.

Anti-takeover provisions in our certificate of incorporation and bylaws could prevent certain transactions and could make a takeover more difficult.

Some provisions in our certificate of incorporation and bylaws could make it more difficult for a third-party to acquire control of us, even if such change in control would be beneficial to our stockholders. We have a classified board of directors, which means that our directors are divided into three classes that are elected to three-year terms on a staggered basis. Since the three-year terms of each class overlap the terms of the other classes of directors, the entire board of directors cannot be replaced in any one year. Furthermore, our certificate of incorporation contains a “fair price provision” which may require a potential acquirer to obtain the consent of our board to any business combination involving us. Our certificate of incorporation and bylaws also contain provisions barring stockholder action by written consent unless first approved by a majority of the disinterested directors, and the calling by stockholders of a special meeting. Amendment of such provisions requires a super majority vote by the stockholders, except with the consent of the board of directors and a majority of the disinterested directors in certain circumstances. The provisions of our certificate of incorporation and bylaws could delay, deter or prevent a merger, tender offer, or other business combination or change in control involving us that stockholders might consider to be in their best interests. This includes offers or attempted takeovers that could result in our stockholders receiving a premium over the market price for their shares of our common stock.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Our primary operations are located in San Diego, California; Peoria, Arizona; Rossens, Switzerland; and Yongin, South Korea. We occupy a 36,400 square foot facility in San Diego, California for our principal research and development operations under a lease that expires in March 2023. We also occupy a 30,500 square foot corporate office located in San Diego, California under a lease that expires in April 2023, and we have one five-year renewal option thereafter. Our Peoria, Arizona manufacturing facility occupies 123,000 square feet under a lease that expires in June 2027, and we have one five-year renewal option thereafter. We also lease a research, manufacturing and marketing facility in Rossens, Switzerland occupying 60,800 square feet under a lease that expires in December 2019, and we have two five-year renewal options thereafter. Following our acquisition of Nesscap in April 2017, we lease a research, manufacturing and marketing facility in Yongin, South Korea occupying 53,000 square feet under a lease that expires in January 2019, and we have one three-year renewal option thereafter.

We have a 6,000 square foot sales office in Shanghai, China under a lease expiring in September 2019, and we have a two-year renewal option thereafter. We also have a small sales office in Munich, Germany.

We believe that we have sufficient space to support forecasted production volume and that our facilities are adequate to meet our needs for the foreseeable future. However, in 2017, we began implementing plans to expand capacity at our high-voltage capacitor facility in Rossens, Switzerland, as well as our small-cell ultracapacitor facility in Yongin, South Korea, in order to in order to meet projected demand for these products. For additional information regarding our expected capital expenditures in fiscal 2018, see Item 7, Management’s Discussion and Analysis of Financial Condition and Results of Operations-Liquidity and Capital Resources.

Over the past several years, we have made substantial capital investments to outfit and expand our internal production facilities and incorporate mechanization and automation techniques and processes. Additionally, we have trained our manufacturing personnel in the necessary operational techniques. We have completed certain upgrades and expansions in recent years and, even in the context of manufacturing consolidation efforts, we have capacity flexibility and are

able to accommodate other upgrades. Including consideration of our contract manufacturing relationships with Belton Technology Group and Tianjin Lishen Battery Joint-Stock Co. Ltd. in China, as well as our planned facilities expansions discussed above, we believe that we have sufficient capacity to meet near-term demand for all of our product lines.

Item 3. Legal Proceedings

FCPA Matter

In January 2011, the Company reached settlements with the U.S. Securities and Exchange Commission ("SEC") and the U.S. Department of Justice ("DOJ") with respect to charges asserted by the SEC and DOJ relating to the anti-bribery, books and records, internal controls, and disclosure provisions of the U.S. Foreign Corrupt Practices Act ("FCPA") and other securities laws violations. The Company paid the monetary penalties under these settlements in installments such that all monetary penalties were paid in full by January 2013. With respect to the DOJ charges, a judgment of dismissal was issued in the U.S. District Court for the Southern District of California on March 28, 2014.

On October 15, 2013, the Company received an informal notice from the DOJ that an indictment against the former Senior Vice President and General Manager of its Swiss subsidiary had been filed in the United States District Court for the Southern District of California. The indictment is against the individual, a former officer, and not against the Company and the Company does not foresee that further penalties or fines could be assessed against it as a corporate entity for this matter. However, the Company may be required throughout the term of the action to advance the legal fees and costs incurred by the individual defendant and to incur other financial obligations. While the Company maintains directors' and officers' insurance policies which are intended to cover legal expenses related to its indemnification obligations in situations such as these, the Company cannot determine if and to what extent the insurance policy will cover the ongoing legal fees for this matter. Accordingly, the legal fees that may be incurred by the Company in defending this former officer could have a material impact on its financial condition and results of operation.

Swiss Bribery Matter

In August 2013, the Company's Swiss subsidiary was served with a search warrant from the Swiss federal prosecutor's office. At the end of the search, the Swiss federal prosecutor presented the Company with a listing of the materials gathered by the representatives and then removed the materials from its premises for keeping at the prosecutor's office. Based upon the Company's exposure to the case, the Company believes this action to be related to the same or similar facts and circumstances as the FCPA action previously settled with the SEC and the DOJ. During initial discussions, the Swiss prosecutor has acknowledged both the existence of the Company's deferred prosecution agreement with the DOJ and its cooperation efforts thereunder, both of which should have a positive impact on discussions going forward. Additionally, other than the activities previously reviewed in conjunction with the SEC and DOJ matters under the FCPA, the Company has no reason to believe that additional facts or circumstances are under review by the Swiss authorities. To date, the Swiss prosecutor has not issued its formal decision as to whether the charges will be brought against individuals or the Company or whether the proceeding will be abandoned. At this time, the Company continues to cooperate with the Swiss prosecutor and while there continues to be no resolution of this matter, the incurrence of excessive fines in accordance with Swiss bribery laws could occur and have a material adverse impact on the Company's financial condition and results of operation.

Government Investigations

In early 2013, the Company voluntarily provided information to the SEC and the United States Attorney's Office for the Southern District of California related to its announcement that it intended to file restated financial statements for fiscal years 2011 and 2012. On June 11, 2015 and June 16, 2016, the Company received subpoenas from the SEC requesting certain documents related to, among other things, the facts and circumstances surrounding the restated financial statements. The Company has provided documents and information to the SEC in response to the subpoenas. In September 2016, the Company entered into a tolling agreement effective for the period beginning on September 12, 2016, and running through June 30, 2017, with the SEC related to these matters. In June 2017, the Company entered into an amended and restated version of this tolling agreement effective for the period beginning on September 12, 2016, and running through October 31, 2017. In November 2017, the Company entered into an amended and restated version of this tolling agreement effective for the period beginning on September 12, 2016, and running through December 22, 2017. In December 2017, the Company entered into another amended and restated version of this tolling agreement effective for the period beginning on September 12, 2016, and running through March 2, 2018. The Company is cooperating with the investigation and recently made an offer of settlement to resolve the matter, which is subject to approval by the SEC Commissioners. The proposed settlement would be entered into by the Company without admitting or denying the SEC's findings and would resolve alleged violations of certain anti-fraud and books

and records provisions of the federal securities laws and related rules. Under the terms of the proposed settlement, the Company would pay $2.8 million in a civil penalty and agree not to commit or cause any violations of certain anti-fraud and books and records provisions of the federal securities laws and related rules. In the third quarter of 2017, the Company has made a corresponding accrual for the settlement amount as an operating expense in its financial statements.

Item 4. Mine Safety Disclosures.
Not applicable.

PART II

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

Our common stock has been quoted on the NASDAQ Global Market under the symbol “MXWL” since 1983. The following table sets forth the high and low sale prices per share of our common stock as reported on the NASDAQ Global Market for the periods indicated.

	High	Low
Year Ended December 31, 2017		
First Quarter	$5.88	$4.63
Second Quarter	6.48	5.34
Third Quarter	6.61	4.77
Fourth Quarter	6.15	4.29
Year Ended December 31, 2016		
First Quarter	$7.39	$4.81
Second Quarter	6.72	4.75
Third Quarter	5.67	4.20
Fourth Quarter	5.63	4.39

As of February 9, 2018, there were 276 registered holders of our common stock, and 92 registered holders of restricted common stock that was granted under our equity compensation plans. Because many of our shares of common stock are held by brokers or other institutions on behalf of stockholders, we are unable to estimate the total number of stockholders represented by the record holders.

Dividend Policy

We have never declared or paid cash dividends on our capital stock. We currently anticipate that any earnings will be retained for the development and expansion of our business and, therefore, we do not anticipate paying cash dividends on our capital stock in the foreseeable future.

Recent Sales of Unregistered Securities

As previously disclosed on its Current Report on Form 8-K filed on September 26, 2017 with the Securities and Exchange Commission (“SEC”), on September 25, 2017, the Company completed the sale and issuance of $40 million aggregate principal amount of 5.50% Convertible Senior Notes due 2022 (the “Notes”). On October 12, 2017, the Company announced the sale of an additional $6.0 million in Notes. The Company issued the Notes to Barclays Capital, Inc. (the “initial purchaser) in a private placement in reliance on Section 4(a)(2) of the Securities Act of 1933, as amended (the “Securities Act”) and for initial resale by the initial purchaser to qualified institutional buyers pursuant to the exemption from registration provided by Rule 144A under the Securities Act. The Company relied on these exemptions from registration based in part on representations made by the initial purchaser. The Notes and the shares of the Company’s common stock issuable upon conversion of the Notes, if any, have not been registered under the Securities Act and may not be offered or sold in the United States absent registration or an applicable exemption from registration requirements.

The initial conversion rate is 157.5101 shares of common stock of the Company per $1,000 principal amount of Notes, which is equal to an initial conversion price of approximately $6.35 per share. The conversion rate will be subject to adjustment in some events but will not be adjusted for any accrued and unpaid interest. The Company will satisfy its conversion obligation in cash, shares of its common stock or a combination of cash and shares of its common stock, at its election. In addition, following certain corporate events that occur prior to the maturity date or if the Company delivers a notice of redemption, the Company will increase the conversion rate for a holder who elects to convert its Notes in connection with such a corporate event or such notice of redemption, as the case may be, in certain circumstances.

Equity Compensation Plans

The information required by this item is incorporated by reference to Part III, Item 12, Security Ownership of Certain Beneficial Owners and Management and Related Stockholders Matters, included in this Annual Report on Form 10-K.

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Issuer Purchases of Equity Securities

None.

Stock Performance Graph

The following graph shows a five-year comparison of cumulative total return (equal to dividends plus stock appreciation) for our Common Stock, the NASDAQ Composite Index and the Russell 2000. Total stockholder returns for prior periods are not an indication of future investment returns. We chose the Russell 2000 index because it is comprised of issuers with similar market capitalizations. We do not believe that we can reasonably identify a comparable peer group of issuers or an industry or line-of-business index appropriate for comparison.

Item 6. Selected Financial Data

The selected consolidated financial data presented below is for each fiscal year in the five-year period ended December 31, 2017. The financial data for the years ended December 31, 2017, 2016, and 2015 is derived from, and is qualified by reference to, the audited consolidated financial statements that are included in this Annual Report on Form 10-K. The financial data for the years ended December 31, 2014 and 2013 is derived from audited, consolidated financial statements which are not included in this Annual Report on Form 10-K. The selected consolidated financial data presented below should be read in conjunction with the information contained in Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the consolidated financial statements and notes thereto included in Item 8 of this Form 10-K, in order to understand the factors that may affect the comparability of the financial data presented below.

	Years Ended December 31,				
	2017	2016	2015	2014	2013
	(In thousands, except per share data)				
Consolidated Statement of Operations Data:					
Total revenue	$130,368	$121,244	$167,372	$186,586	$193,534
Net income (loss)	$(43,129)	$(23,705)	$(22,333)	$(6,272)	$6,340
Net income (loss) per share					
Basic	$(1.22)	$(0.74)	$(0.73)	$(0.21)	$0.22
Diluted	$(1.22)	$(0.74)	$(0.73)	$(0.21)	$0.22

	As of December 31,				
	2017	2016	2015	2014	2013
	(In thousands)				
Consolidated Balance Sheet Data:					
Total assets	$205,379	$140,874	$172,013	$186,600	$190,087
Cash and cash equivalents	$50,122	$25,359	$24,382	$24,732	$30,647
Short-term borrowings and current portion of long-term debt	$33	$40	$42	$15,549	$7,914
Long-term debt, excluding current portion	$35,124	$43	$49	$20	$100
Stockholders' equity	$106,101	$100,822	$119,176	$126,953	$140,210
Shares outstanding	37,200	32,135	31,782	29,846	29,563

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

The following discussion of our financial condition and results of operations for the years ended December 31, 2017, 2016 and 2015 should be read in conjunction with our consolidated financial statements and the related notes included in Item 8, Financial Statements and Supplementary Data, of this Annual Report on Form 10-K. In addition, the discussion contains forward-looking statements that are subject to risks and uncertainties, including estimates based on our judgment. These estimates include, but are not limited to, assessing the collectability of accounts receivable, applied and unapplied production costs, production capacities, the usage and recoverability of inventories and long-lived assets, deferred income taxes, pension assets and liabilities, the incurrence of warranty obligations, impairment of goodwill, estimation of the cost to complete certain projects, future revenue and other operating results, cash balances and access to liquidity, accruals for estimated losses from legal matters and estimation of the value of stock-based compensation awards, including the probability that the performance criteria of equity awards will be met. For further discussion regarding forward looking statements, see the section of this Annual Report on Form 10-K entitled Special Note Regarding Forward-Looking Statements.

Management's Discussion and Analysis of Financial Condition and Results of Operations ("MD&A") is designed to provide a reader of our financial statements with a narrative from the perspective of our management on our financial condition, results of operations, liquidity and certain other factors that may affect our future results. Our MD&A is presented in the following sections:

- Executive Overview
- Recent Highlights
- Results of Operations
- Liquidity and Capital Resources
- Contractual Obligations
- Critical Accounting Estimates
- Impact of Inflation
- Recent Accounting Pronouncements
- Off Balance Sheet Arrangements

Executive Overview

Maxwell is a global leader in developing, manufacturing and marketing energy storage and power delivery products for transportation, industrial and other applications. Our products are designed and manufactured to perform reliably with minimal maintenance for the life of the applications into which they are integrated, which we believe gives our products a key competitive advantage. We have two product lines: energy storage, which consists primarily of ultracapacitors, with applications in multiple industries, including transportation and grid energy storage and high-voltage capacitors applied mainly in electrical utility infrastructure. In addition to these two existing product lines, we are focused on developing our dry battery electrode technology, which leverages our core dry electrode process technology that we have used to manufacture our ultracapacitors for many years, and which we believe could be a ground breaking technology for lithium-ion batteries, particularly in the electric vehicle market.

Our primary objective is to offer innovative products to our customers and to diversify our business to provide for increased revenue and position the Company for accelerated, profitable growth thereby ultimately creating value for our shareholders. The key components of our strategy include (1) commercializing our dry battery electrode technology, which we believe is a unique and innovative technology with a potentially large market opportunity, particularly for electric vehicles, (2) optimizing our energy storage product portfolio to drive business diversification, achieve scale, and transition to higher growth opportunities in a large and growing market, and (3) maintaining and expanding our leadership position and market share for our high-voltage product line, which provides the opportunity for steady long-term growth in a solid market.

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For our dry battery electrode technology, we are focused on demonstrating the ability of our core technology to satisfy the increasing performance demands for lithium-ion batteries. We believe that our dry electrode technology has the potential to be a significant technology within the lithium-ion battery industry with substantial market opportunity, particularly for use in electric vehicles. By applying our patent-protected, proprietary and fundamental dry electrode manufacturing technology and trade secrets to batteries of varying chemistries, we believe we can create significant performance and cost benefits. To that end, in 2016, we entered into a "proof of concept" joint development agreement with a leading global automotive OEM and a global tier one automotive supplier on a proof-of-concept basis to validate dry battery electrode performance on a pilot scale, and in 2017 we materially completed this proof-of-concept, which we believe demonstrates the significant performance and cost advantages of our dry electrode manufacturing process for use in lithium ion-batteries. In 2018, we plan to begin to build a pilot-scale manufacturing facility to further prove the benefits and manufacturability of this technology, and also to highly focus on attaining broader, scale-up agreements with our current and prospective partners in order to accelerate the commercialization of this technology.

In order to optimize our energy storage portfolio, over the last year, we have made steady progress leveraging our core competencies by diversifying our ultracapacitor products and solidifying our product roadmap with innovative new complete system solution offerings as we transition to higher growth market opportunities in automotive, grid energy storage, rail and wind. In 2017, we acquired the core business and operating entities of Nesscap Energy, Inc. ("Nesscap") in order to drive customer diversification, achieve scale and position the business to win high growth opportunities. We combined Nesscap's best-in-class small cell product portfolio with Maxwell's leadership in large cell solutions to create the most complete portfolio available in the market for our customers.

We also seek to maintain and expand market share and revenue for our high-voltage capacitors. Evolving market trends in the global high-voltage market, particularly in the United States, China, and India, where we believe projects to increase the availability of electrical energy as well as infrastructure modernization and renovation may continue to increase demand for our high-voltage products and solutions in the years to come. We are in the process of expanding capacity at our existing high-voltage capacitor production facility in Rossens, Switzerland in order to meet projected demand and increase our revenue potential.

In 2017, we issued $46.0 million aggregate principal amount of 5.50% convertible senior notes due 2022 for net proceeds of $43.0 million after deducting the initial purchaser's discount and offering expenses payable by us. We intend to use the net proceeds from the offering for general corporate purposes, which may include research and development expenses, capital expenditures, working capital and general and administrative expenses.

On April 28, 2017, we acquired the core business and operating entities of Nesscap, a developer and manufacturer of ultracapacitor products for use in transportation, renewable energy, industrial and consumer markets, in exchange for the issuance of approximately 4.1 million shares of Maxwell common stock (the "Share Consideration") and the assumption of certain liabilities. The value of the Share Consideration was approximately $25.3 million based on the closing price of our common stock on April 28, 2017. The Nesscap Acquisition adds complementary businesses to our operations and expands our portfolio of products, which we believe adds value for our customers and shareholders.

In February 2017, we announced a restructuring plan to implement a wide range of organizational efficiencies and cost reduction opportunities to better align our costs with near term revenue. In connection with the restructuring plan, we incurred restructuring charges of approximately $0.9 million, primarily related to employee severances. We anticipate annual cost savings between $2.5 million and $3.0 million as a result of this restructuring plan, including a benefit of approximately $1.9 million realized in fiscal 2017.

Following our acquisition of the core business and operating entities of Nesscap, in September 2017, we initiated an additional restructuring plan to optimize headcount in connection with the acquisition and integration of the Nesscap business, as well as to implement additional organizational efficiencies. Total charges for the September 2017 restructuring plan were approximately $1.2 million, primarily related to cash expenditures associated with employee severances. We anticipate annual cost savings between $0.7 million and $1.0 million as a result of this restructuring plan, including a benefit of $0.3 million to $0.4 million realized in fiscal 2017.

In 2017, revenue was $130.4 million compared with $121.2 million in 2016, representing an overall increase of 8%. The increase is primarily attributable to higher revenue for our ultracapacitor products, for which revenue increased by

23% to $87.7 million in 2017 from $71.5 million in 2016. The increase in ultracapacitor product revenue was primarily due to higher sales related to wind applications, which was mainly driven by the Nesscap Acquisition, as well as higher sales related to automotive and other emerging market applications.
Revenue for our high-voltage capacitor products was $42.7 million in 2017 compared with $45.2 million for the prior year, representing a decrease of 6%. Due to the sale of the product line in April 2016, there was no microelectronics product revenue in 2017 compared with $4.6 million in 2016.

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Overall gross margin for fiscal year 2017 decreased to 22% compared with 27% in 2016, primarily associated with a change in product mix as 2017 includes lower sales of higher margin microelectronics and high-voltage products. In addition, the recognition of acquired inventory at fair value and the amortization of acquired intangibles related to the Nesscap Acquisition also resulted in lower margins. Operating expenses in 2017 increased to 51% of revenue, compared with 48% of revenue in the prior year, primarily attributable to several significant expenses including a proposed $2.8 million settlement with the SEC in 2017 related to our 2011 and 2012 restatement, the implementation of our restructuring plans in February and September of 2017, and transaction expenses related to our acquisition of Nesscap, partially offset by lower operating expenses due to our restructuring and cost reduction efforts.

As of December 31, 2017, we had cash and cash equivalents of $50.1 million. Management believes that this available cash balance will be sufficient to fund our operations, obligations as they become due and capital investments for at least the next twelve months. In addition, we have a revolving line of credit available up to a maximum of $25.0 million, subject to a borrowing base limitation, and we have not borrowed any amounts under this facility to date. This facility is scheduled to expire in July 2018. In the future, we may decide to supplement existing cash and planned cash flow from operations with additional debt or equity financings.

Going forward, we intend to continue focusing on our strategic priorities, as described above. In order to achieve our strategic objectives, we will need to overcome risks and challenges facing our business. A significant challenge we face is our ability to manage dependence on a small number of vertical markets and geographic regions, including some that are driven by government policies and subsidy programs. The markets may decline or experience slower rates of growth when there are changes or delays in government policies and subsidy programs. Specifically, the Chinese hybrid transit bus and wind energy markets are heavily dependent on government regulation and subsidy programs. Over the past year, demand for our ultracapacitors in the China hybrid bus market significantly decreased due to changes in the government subsidy program as well as a requirement to localize product manufacturing. To reduce our dependency on China government influences, we established a localized manufacturing partnership with CRRC-SRI, and we are positioned to support customer demand for any opportunities that may meet our return requirement.

Another significant challenge we face for our ultracapacitors relates to pricing expectations and competition in certain markets, such as auto and wind, which places significant pressure on our pricing and margins for our products, and we are continually pursing opportunities to reduce the cost of our product in order to improve our competitive position and product margins. Specifically, the hybrid transit vehicle market for ultracapacitors in China, a region which has historically represented a significant portion of our sales, has become more competitive with respect to pricing and volume requirements. Accordingly, we performed a very thorough analysis of the current market landscape and decided to very selectively target opportunities in this market in the short-term.

Other significant risks and challenges we face include the ability to achieve profitability; the ability to develop our management team, product development infrastructure and manufacturing capacity optimization to facilitate profitable growth; competing technologies that may capture market share and interfere with our planned growth; difficulties in executing our restructuring activities; and hiring, developing and retaining key personnel critical to the execution of our strategy. We are attentive to these risks and are focusing on overcoming risks in order to achieve our key objectives.

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Recent Highlights

We are continuing to focus on introducing new products, winning new customers, developing new product applications, adjusting production capacity, reducing costs to align with near-term revenue forecasts, and improving production and other operational processes. Some of these efforts are described below:

- In January 2017, we announced a definitive agreement with CRRC-SRI to localize manufacturing of our ultracapacitor-based modules for use in the China new energy bus market. This agreement extends our strategic partnership with CRRC-SRI and enables us to potentially compete more effectively in the China bus market moving forward.
- In February 2017, we announced that we entered into an agreement to acquire substantially all of the assets and business of Nesscap Energy, Inc., a developer and manufacturer of ultracapacitor products for use in transportation, renewable energy, industrial and consumer markets. On April 28, 2017, we completed this acquisition through the issuance of approximately 4.1 million shares of Maxwell common stock and the assumption of certain liabilities. The acquisition adds complementary businesses to our operations and expands our portfolio of products, which we believe adds value for our customers and shareholders.
- In September 2017, we announced an offering of $40 million aggregate principal amount of 5.50% Convertible Senior Notes due 2022 (the "Notes") in a private offering to qualified institutional buyers pursuant to Rule 144A under the Securities Act of 1933, as amended. We also granted to the initial purchaser of the notes a 30-day option to purchase up to an additional $6.0 million aggregate principal amount of the Notes. The sale of the Notes to the initial purchaser settled on September 25, 2017 and resulted in approximately $37.3 million in net proceeds after deducting fees and estimated offering expenses payable by us.
- In October 2017, we announced the sale of an additional $6.0 million in aggregate principal amount of our Notes in a private offering to qualified institutional buyers pursuant to Rule 144A under the Securities Act of 1933, as amended, pursuant to the initial purchaser's exercise of their option to purchase additional notes and resulted in approximately $5.7 million in additional net proceeds after deducting the initial purchaser’s discount. The sale of the additional Notes settled on October 11, 2017 and the additional Notes were sold on the same terms in all respects as the 5.50% convertible senior notes due 2022 previously issued on September 25, 2017.

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Results of Operations

Comparison of Years Ended December 31, 2017, 2016 and 2015

The following table presents certain statement of operations data expressed as a percentage of revenue for the periods indicated:

	Years Ended December 31,		
	2017	2016	2015
Total revenue	100 %	100 %	100 %
Cost of revenue	78 %	73 %	70 %
Gross profit	22 %	27 %	30 %
Operating expenses:			
Selling, general and administrative	35 %	30 %	24 %
Research and development	14 %	17 %	15 %
Restructuring and exit costs	2 %	— %	2 %
Impairment of assets	— %	1 %	— %
Total operating expenses	51 %	48 %	41 %
Loss from operations	(29)%	(21)%	(11)%
Interest expense, net	1 %	— %	— %
Gain on sale of product line	— %	(5)%	— %
Loss before income taxes	(30)%	(16)%	(11)%
Income tax provision	3 %	3 %	2 %
Net loss	(33)%	(19)%	(13)%

Net loss reported for 2017 was $43.1 million, or $1.22 per share, compared with a net loss in 2016 of $23.7 million, or $0.74 per share, and a net loss in 2015 of $22.3 million, or $0.73 per diluted share.

The increase in net loss of $19.4 million in 2017 compared with 2016 was primarily related to the following:

- a $6.7 million gain in 2016 from the sale of our microelectronics product line;
- a $4.2 million decline in gross profit associated with an increase in product costs due to higher unabsorbed fixed costs related to lower production volumes, a change in product mix which includes lower sales of higher margin microelectronics and high-voltage products, the recognition of acquired inventory at fair value and the amortization of acquired intangibles related to the Nesscap Acquisition, as well as a reduction in pricing for our ultracapacitor products;
- $2.8 million of expense recorded in 2017 for the proposed settlement with the SEC related to our 2011 and 2012 restatement;
- a $3.7 million increase in stock compensation expense due to a difference in expected performance under the 2017 bonus plan compared to the 2016 plan, unusually high forfeitures during the first quarter of 2016 related to our 2015 restructuring plan, as well as a change in award mix to include market-condition RSUs which have a higher expense;
- a $2.0 million increase in restructuring charges mainly related to our 2017 restructuring plans to implement a wide range of organizational efficiency and to optimize headcount in connection with the acquisition and integration of the business of Nesscap;
- $1.9 million of transaction costs in 2017 related to the Nesscap Acquisition,
- a $1.5 million benefit in the second quarter of 2016 from the release of a foreign tax liability due to the lapse of a statute of limitation; and
- an offsetting effect from savings in operating expenses associated with our restructuring and ongoing cost reduction efforts.

The increase in net loss of $1.4 million in 2016 compared with 2015 was driven by a decline in revenue of 28% and a decline in gross profit of 35%, which were primarily related to changes in China's government subsidy programs for hybrid transit vehicles. The effect of these declines was largely offset by a $6.7 million gain from the sale of our microelectronics product line as well as savings in 2016 from our restructuring and cost reduction efforts.

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Revenue and Gross Profit

The following table presents revenue, cost of revenue and gross profit for the years ended December 31, 2017, 2016 and 2015 (in thousands, except percentages):

	Years Ended December 31,			2017 vs. 2016		2016 vs. 2015	
	2017	2016	2015	Decrease	% Change	Decrease	% Change
Revenue	$130,368	$121,244	$167,372	$9,124	8 %	$(46,128)	(28)%
Cost of revenue	101,573	88,274	116,410	13,299	15 %	(28,136)	(24)%
% of Revenue	78 %	73 %	70 %				
Gross profit	$28,795	$32,970	$50,962	$(4,175)	(13)%	$(17,992)	(35)%
% of Revenue	22 %	27 %	30 %				

Revenue

During 2017, revenue increased 8% to $130.4 million, compared with $121.2 million in the prior year. This increase in revenue was primarily related to higher revenue for our ultracapacitor product line which increased by $16.2 million, or 23%, to $87.7 million from $71.5 million. The increase in ultracapacitor product revenue was primarily due to higher sales related to wind applications, which was primarily driven by the Nesscap Acquisition, as well as higher sales related to automotive and other emerging market applications. The increase in ultracapacitor product revenue in 2017 was composed of higher volume of $19.8 million, partially offset by lower prices of $3.6 million. Revenue for our high-voltage products decreased by $2.5 million to $42.7 million in 2017, compared with $45.2 million for the prior year. This decrease was due to the timing of certain high-voltage capacitor end user projects and associated revenue. Due to the sale of the product line in April 2016, there was no microelectronics product revenue for the year ended December 31, 2017 compared with $4.6 million for the year ended December 31, 2016.

During 2016, revenue decreased 28% to $121.2 million, compared with $167.4 million in the prior year. This decrease in revenue was primarily related to lower revenue for our ultracapacitor product line which decreased by $43.0 million, or 38%, to $71.5 million from $114.5 million.

The decrease in ultracapacitor product revenue in 2016 was driven by lower sales volume of $44.9 million which was primarily due to government subsidy program changes in China, particularly a proposed requirement to localize product manufacturing, which significantly decreased sales for hybrid transit vehicle applications. The lower hybrid transit vehicle volume was partially offset by higher volume for rail transit applications. Ultracapacitor product revenue was also negatively affected by lower prices of $2.3 million and positively impacted by $4.2 million of other changes primarily related to product mix.

Revenue for our high-voltage products increased by $3.5 million to $45.2 million in 2016, compared with $41.7 million for the prior year. This increase was primarily driven by increased infrastructure renewal investment by the Canadian government. Revenue for our microelectronics products decreased by $6.6 million to $4.6 million for the 2016 compared with $11.1 million for the 2015, due to the sale of this product line in April 2016.

The following table presents revenue mix by product line for the years ended December 31, 2017, 2016 and 2015:

	Years Ended December 31,		
	2017	2016	2015
Ultracapacitors	67 %	59 %	68 %
High-voltage capacitors	33 %	37 %	25 %
Microelectronics products	— %	4 %	7 %
Total	100%	100%	100%

A substantial amount of our revenue is generated through our Swiss subsidiary which has a functional currency of the Swiss Franc. As such, reported revenue can be materially impacted by changes in exchange rates between the Swiss Franc and the U.S. Dollar, our reporting currency. Due to the minimal change in exchange rates between the U.S. Dollar and Swiss Franc during 2017 compared with 2016, revenue was not significantly impacted. Due to the strengthening of the U.S. Dollar against the Swiss Franc during 2016 compared with 2015, revenue was negatively impacted by $1.1 million.

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Gross Profit and Gross Margin.

During 2017, gross profit decreased $4.2 million, or 13%, to $28.8 million compared with $33.0 million in the prior year. As a percentage of revenue, gross margin decreased to 22% in 2017 compared with 27% in the prior year. The decreases in gross profit and gross margin were associated with an increase in product costs due to higher unabsorbed fixed costs related to lower production volumes, a change in product mix which includes lower sales of higher margin microelectronics and high-voltage products, the recognition of acquired inventory at fair value and the amortization of acquired intangibles related to the Nesscap Acquisition, as well as a reduction in pricing for our ultracapacitor products.

During 2016, gross profit decreased $18.0 million, or 35%, to $33.0 million compared with $51.0 million in the prior year. As a percentage of revenue, gross margin decreased to 27% in 2016 compared with 30% in the prior year. These decrease were associated with lower revenue, primarily due to lower sales volume, a change in product mix which no longer includes sales of higher margin microelectronics products, an increase in product costs due to higher unabsorbed fixed costs associated with the lower production volumes, as well as a less significant impact from a reduction in pricing for our ultracapacitor products.

Selling, General and Administrative Expense

The following table presents selling, general and administrative expense for the years ended December 31, 2017, 2016 and 2015 (in thousands, except percentages):

	Years Ended December 31,			2017 vs. 2016		2016 vs. 2015	
	2017	2016	2015	Increase	% Change	Decrease	% Change
Selling, general and administrative	$45,818	$36,281	$40,758	$9,537	26 %	$(4,477)	(11)%
% of Revenue	35 %	30 %	24 %				

Selling, general and administrative expenses for 2017 increased by $9.5 million, or 26%, compared with 2016. Selling, general and administrative expenses increased to 35% of revenue, up from 30% in 2016. This increase primarily related to a $2.9 million increase in stock compensation expense due to a difference in expected performance under our 2017 bonus plan compared with 2016, a change in award mix to include market-condition RSUs which have a higher expense, and unusually high forfeitures during the first quarter of 2016 related to our 2015 restructuring plan; $2.8 million of expense recorded in 2017 for the proposed settlement with the SEC related to our 2011 and 2012 restatement; $1.9 million of transaction costs related to the Nesscap acquisition; a $1.3 million release of a foreign payroll tax liability in the second quarter of 2016; and, a $2.0 million increase in operating expenses associated with the acquisition of the business of Nesscap. These increases were partially offset by various decreases related to our restructuring and ongoing cost reduction efforts.

Selling, general and administrative expenses for 2016 decreased by $4.5 million, or 11%, compared with 2015. This decrease primarily related to a decrease of $1.7 million in labor costs related to headcount reductions in connection with our restructuring and sale of the microelectronics product line, a decrease of $1.7 million related to lower legal costs associated with the ongoing SEC and FCPA investigations, a decrease of $1.3 million related to the release of a foreign payroll tax liability due to the lapse of a statute of limitations, as well as various expense savings related to our restructuring and cost reduction efforts and sale of the microelectronics product line. These decreases were partially offset by an increase of $1.2 million in stock compensation expense related to our 2016 management bonus plan, whereas our bonus plan was suspended for 2015. Selling, general and administrative expenses increased to 30% of revenue, up from 24% in 2015.

Research and Development Expense

The following table presents research and development expense for the years ended December 31, 2017, 2016 and 2015 (in thousands, except percentage):

	Years Ended December 31,			2017 vs. 2016		2016 vs. 2015	
	2017	2016	2015	Decrease	% Change	Decrease	% Change
Research and development	$18,351	$20,889	$24,697	$(2,538)	(12)%	$(3,808)	(15)%
% of Revenue	14 %	17 %	15 %				

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Research and development expenses for 2017 decreased by $2.5 million, or 12%, compared with 2016. Research and development expenses decreased to 14% of revenue, down from 17% in 2016. The decrease was primarily associated with a decrease of $1.6 million in labor and headcount-related costs primarily related to our restructuring and cost reduction efforts and sale of the microelectronics product line, an increase of $1.0 million in third-party funding under cost-sharing arrangements, as well as other decreases related to our restructuring and cost reduction efforts. These decreases in expenses were partially offset by an increase of $0.6 million in stock compensation expense due to a difference in expected performance under our 2017 bonus plan compared with 2016, a change in award mix to include market-condition RSUs which have a higher expense, and unusually high forfeitures during the first quarter of 2016 related to our 2015 restructuring plan.

Research and development expenses for 2016 decreased by $3.8 million, or 15%, compared with 2015. The decrease was primarily associated with a decrease of $1.1 million in labor and headcount-related costs primarily related to our restructuring and cost reduction efforts and sale of the microelectronics product line, an increase of $0.9 million in third-party funding under cost-sharing arrangements, as well as other decreases related to our restructuring and cost reduction efforts and sale of the microelectronics product line, such as a decrease of $0.7 million in outsourced research and development services, a decrease of $0.5 million in facilities costs and a decrease of $0.5 million in tool and supply expenses. Research and development expenses increased to 17% of revenue, up from 15% in 2015.

Restructuring and Exit Costs

In September 2017, the Company initiated a restructuring plan to optimize headcount in connection with the acquisition and integration of the business of Nesscap, as well as to implement additional organizational efficiencies. Total charges for the year ended December 31, 2017 for the September 2017 restructuring plan were approximately $1.2 million.

In February 2017, the Company implemented a comprehensive restructuring plan that included a wide range of organizational efficiency initiatives and other cost reduction opportunities. Total charges for the year ended December 31, 2017 for the February 2017 restructuring plan were approximately $0.9 million.

The charges related to both of the 2017 restructuring plans consist of employee severance costs and have been or will be paid in cash. The charges were recorded within "restructuring and exit costs" in the consolidated statements of operations. The following table summarizes our restructuring and exit costs related to the 2017 restructuring plans for the year ended December 31, 2017 (in thousands):

	February 2017 Plan	September 2017 Plan
	Employee Severance Costs	
Restructuring plans liability as of December 31, 2016	$ —	$ —
Costs incurred	997	1,275
Amounts paid	(855)	(431)
Accruals released	(142)	(27)
Restructuring liability as of December 31, 2017	$ —	$ 817

In 2015, the Company initiated a restructuring plan to consolidate U.S. manufacturing operations and to reduce headcount and operating expenses in order to align the Company's cost structure with the business forecast and to improve operational efficiency. The 2015 plan also included the disposition of the Company's microelectronics product line which was completed in April 2016. With the exception of ongoing cost assumptions related to our exit of a portion of a leased facility, the plan was completed in 2016. Total restructuring and exit costs for the 2015 plan were $3.0 million, which included $1.5 million in facilities costs related to the consolidation of manufacturing operations, $1.2 million in employee severance costs and $0.3 million in other exit costs. The Company also incurred $0.6 million in accelerated equipment depreciation expense related to the consolidation of manufacturing operations. Total cash expenditures, excluding lease payments, related to the 2015 restructuring plan activities were approximately $1.5 million.

For the years ended December 31, 2017, 2016 and 2015, the Company recorded total charges related to its 2015 restructuring plan of $0.2 million, $0.3 million and $2.5 million, respectively, within “restructuring and exit costs” in the consolidated statements of operations.

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The following table summarizes restructuring and exit costs related to the 2015 restructuring plan for the years ended December 31, 2017, 2016 and 2015 (in thousands):

	Employee Severance Costs	Lease Obligation Costs	Other Exit Costs	Total
Restructuring liability as of December 31, 2014	$ —	$ —	$ —	$—
Costs incurred	1,439	1,208	—	2,647
Restructuring amounts paid	(1,010)	—	—	(1,010)
Accruals released	(135)	—	—	(135)
Lease payments and accretion	—	(165)	—	(165)
Restructuring liability as of December 31, 2015	294	1,043	—	1,337
Costs incurred	67	86	298	451
Restructuring amounts paid	(207)	—	(246)	(453)
Accruals released	(154)	—	—	(154)
Lease payments and accretion	—	(327)	(52)	(379)
Restructuring liability as of December 31, 2016	—	802	—	802
Costs incurred	—	179	—	179
Lease payments and accretion	—	(311)	—	(311)
Restructuring liability as of December 31, 2017	$ —	$ 670	$ —	$670

Impairment of Assets

During the years ended December 31, 2017 and 2016, we recorded total impairment charges of $0.2 million and $1.4 million, respectively. Impairment charges related to property and equipment which were no longer forecasted to be utilized during their remaining useful lives and for which the fair values approximated zero. No impairments of property and equipment were recorded during the year ended December 31 2015.

Provision for Income Taxes

The effective tax rate differs from the statutory U.S. federal income tax rate primarily due to foreign income taxes and the valuation allowance against our domestic deferred tax assets.

We recorded an income tax provision of $3.7 million, $4.1 million and $4.6 million for the years ended December 31, 2017, 2016 and 2015, respectively. This provision is primarily related to taxes on income generated by our Swiss subsidiary. As of December 31, 2017, we have recorded a $4.9 million deferred tax liability for Swiss withholding taxes associated with $97.6 million of undistributed earnings of our Swiss subsidiary that are no longer considered indefinitely reinvested. In the event that we repatriate these funds, this withholding tax would become payable to the Swiss government. During the years ended December 31, 2017, 2016 and 2015, income tax expense associated with undistributed earnings of our Swiss subsidiary that are no longer considered indefinitely reinvested was $0, $1.2 million and $2.1 million, respectively.

On December 22, 2017, the President of the United States signed into law the Tax Cuts and Jobs Act. The tax legislation significantly changes U.S. tax law by, among other things, reducing the US federal corporate tax rate from 35% to 21%, implementing a territorial tax system and imposing a repatriation tax on deemed repatriated earnings of foreign subsidiaries.

Due to the tax legislation, we have remeasured our U.S. deferred tax assets and liabilities based on the rates at which they are expected to reverse in the future, which is generally 21%. We recorded a provisional decrease related to our deferred tax assets and liabilities of $34.7 million with a corresponding adjustment to our valuation allowance for the year ended December 31, 2017. However, we are still analyzing certain aspects of the Act and refining our calculations, which could potentially affect the measurement of these balances or potentially give rise to new deferred tax amounts. As our deferred tax asset is offset by a full valuation allowance, this change in rates had no impact on our financial position or results of operations.

We also recorded a provisional amount of additional U.S. taxable income of $8.4 million related to the one-time transition tax, which did not result in additional tax expense due to our net operating losses. However, we are continuing to gather additional information to more precisely compute the amount of the transition tax. As we have

significant net operating losses, any change to this provisional amount would have no impact on our financial position or results of operations.

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At December 31, 2017, we have a cumulative valuation allowance recorded offsetting our worldwide net deferred tax assets of $61.4 million, of which the significant majority represents the valuation allowance on our U.S. net deferred tax assets. We have established a valuation allowance against our U.S. federal and state deferred tax assets due to the uncertainty surrounding the realization of such assets. Management periodically evaluates the recoverability of the deferred tax assets and at such time as it is determined that it is more likely than not that U.S. deferred tax assets are realizable, the valuation allowance will be reduced accordingly.

Liquidity and Capital Resources

Changes in Cash Flow

The following table summarizes our cash flows from operating, investing and financing activities for each of the past three fiscal years (in thousands):

	Year Ended December 31, 2017		
	2017	2016	2015
Total cash provided by (used in):			
Operating activities	$(15,006)	$(14,357)	$9,380
Investing activities	(4,394)	14,663	(4,143)
Financing activities	43,285	796	(5,366)
Effect of exchange rate changes on cash and cash equivalents	878	(525)	179
Increase in cash, cash equivalents and restricted cash	$24,763	$577	$50

In 2017, cash used in operating activities of $15.0 million related primarily to a net loss of $43.1 million, which included non-cash charges of $22.7 million, and an increase in accounts receivable of $8.0 million primarily related to timing of receipts and higher sales in the fourth quarter of 2017 compared with the fourth quarter of 2016. These decreases in cash were partially offset by an increase in deferred revenue and customer deposits of $2.4 million primarily from funding received in 2017 under our localization agreement with CRRC-SRI; an increase in accounts payable and accrued liabilities of $8.8 million related to an accrual for the proposed settlement with the SEC related to our 2011 and 2012 restatement, the addition of the operations of Nesscap and the timing of payments; and a decrease in inventory of $2.6 million mainly related to our efforts to reduce inventory levels.

In 2016, cash used in operating activities of $14.4 million related primarily to a net loss of $23.7 million, which included non-cash charges of $9.8 million, a decrease in accounts payable and accrued liabilities of $14.9 million related to lower procurement activity in 2016, and an increase in inventory of $5.0 million, net of the sale of the microelectronics product line inventories, related to timing differences in matching production to demand. These decreases in cash were partially offset by a decrease in accounts receivable of $20.1 million primarily related to a lower volume of sales near the end of 2016 compared with the end of 2015.

In 2015, cash provided by operating activities of $9.4 million related primarily to an increase in accounts payable and accrued liabilities of $5.0 million primarily due to timing of payments, and a decrease in inventory of $5.3 million primarily associated with efforts to reduce our inventory levels. These increases in cash were partially offset by a net loss of $22.3 million, which included non-cash charges of $20.6 million.

Cash used in operating activities was $15.0 million for 2017 compared with cash used in operating activities of $14.4 million for 2016. Cash flows from operating activities were impacted by working capital changes which had a positive effect on cash flow of $5.4 million for the year ended December 31, 2017, while working capital was relatively unchanged in in 2016. This positive effect of changes in working capital was partially offset by lower gross profit and higher operating expenses in 2017.

Cash used in operating activities was $14.4 million for 2016 compared with cash provided by operating activities of $9.4 million for 2015. Cash flows from operating activities were negatively impacted by lower revenue and gross profit in 2016. Additionally, during 2016, working capital was relatively unchanged, net of the impact of the sale of the microelectronics product line, compared with positive cash flows of $11.2 million in 2015 from changes in working capital.

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Cash used in investing activities was $4.4 million for 2017 compared with cash provided by investing activities of $14.7 million for 2016 and cash used in investing activities of $4.1 million in 2015. Cash used in investing activities for 2017 primarily related to capital expenditures of $5.8 million, partially offset by the release of holdback proceeds from the 2016 sale of our microelectronics product line of $1.5 million. Capital expenditures in 2017 were primarily related to factory expansion and laboratory upgrades at our high-voltage capacitor production facility in Rossens, Switzerland as well as new technology investments in our corporate research and development facility in San Diego, California. Cash provided by investing activities for 2016 primarily related to proceeds from the sale of our microelectronics product line of $20.5 million, partially offset by capital expenditures of $6.0 million. Capital expenditures in 2016 were primarily focused on investments in our corporate research and development facility in San Diego, California. Cash used in investing activities in 2015 related to capital expenditures primarily focused on our manufacturing operations as well as investments in information technology infrastructure.

Cash provided by financing activities was $43.3 million for 2017, compared with $0.8 million provided by financing activities in 2016 and $5.4 million used in financing activities in 2015. Cash provided by financing activities for 2017 primarily resulted from net proceeds of $43.0 million from our issuance of convertible debt in 2017, as well as proceeds from purchases under our employee stock purchase plan of $0.3 million. Cash provided by financing activities for 2016 resulted from proceeds from purchases under our employee stock purchase plan of $0.8 million. Cash used in financing activities in 2015 primarily resulted from net payments on long term and short term borrowings of $15.8 million, offset by net proceeds from our at-the-market equity offering of $9.6 million and proceeds from exercises of employee stock options and purchases under our employee stock purchase plan of $0.9 million.

Liquidity

On September 25, 2017, we issued $40 million aggregate principal amount of 5.50% convertible senior notes due 2022 (the “Notes”). The sale of the Notes generated net proceeds of approximately $37.3 million after deducting the initial purchaser’s discount and the estimated offering expenses payable by us. The Notes bear interest at a rate of 5.50% per year, payable semi-annually in arrears on March 15 and September 15 of each year, commencing on March 15, 2018. In October 2017, we issued an additional $6.0 million of convertible senior notes under a 30-day option to purchase up to an additional $6.0 million aggregate principal amount of convertible senior notes under the same terms, which was exercised in October 2017. The sale of the additional convertible senior notes generated net proceeds of approximately $5.7 million after deducting the initial purchaser’s discount.

As of December 31, 2017, we had approximately $50.1 million in cash and cash equivalents, and working capital of $68.4 million. In July 2015, we entered into a loan agreement with East West Bank (“EWB”), whereby EWB made available to us a secured credit facility in the form of a Revolving Line of Credit. The Revolving Line of Credit is available up to a maximum of the lesser of: (a) $25.0 million; or (b) a certain percentage of domestic and foreign trade receivables. As of December 31, 2017, the amount available under the Revolving Line of Credit was $13.3 million. No amounts have been borrowed under this Revolving Line of Credit as of December 31, 2017. This facility is scheduled to expire in July 2018.

In addition, in June 2014, we filed a shelf registration statement on Form S-3 with the SEC to, from time to time, sell up to $125 million of our common stock, warrants, debt securities or units. On June 30, 2014, the registration statement was declared effective by the SEC, which allowed us to access the capital markets for the three-year period following this effective date. On April 23, 2015, we entered into an At-the-Market Equity Offering Sales Agreement (“Sales Agreement”) with Cowen and Company, LLC (“Cowen”) pursuant to which we could sell, at our option, up to an aggregate of $10.0 million in shares of common stock through Cowen, as sales agent. Under the Sales Agreement, we agreed to pay Cowen a commission equal to 3.0% of the gross proceeds from the sale of shares of our common stock. On June 11, 2015, we completed the sale of approximately $10.0 million of our common stock and terminated the offering. Approximately 1.83 million shares were sold in the offering at an average share price of $5.46. We received net proceeds of $9.6 million after commissions and offering costs of $0.4 million.

In November 2017, we filed a new shelf registration statement on Form S-3 with the SEC to, from time to time, sell up to $125 million of our common stock, warrants, debt securities or units. On November 16, 2017, the registration statement was declared effective by the SEC, which allows us to access the capital markets for the three-year period

following this effective date.

In April 2016, we completed the sale of substantially all of the assets and liabilities of our microelectronics product line and received cash proceeds of $20.5 million, net of a one-year, $1.5 million holdback on the purchase price which was received in 2017.

Capital expenditures are expected to be in the range of $15.0 million to $25.0 million in 2018. Approximately 50% of our planned capital spending is related to process development and infrastructure associated with our dry battery electrode technology, 30% is related to improving manufacturing processes and factory expansion for existing products, 15% is related to other product research and development investments, and the remaining planned capital spending is to support information technology infrastructure and other facilities improvements.

As of December 31, 2017, the amount of cash and short-term investments held by foreign subsidiaries was $9.1 million. If these funds are needed for our operations in the U.S. in the future, we may be required to pay taxes to repatriate these funds at a rate of approximately 5%. We have accrued the tax expense associated with the potential future repatriation of these funds.

In September 2017, we initiated a restructuring plan to optimize headcount in connection with the acquisition and integration of the business of Nesscap, as well as to implement additional organizational efficiencies. Total charges for the September 2017 restructuring plan were approximately $1.2 million, all of which were incurred in 2017. In February 2017, we implemented a restructuring plan that included a wide range of organizational efficiencies and cost reduction opportunities. In connection with the February 2017 restructuring plan, we incurred net restructuring charges of approximately $0.9 million, which were all recognized in 2017. The September and February 2017 restructuring plan charges consist of employee severance costs which have been or will be paid in cash. In connection with these restructuring plans, we made cash payments of $1.3 million during the year ended December 31, 2017. We expect to make additional cash payments of $0.8 million in 2018 related to the September 2017 restructuring plan.

In connection with the Nesscap Acquisition, we incurred approximately $3.5 million in cash expenditures which were paid during the year ended December 31, 2017. The acquisition was completed in the second quarter of 2017.

Debt and Credit Facilities

Convertible Senior Notes

In September and October 2017, we issued $46.0 million of 5.50% convertible senior unsecured notes due 2022 (the “Notes”). We received net proceeds, after deducting underwriting discounts and fees and expenses payable by the Company, of approximately $43.0 million. The Convertible Senior Notes bear interest at a rate of 5.50% per year, payable semiannually in arrears on March 15 and September 15 of each year, commencing on March 15, 2018. The Convertible Senior Notes mature on September 25, 2022, unless earlier purchased by the Company, redeemed, or converted. We believe that we have sufficient capital resources and cash flows from operations to support scheduled interest payments on this debt.

Revolving Line of Credit

In July 2015, we entered into a Loan and Security Agreement (the “Loan Agreement”) and related agreements with East West Bank (“EWB”), whereby EWB made available to us a secured credit facility in the form of a revolving line of credit (the “Revolving Line of Credit”). The Revolving Line of Credit is available up to a maximum of the lesser of: (a) $25.0 million; or (b) a certain percentage of domestic and foreign trade receivables. As of December 31, 2017, the amount available under the Revolving Line of Credit was $13.3 million. In general, amounts borrowed under the Revolving Line of Credit are secured by a lien on all of our assets, including our intellectual property, as well as a pledge of 100% of our equity interests in the Company’s Swiss subsidiary. The obligations under the Loan Agreement are guaranteed by the Swiss subsidiary. The Revolving Line of Credit will mature on July 3, 2018. In the event that we are in violation of the representations, warranties and covenants made in the Loan Agreement, including certain financial covenants set forth therein, we may not be able to utilize the Revolving Line of Credit or repayment of amounts owed pursuant to the Loan Agreement could be accelerated. We are currently in compliance with the financial covenants that we are required to meet during the term of the credit agreement including the minimum four-quarter rolling EBITDA, quarterly minimum quick ratio and minimum cash requirements. On March 1, 2017, we entered into an amendment to the Loan Agreement to approve the acquisition of substantially all of the assets and business of Nesscap Energy, Inc., and to modify certain financial covenants.

Amounts borrowed under the Revolving Line of Credit bear interest, payable monthly. Such interest shall accrue based upon, at our election, subject to certain limitations, either a Prime Rate plus a margin or the LIBOR Rate plus a margin, ranging from 0% to 0.50% or the LIBOR Rate plus a margin ranging from 2.75% to 3.25%, the specific rate for each as determined based upon our leverage ratio from time to time.

We are required to pay an annual commitment fee equal to $125,000, and an unused commitment fee of the average daily unused amount of the Revolving Line of Credit, payable monthly, equal to a per annum rate in a range of 0.30% to 0.50%, as determined by our leverage ratio on the last day of the previous fiscal quarter. No amounts have been borrowed under the Revolving Line of Credit as of December 31, 2017.

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Former Credit Facility

In December 2011, we obtained a secured credit facility in the form of a revolving line of credit (the "Former Revolving Line of Credit") and an equipment term loan (the "Equipment Term Loan") (together, the "Former Credit Facility"). Borrowings under the Former Credit Facility bore interest, payable monthly, at either (i) the bank's prime rate or (ii) LIBOR plus 2.25%, at our option, subject to certain limitations. The Equipment Term Loan was available to finance 80% of eligible equipment purchases made between April 1, 2011 and April 30, 2012. During this period, we borrowed $5.0 million under the Equipment Term Loan.

The balance of the Equipment Term Loan was paid in full by the maturity date of April 30, 2015. Concurrently with entering into the Loan Agreement described above, in July 2015, we repaid all outstanding loans under the Former Revolving Line of Credit and terminated the Former Credit Facility. We did not incur any early termination or prepayment penalties under the Former Credit Facility in connection with the above transactions.

Other Long-term Borrowings

Maxwell SA has various financing agreements for vehicles. These agreements are for up to an original three-year repayment period with interest rates ranging from 0.9% to 1.9%. At December 31, 2017 and 2016, $115,000 and $83,000, respectively, was outstanding under these agreements.

Contractual Obligations

	Payment due by period (in thousands)				
	Total	Less than 1 Year	1–3 Years	3–5 Years	More than 5 Years
Operating lease obligations [(1)]	$19,132	$3,824	$6,949	$4,326	$4,033
Purchase commitments [(2)]	16,555	16,555	—	—	—
Convertible debt [(3)]	46,000	—	—	46,000	—
Interest on convertible debt [(4)]	11,905	2,530	5,060	4,315	—
Other debt obligations [(5)]	115	33	82	—	—
Pension and defined benefit plan payments [(6)]	35,682	1,681	3,274	3,349	27,378
Total [(7)] [(8)]	$129,389	$24,623	$15,365	$57,990	$31,411

(1) Operating lease obligations primarily represent building leases.

(2) Purchase commitments primarily represent the value of non-cancellable purchase orders and an estimate of purchase orders that if canceled would result in a significant penalty.

(3) Convertible debt represents Convertible Senior Notes due September 2022 and assumes that no notes are converted prior to the September 15, 2022 maturity date.

(4) Represents 5.5% interest due semi-annually on our Convertible Senior Notes due September 2022 and assumes all interest is paid and the notes are not converted prior to the September 15, 2022 due date.

(5) Other debt obligations represent long-term and short-term borrowings related to financing agreements for vehicles.

(6) Pension and defined benefit plan payments represent the expected amounts to be paid for the Maxwell SA pension plan and the Korea defined benefit plan.

(7) The table excludes $0.3 million of liabilities associated with uncertain tax positions because we are unable to reasonably estimate the timing of future payments, if required.

(8) The table excludes deferred tax liability of $4.9 million due to uncertainty of timing of future payments. This deferred tax liability on undistributed earnings of a foreign subsidiary represents deferred tax expense associated with a portion of the unremitted earnings of a foreign subsidiary that are not considered permanently reinvested.

Critical Accounting Estimates

We consider an accounting estimate to be critical if: 1) the accounting estimate requires us to make assumptions about matters that were uncertain at the time the accounting estimate was made and 2) changes in the estimate are reasonably likely to occur from period to period, or use of different estimates that we reasonably could have used in the current period, would have a material impact on our financial condition or results of operations.

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Also see Note 1, Summary of Significant Accounting Policies, in Part II, Item 8, Financial Statements and Supplementary Data, of this Annual Report on Form 10-K, which discusses the significant accounting policies.
We believe the following are either (i) critical accounting policies that require us to make significant estimates or assumptions in the preparation of our consolidated financial statements or (ii) other key accounting policies that may require us to make difficult or subjective judgments.
Revenue Recognition
Nature of Estimates Required. Sales revenue is primarily derived from the sale of products directly to customers. Product revenue is recognized when all of the criteria for revenue recognition are met. Customer agreements and other terms of the sale are evaluated to determine when the criteria for revenue recognition have been met, and therefore when revenue should be recognized. Revenue recognition is deferred until all the criteria for revenue recognition have been met.
Assumptions and Approach Used. Product revenue is recognized when all of the following criteria are met:
(1) persuasive evidence of an arrangement exists according to customer contracts or sales documents; (2) title and risk of loss pass to the customer according to the order's shipping terms; (3) price is deemed fixed or determinable and free of significant contingencies or uncertainties; and (4) collectability is reasonably assured. Customer contracts, or purchase orders and order confirmations, are generally used to determine the existence of an arrangement. Shipping terms determine when the passage of title and risk of loss have occurred. We assess whether a price is fixed or determinable based upon the payment terms associated with the transaction. We assess the collectability of accounts receivable based primarily upon creditworthiness of the customer as determined by credit checks and analysis, as well as the customer's payment history. If we determine that a particular sale does not meet all of the above criteria for revenue recognition, revenue is not recognized until all of the criteria are determined to have been achieved.
A portion of our sales revenue is derived from sales to distributors. Distributor revenue is recognized when all of the criteria for revenue recognition are met, which is generally the time of shipment to the distributor; all returns and credits are typically estimable and not significant. Certain distributor agreements of Nesscap Korea provide for significant rights of return and price adjustment; revenue related to these distributors is deferred until the period in which the distributor sells through the inventory to the end customer.
Total deferred revenue and customer deposits in our consolidated balance sheets as of December 31, 2017 and 2016 was $6.7 million and $4.0 million, respectively, and primarily relates to cash received related to our localization agreement with CRRC-SRI and cash received from a customer in connection with a production-type contract, for which revenue is recognized using the percentage of completion method.
Excess and Obsolete Inventory
Nature of Estimates Required. Estimates are principally based on assumptions regarding the ability to sell the items in our inventory. Due to the uncertainty and potential volatility inherent in these estimates, changes in our assumptions could materially affect our results of operations.
Assumptions and Approach Used. Our estimate for excess and obsolete inventory is evaluated on a quarterly basis and is based on rolling historical inventory usage and assumptions regarding future product demand. As actual levels of inventory change or specific products become slow moving or obsolete, our estimated reserve may materially change.
Pension and Defined Benefit Plan Liability
Nature of Estimates Required. We use several significant assumptions within the actuarial models utilized in measuring our pension assets and obligations for our Swiss pension plan, and our Korean defined benefit plan obligations.
Assumptions and Approach Used. The discount rate and expected return on assets are estimates impacting plan expense and asset and liability measurement. We evaluate these critical assumptions at least annually. We periodically evaluate actuarial assumptions involving demographic factors, which are used to measure the Swiss pension plan and Korean defined benefit plan obligations, such as retirement age, mortality and turnover, and update them to reflect our experience and expectations for the future. Actual results in any given year will often differ from actuarial assumptions because of economic and other factors. The projected Swiss pension benefit obligation as of December 31, 2017 was $31.7 million and the fair value of plan assets was $43.4 million. The Company does not have any rights to the assets of the plan other than the right to offset the liabilities of the plan. The projected Korean defined benefit plan obligation as of December 31, 2017 was $4.0 million.

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Goodwill Impairment

Nature of Estimates Required. We review goodwill annually at the reporting unit level at the same time every year or when an event occurs or circumstances change such that it is reasonably possible that an impairment may exist. We have established December 31 as the annual impairment test date. We first make a qualitative assessment as to whether goodwill is impaired and if it is more likely than not that goodwill is impaired, we perform a quantitative impairment analysis to determine if goodwill is impaired. We may also determine to skip the qualitative assessment in any year and move directly to the quantitative test. For the quantitative test, we determine the fair value of the reporting unit, then compare the fair value of the reporting unit to its carrying value. Goodwill impairment is recorded for any excess of a reporting unit's carrying amount over its fair value, not to exceed the total amount of goodwill allocated to the reporting unit.

Assumptions and Approach Used. The determination of fair value requires a number of significant assumptions and judgments, including assumptions about future economic conditions, revenue growth, operating margins, and discount rates.

In 2017, we performed a qualitative assessment of our reporting units which included an evaluation of changes in industry, market and macroeconomic conditions as well as consideration of each reporting unit’s financial performance and any significant trends. Our qualitative assessment indicated that it was not more likely that not that goodwill is impaired. Further, we noted no significant negative trends or decreases in our long-range plan that would indicate a different result compared to our 2016 quantitative analysis of our ultracapacitor reporting unit.

In 2016, we performed a qualitative analysis on our high-voltage reporting unit and concluded that it was more likely than not that its fair value exceeded its carrying value and therefore did not perform quantitative testing for this reporting unit. For our ultracapacitor reporting unit, which was associated with $2.3 million of goodwill, we skipped the qualitative analysis and performed the quantitative analysis.

For the quantitative step one goodwill impairment analysis of our ultracapacitor reporting unit, we utilized a discounted cash flow model to calculate the fair value of the reporting unit which required us to make significant assumptions and estimates about the extent and timing of future cash flows, discount rates and growth rates. The basis of the goodwill impairment analysis is our annual budget and long-range cash flow projections. Because cash flows are estimated over a significant future period of time, the estimates and assumptions are subject to a high degree of uncertainty. Our revenue growth assumptions are internally developed based on detailed market and opportunity analysis and include the successful execution of our long-term growth strategies such as the localization of ultracapacitor modules for the China bus market. We believe the assumptions and estimates used in the analysis to estimate fair value are reasonable. The use of different estimates or assumptions within a discounted cash flow model, or the use of a methodology other than a discounted cash flow model, could result in a significantly different fair value for the reporting unit. The impairment testing we conducted in 2016 indicated that the fair value of the ultracapacitor reporting unit was in excess of its carrying value, as such, we concluded that the goodwill assigned to the ultracapacitor reporting unit was not impaired and no further quantitative testing was performed.

No impairments of goodwill were reported during the years ended December 31, 2017, 2016 and 2015.

Business Combinations

Nature of Estimates Required. We apply the provisions of ASC 805, Business Combinations, in accounting for acquisitions. It requires us to recognize separately from goodwill the assets acquired and the liabilities assumed at the acquisition date fair values. Goodwill as of the acquisition date is measured as the excess of consideration transferred over the net of the acquisition date fair values of the assets acquired and the liabilities assumed. While we use our best estimates and assumptions to accurately value assets acquired and liabilities assumed at the acquisition date as well as any contingent consideration, where applicable, our estimates are inherently uncertain and subject to refinement. As a result, during the measurement period, which may be up to one year from the acquisition date, we may record adjustments to the assets acquired and liabilities assumed with the corresponding offset to goodwill. Upon the conclusion of the measurement period or final determination of the values of assets acquired or liabilities assumed, whichever comes first, any subsequent adjustments are required to be recorded to our consolidated statements of operations.

Assumptions and Approach Used. Accounting for business combinations requires management to make significant estimates and assumptions, especially at the acquisition date, including estimates for intangible assets, contractual

obligations assumed, pre-acquisition contingencies and any contingent consideration, where applicable. Although we believe that the assumptions and estimates we have made in the past have been reasonable and appropriate, they are based in part on historical experience and information obtained from management of the acquired company and are inherently uncertain.

Examples of critical estimates in valuing certain of the intangible assets we have acquired include but are not limited to: future expected cash flows from assumed contracts for which our future expected cash flow estimates include estimated cash flow amounts and time periods over which such cash flows are expected to be received, estimated retention and renewal rates of existing customer contracts assumed as a part of the acquisition, and estimated costs to sell, market, deliver and support such assumed contracts, among other estimates; future expected cash flows from acquired developed technology including estimated amounts to be received for such developed technology and the time period over which such cash flows are expected to be received, among other estimates; and discount rates. Unanticipated events and circumstances may occur that may affect the accuracy or validity of such assumptions, estimates or actual results.

Convertible Debt

Nature of Estimates Required. We account for convertible debt instruments that may be settled in cash upon conversion by separating the liability and equity components of the instruments in a manner that reflects our nonconvertible debt borrowing rate.

Assumptions and Approach Used. In September and October 2017, we issued $46.0 million aggregate principal amount of 5.50% Convertible Senior Notes due 2022. The fair value of the liability component was estimated through discounting future interest and principal payments, an income approach, due under the Notes at a discount rate of 12.00%, an interest rate equal to the estimated borrowing rate for similar non-convertible debt. We determined our nonconvertible debt borrowing rate by using Level 3 inputs, including utilization of credit assumptions and high yield bond indices. Determining the fair value of the debt component requires the use of accounting estimates and assumptions. These estimates and assumptions are judgmental in nature and could have a significant impact on the determination of the debt component, and the associated non-cash interest expense.

The difference between the face value of the Notes and the fair value of the debt component results in us recording the debt at a discount. We are amortizing this debt discount over the life of the Notes as additional non-cash interest expense utilizing the effective interest method.

Stock-Based Compensation

Nature of Estimates Required. Our stock-based compensation awards include stock options, restricted stock, restricted stock units, and shares issued under our employee stock purchase plan (“ESPP”). We record compensation expense for our stock-based compensation awards in accordance with the criteria set forth in the Stock Compensation Subtopic of the Financial Accounting Standards Board (“FASB”) Accounting Standards Codification (“ASC”). Under the guidance, the fair value of each employee stock option is estimated on the date of grant using an option pricing model that meets certain requirements. We use the Black-Scholes option pricing model to estimate the fair value of stock option grants. The determination of the fair value of stock options utilizing the Black-Scholes model is affected by our stock price and a number of assumptions, including expected volatility, expected life, risk-free interest rate and expected dividends.

The fair value of restricted stock awards (“RSAs”) and restricted stock unit awards (“RSUs”) is based on the closing market price of our common stock on the date of grant. Compensation expense equal to the fair value of each RSA or RSU is recognized ratably over the requisite service period. For RSUs with vesting contingent on the achievement of Company performance conditions, we use the requisite service period that is most likely to occur. The requisite service period is estimated based on the performance period as well as any time-based employee service requirements. If it is unlikely that a performance condition will be achieved, no compensation expense is recognized unless it is later determined that achievement of the performance condition is likely. Expense may be adjusted for changes in the expected outcomes of the related performance conditions, with the impact of such changes recognized as a cumulative adjustment in the consolidated statement of operations in the period in which the expectation changes.

In 2017 and 2016, we issued market-condition RSUs to certain members of executive management. Since the vesting of the market-condition RSUs is dependent on stock price performance, the fair value of these awards was estimated using a Monte-Carlo valuation model. The determination of the fair value of market-condition RSUs utilizing a Monte-Carlo valuation model was affected by our stock price and a number of assumptions, including expected volatility, expected life, risk-free interest rate and expected dividends.

Stock-based compensation expense recognized in the consolidated statement of operations is based on equity awards ultimately expected to vest. We estimate forfeitures at the time of grant based on historical experience and our

expectation of future forfeitures and revise, as necessary, in subsequent periods with a cumulative catch up adjustment if actual forfeitures differ from those estimates.

Assumptions and Approach Used. In determining the value of stock option and market-condition RSU grants, we estimate an expected dividend yield of zero because we have never paid cash dividends and have no present intention to pay cash dividends. The expected term calculation is based on the actual life of historical stock option grants. Expected volatility is based on our historical stock prices using a mathematical formula to measure the standard deviation of the change in the natural logarithm of our underlying stock price over a period of time commensurate with the expected term. The risk-free interest rate is derived from the zero coupon rate on U.S. Treasury instruments with a term commensurate with the awards expected term.

For RSUs with vesting contingent on the achievement of Company performance conditions, the amount of compensation expense is estimated based on the expected achievement of the performance condition. This requires us to make estimates of the likelihood of the achievement of Company performance conditions, which is highly judgmental. We base our judgments as to the expected achievement of Company performance conditions based on the financial projections of the Company that are used by management for business purposes, which represent our best estimate of expected Company performance. If it is unlikely that a performance condition will be achieved, no compensation expense is recognized unless it is later determined that achievement of the performance condition is likely. Further, the requisite service period is estimated based on the performance period as well as any time-based employee service requirements.

We evaluate the assumptions used to value stock-based awards on a quarterly basis. If factors change and we employ different assumptions, stock-based compensation expense may differ significantly from what we have recorded in the past. If there are any modifications or cancellations of stock-based awards, we may be required to accelerate, increase or decrease any remaining, unrecognized stock-based compensation expense. Compensation expense may be significantly impacted in the future to the extent our estimates differ from actual results.

Income Taxes

Nature of Estimates Required. We record an income tax valuation allowance when the realization of certain deferred tax assets, including net operating losses, is not likely.

We record U.S. income taxes on the undistributed earnings of foreign subsidiaries unless the subsidiaries’ earnings are considered indefinitely reinvested outside of the U.S. As of December 31, 2017, we have recorded a $4.9 million deferred tax liability for Swiss withholding taxes associated with $97.6 million of undistributed earnings of our Swiss subsidiary that are no longer considered indefinitely reinvested. In the event that we repatriate these funds, this withholding tax would become payable to the Swiss government. As of December 31, 2017, there were $11.8 million of undistributed earnings considered indefinitely reinvested.

On December 22, 2017, the President of the United States signed into law the Tax Cuts and Jobs Act. The legislation significantly changes U.S. tax law by, among other things, reducing the US federal corporate tax rate from 35% to 21%, implementing a territorial tax system and imposing a repatriation tax on deemed repatriated earnings of foreign subsidiaries. Pursuant to the SEC’s Staff Accounting Bulletin No. 118, Income Tax Accounting Implications of the Tax Cuts and Jobs Act (“SAB 118”), given the amount and complexity of the changes in the tax law resulting from the tax legislation, we have not finalized the accounting for the income tax effects of the tax legislation. This includes the provisional amounts recorded related to the transition tax and the remeasurement of deferred taxes. The impact of the tax legislation may differ from this estimate, during the one-year measurement period due to, among other things, further refinement of our calculations, changes in interpretations and assumptions we have made, guidance that may be issued and actions we may take as a result of the tax legislation.

Assumptions and Approach Used. Deferred income taxes arise from temporary differences between tax and financial statement recognition of revenue and expense. In evaluating our ability to recover our deferred tax assets within the jurisdiction from which they arise, we consider all available positive and negative evidence, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax-planning strategies, and results of recent operations. Significant judgments and estimates are required in this evaluation. If we determine that we are able to realize a portion or all of these deferred tax assets in the future, we will record an adjustment to increase their recorded value and a corresponding adjustment to increase income or additional paid in capital, as appropriate, in that same period.

Due to the recent tax legislation, we have remeasured our U.S. deferred tax assets and liabilities based on the rates at which they are expected to reverse in the future, which is generally 21%. We recorded a provisional decrease related

to our deferred tax assets and liabilities of $34.7 million with a corresponding adjustment to our valuation allowance for the year ended December 31, 2017. However, we are still analyzing certain aspects of the Act and refining our calculations, which could potentially affect the measurement of these balances or potentially give rise to new deferred tax amounts. As our deferred tax asset is offset by a full valuation allowance, this change in rates had no impact on our financial position or results of operations.

The one-time transition tax is based on our total post-1986 earnings and profits ("E&P") that we previously deferred from U.S. income taxes. To determine the amount of the transition tax, we must determine, in addition to other factors, the amount of post-1986 E&P of our relevant subsidiaries. We recorded a provisional amount of additional U.S. taxable income of $8.4 million, which did not result in additional tax expense due to our net operating losses. However, we are continuing to gather additional information to more precisely compute the amount of the transition tax. As we have significant net operating losses, any change to this provisional amount would have no impact on our financial position or results of operations.

Commitments and Contingencies

Nature of Estimates Required. We are involved in litigation, regulatory and other proceedings and claims. We prosecute and defend these matters aggressively. However, there are many uncertainties associated with any litigation, and there can be no assurance that these actions or other third-party claims against us will be resolved without costly litigation and/or substantial settlement charges.

Assumptions and Approach Used. We disclose information concerning contingent liabilities with respect to these claims and proceedings for which an unfavorable outcome is more than remote. We recognize liabilities for these claims and proceedings as appropriate based upon the probability of loss and our ability to estimate losses and to fairly present, in conjunction with the disclosures of these matters in our consolidated financial statements, management's view of our exposure. We review outstanding claims and proceedings with external counsel as appropriate to assess probability and estimates of loss. We will recognize a liability related to claims and proceedings at such time as an unfavorable outcome becomes probable and the amount can be reasonably estimated. When the reasonable estimate is a range, the recognized liability will be the best estimate within the range. If no amount in the range is a better estimate than any other amount, the minimum amount of the range will be recognized.

We re-evaluate these assessments each quarter or as new and significant information becomes available to determine whether a liability should be recognized or if any existing liability should be adjusted. The actual cost of ultimately resolving a claim or proceeding may be substantially different from the amount of the recognized liability. In addition, because it is not permissible to recognize a liability until the loss is both probable and estimable, in some cases there may be insufficient time to recognize a liability prior to the actual incurrence of the loss (upon verdict and judgment at trial, for example, or in the case of a quickly negotiated settlement).

Impact of Inflation

We believe that inflation has not had a material impact on our results of operations for any of our fiscal years in the three-year period ended December 31, 2017. However, there can be no assurance that future inflation would not have an adverse impact on our operating results and financial condition.

Recent Accounting Pronouncements

In May 2014, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2014-09, Revenue from Contracts with Customers. The standard provides companies with a single model for accounting for revenue arising from contracts with customers and supersedes current revenue recognition guidance, including industry-specific revenue guidance. The core principle of the model is to recognize revenue when control of the goods or services transfers to the customer, as opposed to recognizing revenue when the risks and rewards transfer to the customer under the existing revenue guidance. The guidance permits companies to either apply the requirements retrospectively to all prior periods presented, or apply the requirements in the year of adoption, through a cumulative adjustment. In August 2015, the FASB issued ASU 2015-14, Deferral of the Effective Date, which defers the required adoption date of ASU 2014-09 by one year. As a result of the deferred effective date, ASU 2014-09 will be effective for us in our first quarter of fiscal 2018. Early adoption is permitted but not before the original effective date of the new standard of the first quarter of fiscal 2017. The following ASUs were subsequently issued by the FASB to clarify the implementation guidance in some areas and add practical expedients: In March 2016, ASU 2016-08, Revenue from Contracts with Customers: Principal versus Agent Considerations; in April 2016, ASU 2016-10, Revenue from Contracts with Customers: Identifying Performance Obligations and Licensing; in May 2016, ASU 2016-12, Revenue from Contracts with Customers: Narrow Scope Improvements and Practical Expedients; and in December 2016, ASU 2016-20, Technical Corrections and Improvements to Revenue from Contracts with Customers. We are currently finalizing our evaluation of standard product sales arrangements and have identified an adoption impact related to revenue from certain distributor agreements which was deferred until the period in which the distributor sells through the inventory to the end customer. In connection with the adoption of ASU 2014-09, we will change the recognition of sales to these distributors whereby revenue will be estimated and recognized in the period in which we transfer control of the product to the distributor; the adoption impact is not expected to be material. Other than this impact, we have not identified any expected impact on the timing and measurement of revenue for standard product sales arrangements from the adoption of the standard and the we are currently formalizing our final conclusions. We are also formalizing our evaluation of the impact of adoption on non-product sales arrangements, which represent less than five percent of revenue. We also have developed and used a comprehensive project plan to guide implementation of the new standard and are currently completing our assessment. We will adopt the new accounting standard using the modified retrospective transition method effective January 1, 2018.

In February 2016, the FASB issued ASU No. 2016-02, Leases. The standard requires that a lessee recognize the assets and liabilities that arise from operating leases. A lessee should recognize in its balance sheet a liability to make lease payments (the lease liability) and a right-of-use asset representing its right to use the underlying asset for the lease term. For leases with a term of 12 months or less, a lessee is permitted to make an accounting policy election by class of underlying asset not to recognize lease assets and lease liabilities. In transition, lessees and lessors are required to recognize and measure leases at the beginning of the earliest period presented using a modified retrospective approach. The guidance in ASU 2016-02 is effective for annual and interim reporting periods beginning after December 15, 2018. Our initial evaluation of our current leases does not indicate that the adoption of this standard will have a material impact on our consolidated statements of operations. We expect that the adoption of the standard will have a material impact on our consolidated balance sheets for the recognition of certain operating leases as right-of-use assets and lease liabilities.

In March 2016, the FASB issued ASU No. 2016-09, Improvements to Employee Share-Based Payment Accounting which changes the accounting for employee share-based payments, including the accounting for income taxes, forfeitures, and statutory tax withholding requirements, as well as classification in the Statements of Cash Flows. Under the new guidance, excess tax benefits associated with share-based payment awards will be recognized in the income statement when the awards vest or settle, rather than in stockholders' equity. In addition, it will increase the number of shares an employer can withhold to cover income taxes on share-based payment awards and still qualify for the exemption to liability classification. The guidance was effective for us in the first quarter of fiscal 2017. The adoption of this standard resulted in the recognition of $10.0 million of gross deferred tax assets related to stock-based compensation and a corresponding increase in our valuation allowance. We elected to account for forfeitures of share-based payments by estimating the number of awards expected to be forfeited at the time of grant and adjusting the estimate to reflect changes in expected vesting of shares.

In November 2016, the FASB issued ASU No. 2016-18, Statement of Cash Flows - Restricted Cash, which requires entities to show the changes in the total of cash, cash equivalents, restricted cash and restricted cash equivalents in the statement of cash flow. The guidance will be effective for us in the first quarter of fiscal 2018. Early adoption is permitted, including adoption in an interim period, but any adjustments must be reflected as of the beginning of the fiscal year that includes that interim period. The new standard must be adopted retrospectively. We early adopted this standard in the fourth quarter of 2016. In accordance with our early adoption of ASU No. 2016-18, the retrospective restatement was limited to including restricted cash balances in the amount of $0.4 million in beginning cash, cash equivalents and restricted cash balances for the year ended December 31, 2016 in the consolidated statements of cash flows. The retrospective adoption did not impact reported net loss and does not otherwise have a material impact on the presentation of our overall financial statements.

In January 2017, the FASB issued ASU No. 2017-04, Intangibles - Goodwill and Other, which eliminates step two from the annual goodwill impairment test. The standard is effective for us in the first quarter of 2020, with early adoption permitted as of January 1, 2017, and is to be applied on a prospective basis. The adoption of the standard will not materially impact our consolidated financial statements unless step one of the annual goodwill impairment test fails. We early adopted this standard on January 1, 2017 and the adoption did not have an effect on our consolidated financial statements.

In March 2017, the FASB issued ASU No. 2017-07, Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost, which changes how employers that sponsor defined benefit pension or other postretirement benefit plans present the net periodic benefit cost in the statement of operations. The new guidance requires entities to report the service cost component in the same line item or items as other compensation costs. The other components of net benefit cost are required to be presented in the statement of operations separately from the service cost component and outside the subtotal of loss from operations. ASU 2017-07 also provides that only the service cost component is eligible for capitalization. The standard is effective for us in the first quarter of 2018, with adoption to be applied on a retrospective basis. Our 2017 and 2016 loss from operations, when restated, will increase $0.7 million and $0.5 million, respectively, due to the reclassification of the non-service cost components of net benefit cost which will be moved to a line below loss from operations. There is no impact to net loss or net loss per share in our consolidated statements of operations. We applied the practical expedient as the estimation basis for this reclassification.

In May 2017, the FASB issued ASU No. 2017-09, Compensation-Stock Compensation: Scope of Modification Accounting, which provides clarification on when modification accounting should be used for changes to the terms or conditions of a share-based payment award. This ASU does not change the accounting for modifications but clarifies that modification accounting guidance should only be applied if there is a change to the value, vesting conditions or award classification and would not be required if the changes are considered non-substantive. The amendments of this ASU are effective for us in the first quarter of 2018, with early adoption permitted. The adoption of ASU 2017-09 is not expected to have an impact on our consolidated financial statements.

In August 2017, the FASB issued ASU No. 2017-12, Derivatives and Hedging - Targeted Improvements to Accounting for Hedging Activities, which modifies the presentation and disclosure of hedging results. Further, it provides partial relief on the timing of certain aspects of hedge documentation and eliminates the requirement to recognize hedge ineffectiveness separately in income. The amendments in this ASU are effective for us in the first quarter of 2019. We do not expect this ASU to have a material impact on our consolidated financial statements.

Off Balance Sheet Arrangements

None.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

We face exposure to financial market risks, including adverse movements in foreign currency exchange rates and changes in interest rates. These exposures may change over time and could have a material adverse impact on our financial results. We have not entered into or invested in any instruments that are subject to market risk, except as follows:

Foreign Currency Risk

Our primary foreign currency exposure is related to our subsidiaries in Switzerland and Korea. These subsidiaries have Euro, U.S. dollar and local currency revenue and operating expenses, as well as local currency loans. Changes in these currency exchange rates impact the reported amount (U.S. dollar) of revenue, expenses and debt.

As of December 31, 2017, the impact of a theoretical detrimental change in foreign currency exchange rates of 10% would result in a hypothetical loss of $0.2 million. As local currency debt carried by our Swiss subsidiary is minor, changes in foreign currency rates would not significantly impact our financial results.

Interest Rate Risk

At December 31, 2017, we had no outstanding balance under our Revolving Line of Credit. We have various financing agreements for vehicles. These agreements are for up to a five-year repayment period with interest rates ranging from 0.9% to 1.9%. At December 31, 2017, approximately $115,000 was outstanding under these financing agreements, $82,000 of which is classified as long-term debt. As these borrowings are minor, changes in interest rates would not significantly impact our financial results.

During the year ended 2017, the Company issued $46.0 million of 5.50% Convertible Senior Notes due 2022 (the "Notes"). Interest on the Notes is fixed at 5.5% per year and is payable semi-annually in arrears on March 15 and September 15 of each year, with payments commencing on March 15, 2018.

Fair Value Risk

We have a net pension asset of $11.7 million at December 31, 2017, including plan assets of $43.4 million, which are recorded at fair value. The plan assets consist of 54% debt and equity securities, 39% real estate investment funds and 7% cash and cash equivalents. The fair value measurement of real estate investment funds is subject to the real estate market forces in Switzerland. The fair value of debt and equity securities is determined based on quoted prices in active markets for identical assets and is subject to interest rate risk. We manage our risk by having a diversified portfolio. See Note 14 to the consolidated financial statements for further discussion on the pension assets.

Item 8. Financial Statements and Supplementary Data

Our consolidated financial statements and notes thereto appear on pages 58 to 96 of this Annual Report on Form 10-K.

MAXWELL TECHNOLOGIES, INC.

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Shareholders and Board of Directors
Maxwell Technologies, Inc.
San Diego, California

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Maxwell Technologies, Inc. (the “Company”) as of December 31, 2017 and 2016, the related consolidated statements of operations, comprehensive loss, stockholders’ equity, and cash flows for each of the three years in the period ended December 31, 2017, and the related notes and Schedule II-Valuation and Qualifying Accounts listed in the accompanying index (collectively referred to as the “consolidated financial statements”). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2017 and 2016, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2017, in conformity with accounting principles generally accepted in the United States of America.

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 (“COSO”) and our report dated February 16, 2018 expressed an unqualified opinion thereon.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on the Company’s 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/ BDO USA, LLP

We have served as the Company's auditor since 2013.

San Diego, California
February 16, 2018

MAXWELL TECHNOLOGIES, INC.
CONSOLIDATED BALANCE SHEETS
(in thousands, except shares and per share data)

	December 31,	
	2017	2016
ASSETS		
Current assets:		
Cash and cash equivalents	$50,122	$25,359
Trade and other accounts receivable, net of allowance for doubtful accounts of $36 and $26 as of December 31, 2017 and 2016, respectively	31,643	20,441
Inventories	32,228	32,248
Prepaid expenses and other current assets	2,983	4,407
Total current assets	116,976	82,455
Property and equipment, net	28,044	26,120
Intangible assets, net	11,715	—
Goodwill	36,061	22,799
Pension asset	11,712	8,887
Other non-current assets	871	613
Total assets	$205,379	$140,874
LIABILITIES AND STOCKHOLDERS’ EQUITY		
Current liabilities:		
Accounts payable and accrued liabilities	$32,758	$19,181
Accrued employee compensation	9,070	6,152
Deferred revenue and customer deposits	6,669	3,967
Short-term borrowings and current portion of long-term debt	33	40
Total current liabilities	48,530	29,340
Deferred tax liability, long-term	8,762	8,580
Long-term debt, excluding current portion	35,124	43
Defined benefit plan liability	3,942	—
Other long-term liabilities	2,920	2,089
Total liabilities	99,278	40,052
Commitments and contingencies (Note 13 and Note 15)		
Stockholders’ equity:		
Common stock, $0.10 par value per share, 80,000,000 shares authorized at December 31, 2017 and 2016; 37,199,519 and 32,135,029 shares issued and outstanding at December, 2017 and 2016, respectively	3,717	3,210
Additional paid-in capital	337,541	296,316
Accumulated deficit	(247,233)	(204,104)
Accumulated other comprehensive income	12,076	5,400
Total stockholders’ equity	106,101	100,822
Total liabilities and stockholders’ equity	$205,379	$140,874

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

MAXWELL TECHNOLOGIES, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share data)

	Years Ended December 31,		
	2017	2016	2015
Revenue	$130,368	$121,244	$167,372
Cost of revenue	101,573	88,274	116,410
Gross profit	28,795	32,970	50,962
Operating expenses:			
Selling, general and administrative	45,818	36,281	40,758
Research and development	18,351	20,889	24,697
Restructuring and exit costs	2,282	297	2,512
Impairment of assets	240	1,389	—
Total operating expenses	66,691	58,856	67,967
Loss from operations	(37,896)	(25,886)	(17,005)
Gain on sale of product line	—	(6,657)	—
Interest expense, net	1,355	248	284
Other income	(85)	(133)	—
Foreign currency exchange loss, net	306	216	441
Loss before income taxes	(39,472)	(19,560)	(17,730)
Income tax provision	3,657	4,145	4,603
Net loss	$(43,129)	$(23,705)	$(22,333)
Net loss per share:			
Basic and diluted	$(1.22)	$(0.74)	$(0.73)
Weighted average common shares outstanding:			
Basic and diluted	35,480	31,870	30,716

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

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MAXWELL TECHNOLOGIES, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(in thousands)

	Years Ended December 31,		
	2017	2016	2015
Net loss	$(43,129)	$(23,705)	$(22,333)
Other comprehensive income (loss), net of tax:			
Foreign currency translation adjustment	5,131	(2,107)	1,574
Defined benefit plans, net of tax:			
Actuarial gain (loss) on benefit obligations and plan assets, net of tax provision of $401 and $603 and tax benefit of $531 for the years ended December 31, 2017, 2016 and 2015, respectively	1,424	2,298	(1,862)
Amortization of deferred loss, net of tax provision of $48 and $10 for the years ended December 31, 2016 and 2015, respectively	—	195	35
Amortization of prior service cost, net of tax provision of $30, $30 and $30 for the years ended December 31, 2017, 2016 and 2015, respectively	121	120	106
Settlements and plan changes, net of tax provision of $91 for the year ended December 31, 2015	—	—	318
Other comprehensive income, net of tax	6,676	506	171
Comprehensive loss	$(36,453)	$(23,199)	$(22,162)

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

MAXWELL TECHNOLOGIES, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in thousands)

	Shares	Amount	Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Income	Total Stockholders' Equity
Balance at December 31, 2014	29,846	$2,982	$277,314	$(158,066)	$ 4,723	$ 126,953
Common stock issued under employee benefit plans	142	14	861	—	—	875
Share-based compensation	80	8	3,938	—	—	3,946
Proceeds from issuance of common stock, net	1,831	183	9,381	—	—	9,564
Cancellation of restricted shares	(117)	(11)	11	—	—	—
Net loss	—	—	—	(22,333)	—	(22,333)
Foreign currency translation adjustments	—	—	—	—	1,574	1,574
Pension adjustment, net of tax benefit of $400	—	—	—	—	(1,403)	(1,403)
Balance at December 31, 2015	31,782	3,176	291,505	(180,399)	4,894	119,176
Common stock issued under employee benefit plans	180	18	823	—	—	841
Share-based compensation	225	21	3,983	—	—	4,004
Cancellation of restricted shares	(52)	(5)	5	—	—	—
Net loss	—	—	—	(23,705)	—	(23,705)
Foreign currency translation adjustments	—	—	—	—	(2,107)	(2,107)
Pension adjustment, net of tax provision of $681	—	—	—	—	2,613	2,613
Balance at December 31, 2016	32,135	3,210	296,316	(204,104)	5,400	100,822
Common stock issued under employee benefit plans	78	7	319	—	—	326
Share-based compensation	536	54	5,891	—	—	5,945
Cancellation of restricted shares	(10)	—	(13)	—	—	(13)
Issuance of common stock for bonuses and director fees	314	31	1,772	—	—	1,803
Issuance of common stock for acquisition	4,147	415	24,879	—	—	25,294
Equity component of convertible senior notes issued	—	—	8,377	—	—	8,377
Net loss	—	—	—	(43,129)	—	(43,129)
Foreign currency translation adjustments	—	—	—	—	5,131	5,131
Pension and defined benefit plan liability adjustment, net of tax provision of $431	—	—	—	—	1,545	1,545
Balance at December 31, 2017	37,200	$3,717	$337,541	$(247,233)	$ 12,076	$ 106,101

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

MAXWELL TECHNOLOGIES, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS (in thousands)

	Years Ended December 31,		
	2017	2016	2015
Operating activities:			
Net loss	$(43,129)	$(23,705)	$(22,333)
Adjustments to reconcile net loss to net cash from operating activities:			
Depreciation	8,771	9,871	11,385
Amortization of intangible assets	809	—	166
Non-cash interest expense	444	—	—
Loss on lease due to restructuring	179	87	1,043
Pension and defined benefit plan cost	770	635	412
Stock-based compensation expense	9,037	5,364	3,946
Gain on sale of property and equipment	(20)	(131)	—
Impairment of property and equipment	240	1,389	—
Gain on sale of product line	—	(6,657)	—
Unrealized loss (gain) on foreign currency exchange rates	(150)	63	1,631
Release of tax valuation allowance	—	—	(170)
Release of tax liability	—	(1,518)	—
Provision for (recovery of) allowance on accounts receivable	10	(106)	281
Losses on write downs of inventory	2,309	397	541
Provision for warranties	303	383	1,327
Changes in operating assets and liabilities:			
Trade and other accounts receivable	(7,981)	20,085	315
Inventories	2,568	(4,956)	5,251
Prepaid expenses and other assets	477	(372)	(35)
Pension asset	(1,067)	(584)	(650)
Accounts payable and accrued liabilities	8,842	(14,884)	5,031
Deferred revenue and customer deposits	2,356	630	2,362
Accrued employee compensation	609	(1,478)	(2,670)
Deferred tax liability	(154)	1,957	2,017
Defined benefit plan and other long-term liabilities	(229)	(827)	(470)
Net cash provided by (used in) operating activities	(15,006)	(14,357)	9,380
Investing activities:			
Purchases of property and equipment	(5,817)	(5,956)	(4,143)
Proceeds from sale of property and equipment	20	133	—
Cash used in acquisition, net of cash acquired	(97)	—	—
Proceeds from sale of product line	1,500	20,486	—
Net cash provided by (used in) investing activities	(4,394)	14,663	(4,143)
Financing activities:			
Principal payments on long-term debt and short-term borrowings	(32)	(45)	(18,845)
Proceeds from long-term debt and short-term borrowings, net of discount and issuance costs	42,991	—	3,040
Proceeds from sale of common stock, net of offering costs	—	—	9,564
Proceeds from issuance of common stock under equity compensation plans	326	841	875
Net cash provided by (used in) financing activities	43,285	796	(5,366)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	878	(525)	179
Increase in cash, cash equivalents and restricted cash	24,763	577	50
Cash, cash equivalents and restricted cash, beginning of period	25,359	24,782	24,732
Cash, cash equivalents and restricted cash at end of year	$50,122	$25,359	$24,782

Cash paid for:			
Interest	$82	$75	$245
Income taxes	$2,306	$2,551	$3,475
Supplemental schedule of noncash investing and financing activities:			
Purchases of property and equipment included in accounts payable and accrued liabilities	$1,633	$181	$345
Common stock issued for acquisition of Nesscap	$25,294	$—	$—
Amounts in escrow related to sale of product line	$—	$1,500	$—

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

MAXWELL TECHNOLOGIES, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Unless the context otherwise requires, all references to "Maxwell," the "Company," "we," "us," and "our" refer to Maxwell Technologies, Inc. and its subsidiaries, and all references to "Maxwell SA" refer to our Swiss subsidiary, Maxwell Technologies, SA.

Note 1—Description of Business and Summary of Significant Accounting Policies

Description of Business

Maxwell Technologies, Inc. is a Delaware corporation originally incorporated under the name Maxwell Laboratories, Inc. in 1965. The Company made an initial public offering of common stock on the NASDAQ Stock Market in 1983, and changed its name to Maxwell Technologies, Inc. in 1996. The Company is headquartered in San Diego, California, and has three manufacturing facilities located in Rossens, Switzerland; Yongin, South Korea and Peoria, Arizona. In addition, the Company has two contract manufacturers located in China. Maxwell offers the following two product lines:

- Energy Storage: The Company's ultracapacitor products are energy storage devices that possess a unique combination of high power density, extremely long operational life and the ability to charge and discharge very rapidly. The Company's ultracapacitor cells, multi-cell packs, modules and subsystems provide highly reliable energy storage and power delivery solutions for applications in multiple industries, including automotive, grid energy storage, wind, bus, industrial and truck. The Company's lithium-ion capacitors are energy storage devices with the power characteristics of an ultracapacitor combined with the enhanced energy storage capacity approaching that of a battery and are uniquely designed to address a variety of applications in the rail, grid, and industrial markets where energy density and weight are differentiating factors.
- High-Voltage Capacitors: The Company's CONDIS® high-voltage capacitors are designed and manufactured to perform reliably for decades in all climates. These products include grading and coupling capacitors, electric voltage transformers and metering products that are used to ensure the safety and reliability of electric utility infrastructure and other applications involving transport, distribution and measurement of high-voltage electrical energy.

In addition to its two existing product lines, the Company has developed and transformed its patented, proprietary and fundamental dry electrode manufacturing technology that has historically been used to make ultracapacitors to create a new technology that can be applied to the manufacturing of batteries, which we believe can create significant performance and cost benefits as compared to today's state of the art lithium-ion batteries.

In April 2017, the Company acquired substantially all of the assets and business of Nesscap Energy, Inc. ("Nesscap"), a developer and manufacturer of ultracapacitor products for use in transportation, renewable energy, industrial and consumer markets. The acquisition added complementary businesses to the Company's operations and expanded the Company's portfolio of ultracapacitor products.

In April 2016, the Company sold substantially all of the assets and liabilities of a third product line, radiation-hardened microelectronics. The Company's radiation-hardened microelectronic products for satellites and spacecraft included single board computers and components, such as high-density memory and power modules.

The Company's products are designed and manufactured to perform reliably for the life of the products and systems into which they are integrated. The Company achieves high reliability through the application of proprietary technologies and rigorously controlled design, development, manufacturing and test processes.

Financial Statement Presentation

The accompanying consolidated financial statements include the accounts of Maxwell Technologies, Inc. and its subsidiaries and have been prepared in accordance with accounting principles generally accepted in the United States ("U.S. GAAP"). All intercompany transactions and account balances have been eliminated in consolidation.

Liquidity

On September 25, 2017, the Company issued $40.0 million of 5.50% Convertible Senior Notes due 2022 (the "Notes"). The Company received net proceeds, after deducting the initial purchaser's discount and offering expenses payable by the Company, of approximately $37.3 million. The Notes bear interest at a rate of 5.50% per year, payable semi-annually in arrears on March 15 and September 15 of each year, commencing on March 15, 2018. On October 11, 2017, under a 30-day option that was exercised, the Company issued an additional $6.0 million aggregate principal amount of convertible senior notes under the same terms and received $5.7 million of net proceeds.

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As of December 31, 2017, the Company had approximately $50.1 million in cash and cash equivalents, and working capital of $68.4 million. In July 2015, the Company entered into a loan agreement with East West Bank (“EWB”), whereby EWB made available to the Company a secured credit facility in the form of a revolving line of credit which is available up to a maximum of the lesser of: (a) $25.0 million; or (b) a certain percentage of domestic and foreign trade receivables. As of December 31, 2017, no amounts have been borrowed under this revolving line of credit and the amount available was $13.3 million. This facility is scheduled to expire in July 2018. Management believes the available cash balance will be sufficient to fund operations, obligations as they become due, and capital investments for at least the next twelve months.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect reported amounts and related disclosures. These estimates include, but are not limited to, assessing the collectability of accounts receivable, applied and unapplied production costs, production capacities, the usage and recoverability of inventories and long-lived assets, deferred income taxes, the incurrence of warranty obligations, the fair value of acquired tangible and intangible assets, impairment of goodwill and intangible assets, estimation of the cost to complete certain projects, estimation of pension and other defined benefit plan assets and liabilities, accruals for estimated losses for legal matters, and estimation of the value of stock-based compensation awards, including the probability that the performance criteria of restricted stock unit awards will be met.

Revenue Recognition

Revenue is derived primarily from the sale of manufactured products directly to customers. Product revenue is recognized, according to the guidelines of the Securities and Exchange Commission (“SEC”) Staff Accounting Bulletin (“SAB”) Numbers 101, Revenue Recognition in Financial Statements, and 104, Revenue Recognition, when all of the following criteria are met: (1) persuasive evidence of an arrangement exists (upon contract signing or receipt of an authorized purchase order from a customer); (2) title passes to the customer at either shipment from the Company’s facilities or receipt at the customer facility, depending on shipping terms; (3) customer payment is deemed fixed or determinable and free of contingencies or significant uncertainties; and (4) collectability is reasonably assured. This policy has been consistently applied from period to period.

A portion of our sales revenue is derived from sales to distributors. Distributor revenue is recognized when all of the criteria for revenue recognition are met, which is generally the time of shipment to the distributor; returns and credits are typically estimable and not significant. Certain distributor agreements of Nesscap Korea provide for significant rights of return and price adjustment; revenue related to these distributors is deferred until the period in which the distributor sells through the inventory to the end customer.

Revenue from production-type contracts, which represents less than five percent of total revenue, is recognized using the percentage of completion method. The degree of completion is determined based on costs incurred as a percentage of total costs anticipated, excluding costs that are not representative of progress to completion.

Total deferred revenue and customer deposits in the consolidated balance sheets as of December 31, 2017 and 2016 was $6.7 million and $4.0 million, respectively, and primarily relates to cash received under the localization agreement with CRRC-SRI, amounts received in advance in connection with a production-type contract for which revenue is recognized using the percentage of completion method, deferred revenue for distributors on the sell-through method of recognition, and customer advances.

Cash and Cash Equivalents

Cash and cash equivalents consist primarily of cash in readily available checking and money market accounts. Cash equivalents consist of highly liquid investments that are readily convertible to cash and that mature within three months or less from the date of purchase. The carrying amounts approximate fair value due to the short maturities of these instruments.

Accounts Receivable and Allowance for Doubtful Accounts

Trade receivables are stated at gross invoiced amount less an allowance for uncollectible accounts. The allowance for doubtful accounts reflects management’s best estimate of probable losses inherent in the accounts receivable balance. Management determines the allowance for doubtful accounts based on known troubled accounts, historical experience and other currently available evidence.

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Inventories, net

Inventories are stated at the lower of cost (first-in first-out basis) or net realizable value. Finished goods and work-in-process inventory values include the cost of raw materials, labor and manufacturing overhead. Inventory when written down to net realizable value establishes a new cost basis and its value is not subsequently increased based upon changes in underlying facts and circumstances. The Company also makes adjustments to reduce the carrying amount of inventories for estimated excess or obsolete inventories. Factors influencing these adjustments include inventories on-hand compared with historical and estimated future sales for existing and new products and assumptions about the likelihood of obsolescence. Unabsorbed manufacturing costs are treated as expense in the period incurred.

Property and Equipment

Property and equipment are carried at cost and are depreciated using the straight-line method. Depreciation is provided over the estimated useful lives of the related assets (three to ten years). Leasehold improvements are depreciated over the shorter of their estimated useful life or the term of the lease. Leasehold improvements funded by landlords are recorded as property and equipment, which is depreciated over the shorter of the estimated useful life of the asset or the lease term, and deferred rent, which is amortized over the lease term. As of December 31, 2017 and 2016, the net book value of leasehold improvements funded by landlords was $1.4 million and $1.7 million, respectively. As of December 31, 2017 and 2016, the unamortized balance of deferred rent related to landlord funding of leasehold improvements was $1.4 million and $1.7 million, respectively, which is included in “accounts payable and accrued liabilities” and “other long-term liabilities” in the consolidated balance sheets.

Goodwill

Goodwill, which represents the excess of the cost of an acquired business over the net fair value assigned to its assets and liabilities, is not amortized. Instead, goodwill is assessed annually at the reporting unit level for impairment under the Intangibles—Goodwill and Other Topic of the FASB ASC. The Company has established December 31 as the annual impairment test date. In addition, the Company assesses goodwill in between annual test dates if an event occurs or circumstances change that could more likely than not reduce the fair value of a reporting unit below its carrying value. The Company first makes a qualitative assessment as to whether goodwill is impaired. If it is more likely than not that goodwill is impaired, the Company performs a quantitative impairment analysis to determine if goodwill is impaired. The Company may also determine to skip the qualitative assessment in any year and move directly to the quantitative test. The quantitative goodwill impairment analysis compares the reporting unit’s carrying amount to its fair value. Goodwill impairment is recorded for any excess of a reporting unit's carrying amount over its fair value, not to exceed the total amount of goodwill allocated to the reporting unit. No impairments of goodwill were reported during the years ended December 31, 2017, 2016 and 2015. Also see Note 5, Goodwill and Intangible Assets, for further discussion of the Company’s goodwill impairment analysis.

Long-Lived Assets and Intangible Assets

The Company records intangible assets at their respective estimated fair values at the date of acquisition. Intangible assets are amortized based upon the pattern in which their economic benefit will be realized, or if this pattern cannot be reliably determined, using the straight-line method over their estimated useful lives of eight to fourteen years.

The Company reviews long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of the assets, including intangible assets, may not be recoverable. When such events occur, the Company compares the carrying amounts of the assets to their undiscounted expected future cash flows. If the Company determines that the carrying value of the asset is not recoverable, a permanent impairment charge is recorded for the amount by which the carrying value of the long-lived asset exceeds its fair value. During the years ended December 31, 2017 and 2016, the Company recorded impairment charges of $0.2 million and $1.4 million, respectively. These impairment charges related to property and equipment which were no longer forecasted to be utilized during their remaining useful lives and for which the fair values approximated zero. No impairments of property and equipment were recorded during the year ended December 31 2015.

Warranty Obligation

The Company provides warranties on all product sales for terms ranging from one to eight years. The Company accrues for the estimated warranty costs at the time of sale based on historical warranty experience plus any known or expected changes in warranty exposure. As of December 31, 2017 and 2016, the accrued warranty liability included in

"accounts payable and accrued liabilities" in the consolidated balance sheets was $1.4 million and $1.2 million, respectively.

Convertible Debt

Convertible notes are regarded as compound instruments, consisting of a liability component and an equity component. The component parts of compound instruments are classified separately as financial liabilities and equity in accordance with the substance of the contractual arrangement. At the date of issue, the fair value of the liability component is estimated using the prevailing market interest rate for a similar non-convertible instrument. This amount is recorded as a liability on an amortized cost basis until extinguished upon conversion or at the instrument's maturity date. The equity component is determined by deducting the amount of the liability component from the proceeds of the compound instrument as a whole. This is recognized as additional paid-in capital and included in equity, net of income tax effects, and is not subsequently remeasured. After initial measurement, the convertible notes are carried at amortized cost using the effective interest method.

Income Taxes

Deferred income taxes are provided on a liability method in accordance with the Income Taxes Topic of the FASB ASC, whereby deferred tax assets are recognized for deductible temporary differences and deferred tax liabilities are recognized for taxable temporary differences. Under this method, deferred income taxes are recorded to reflect the tax consequences on future years of temporary differences between the tax basis of assets and liabilities and their reported amounts at each period end. If it is more likely than not that some portion or all of a deferred tax asset will not be realized, a valuation allowance is recognized. The guidance also provides criteria for the recognition, measurement, presentation and disclosures of uncertain tax positions. A tax benefit from an uncertain tax position may be recognized if it is "more likely than not" that the position is sustainable based solely on its technical merits.

Concentration of Credit Risk

The Company maintains cash balances at various financial institutions primarily in California and Switzerland. In California, cash balances commonly exceed the $250,000 Federal Deposit Insurance Corporation insurance limit. In Switzerland, the banks where the Company has cash deposits are either government-owned, or in the case of cash deposited with non-government banks, deposits are insured up to 100,000 Swiss Francs. The Company has not experienced any losses in such accounts and management believes that the Company is not exposed to any significant credit risk with respect to such cash and cash equivalents.

Financial instruments, which subject the Company to potential concentrations of credit risk, consist principally of the Company's accounts receivable. The Company's accounts receivable result from product sales to customers in various industries and in various geographical areas, both domestic and foreign. The Company performs credit evaluations of its customers and generally requires no collateral. One customer, ABB Ltd., accounted for 12% of total revenue in 2017. Two customers accounted for 10% or more of total accounts receivable at December 31, 2017; Continental Automotive and ABB Ltd. accounted for 11% and 10% of accounts receivable, respectively. No customers accounted for 10% or more of total revenue during the year ended December 31, 2016 or 10% or more of total accounts receivable at December 31, 2016. One customer, Shenzhen Xinlikang Supply China Management Co. Ltd., accounted for 19% of total revenue in 2015.

Research and Development Expense

Research and development expenditures are expensed in the period incurred. Third-party funding of research and development expense under cost-sharing arrangements is recorded as an offset to research and development expense in the period the expenses are incurred. Research and development expense was $18.4 million, $20.9 million and $24.7 million, net of third-party funding under cost-sharing arrangements of $2.8 million, $1.2 million and $1.3 million, for the years ended December 31, 2017, 2016 and 2015, respectively. For the years ended December 31, 2017 and 2016, third-party funding under cost-sharing arrangements included $2.2 million and $0.6 million, respectively, related to a joint development agreement to fund the short-term costs of developing technologies for the automotive market.

Shipping and Handling Expense

The Company recognizes shipping and handling expenses as a component of cost of revenue.

Advertising Expense

Advertising costs are expensed in the period incurred. Advertising expense was $0.7 million, $0.7 million and $1.1 million for the years ended December 31, 2017, 2016 and 2015, respectively.

Foreign Currencies
The Company's primary foreign currency exposure is related to its subsidiaries in Switzerland and Korea. The functional currency of the Swiss and Korean subsidiaries are the Swiss Franc and Korean Won, respectively. The Company's Swiss subsidiary has Euro and local currency (Swiss Franc) revenue and operating expenses, and local currency loans. The Company's Korean subsidiary has U.S. dollar, Euro and local currency (Korean Won) revenue and operating expenses. Changes in these currency exchange rates impact the reported U.S. dollar amount of revenue, expenses and debt. Assets and liabilities of the Swiss and Korean subsidiaries are translated at month-end exchange rates, and revenue, expenses, gains and losses are translated at rates of exchange that approximate the rate in effect at the time of the transaction. Any translation adjustments resulting from this process are presented separately as a component of accumulated other comprehensive income within stockholders' equity in the consolidated balance sheets. Foreign currency transaction gains and losses on intercompany balances considered long term in nature are accounted for as translation adjustments within equity. All other foreign currency transaction gains and losses are reported in "foreign currency exchange loss, net" in the consolidated statements of operations.
Foreign Currency Derivative Instruments
The Company has historically used forward contracts to hedge certain monetary assets and liabilities, primarily receivables, payables, and cash balances, denominated in foreign currencies. The Company's objective was to partially offset gains or losses resulting from these exposures with opposing gains or losses on the forward contracts, thereby reducing volatility of earnings created by these foreign currency exposures. During the year ended December 31, 2016, the Company ceased using foreign currency forward contracts to hedge foreign currency transaction exposure as management determined its foreign currency transaction exposure is no longer significant. In accordance with the Derivatives and Hedging Topic of the FASB ASC, the fair values of the forward contracts were estimated at each period end based on quoted market prices and were recorded as a net asset or liability on the consolidated balance sheets. These contracts were considered economic hedges but were not designated as hedges under the Derivatives and Hedging Topic of the FASB ASC, therefore, the change in the fair value of the instruments was recognized in the consolidated statements of operations and was recorded in "foreign currency exchange loss, net" in the consolidated statements of operations.
Business Combinations
The Company accounts for businesses it acquires in accordance with ASC Topic 805, Business Combinations, which allocates the fair value of the purchase consideration to the tangible and intangible assets acquired and liabilities assumed based on their estimated fair values. The excess of the purchase consideration over the fair values of these identifiable assets and liabilities is recorded as goodwill. When determining the fair values of assets acquired and liabilities assumed, management makes significant estimates and assumptions. The Company may utilize third-party valuation specialists to assist the Company in the allocation. Initial purchase price allocations are subject to revision within the measurement period, not to exceed one year from the date of acquisition. Acquisition-related expenses and transaction costs associated with business combinations are expensed as incurred.
Restructuring and Exit Costs
Restructuring and exit costs involve employee-related termination costs, facility exit costs and other costs associated with restructuring activities. The Company accounts for charges resulting from operational restructuring actions in accordance with ASC Topic 420, Exit or Disposal Cost Obligations ("ASC 420") and ASC Topic 712, Compensation-Nonretirement Postemployment Benefits ("ASC 712").
The recognition of restructuring costs requires the Company to make certain assumptions related to the amounts of employee severance benefits, the time period over which leased facilities will remain vacant and expected sublease terms and discount rates. Estimates and assumptions are based on the best information available at the time the obligation arises. These estimates are reviewed and revised as facts and circumstances dictate; changes in these estimates could have a material effect on the amount accrued in the consolidated balance sheet.

Net Income or Loss per Share

In accordance with the Earnings Per Share Topic of the FASB ASC, basic net income or loss per share is calculated using the weighted average number of common shares outstanding during the period. Diluted net income per share includes the impact of additional common shares that would have been outstanding if potentially dilutive common shares were issued. Potentially dilutive securities are not considered in the calculation of diluted net loss per share, as their inclusion would be anti-dilutive.

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

	Years Ended December 31,		
	2017	2016	2015
Numerator			
Net loss	$(43,129)	$(23,705)	$(22,333)
Denominator			
Weighted average common shares outstanding, basic and diluted	35,480	31,870	30,716
Net loss per share			
Basic and diluted	$(1.22)	$(0.74)	$(0.73)

The following table summarizes instruments that may be convertible into common shares that are not included in the denominator used in the diluted net loss per share calculation because to do so would be anti-dilutive (in thousands of shares):

	2017	2016	2015
Outstanding options to purchase common stock	361	414	931
Unvested restricted stock awards	26	88	245
Unvested restricted stock unit awards	2,650	1,748	885
Employee stock purchase plan awards	38	—	10
Bonus and director fees to be paid in stock awards	477	265	—
Convertible senior notes	7,245	—	—
	10,797	2,515	2,071

Stock-Based Compensation

The Company issues stock-based compensation awards to its employees and non-employee directors, including stock options, restricted stock, restricted stock units, and shares under an employee stock purchase plan. The Company records compensation expense for stock-based awards in accordance with the criteria set forth in the Stock Compensation Subtopic of the FASB ASC. The Company uses the Black-Scholes option pricing model to estimate the fair value of stock option grants. The determination of the fair value of stock options utilizing the Black-Scholes model is affected by the Company’s stock price and a number of assumptions, including expected volatility, expected term, risk-free interest rate and expected dividends.

The fair value of restricted stock awards (“RSAs”) and restricted stock unit awards (“RSUs”) with service-based or performance-based vesting is based on the closing market price of the Company’s common stock on the date of grant. Compensation expense equal to the fair value of each RSA or RSU is recognized ratably over the requisite service period. For RSUs with vesting contingent on Company performance conditions, the Company uses the requisite service period that is most likely to occur. The requisite service period is estimated based on the performance period as well as any time-based service requirements. If it is unlikely that a performance condition will be achieved, no compensation expense is recognized unless it is later determined that achievement of the performance condition is likely. Expense may be adjusted for changes in the expected outcomes of the related performance conditions, with the impact of such changes recognized as a cumulative adjustment in the consolidated statement of operations in the period in which the expectation changes.

In 2016 and 2017, the Company issued market-condition RSUs to certain members of executive management. Since the vesting of the market-condition RSUs is dependent on stock price performance, the fair values of these awards were estimated using a Monte-Carlo valuation model. The determination of the fair value of market-condition RSUs utilizing a Monte-Carlo valuation model was affected by the Company’s stock price and a number of assumptions, including expected volatility, expected life, risk-free interest rate and expected dividends.

In 2016, Company adopted a bonus plan that enabled participants to earn annual incentive bonuses based upon achievement of specified financial and strategic performance objectives. Under the terms of this plan, the Company has the ability to settle bonuses earned under the plan with common stock or fully vested RSUs. The Company settled the majority of bonuses earned under the 2016 plan in stock or fully vested RSUs during 2017. For the fiscal year 2017 performance period, the Company intends to settle the amounts earned under the bonus plan in fully vested RSUs in the first quarter of 2018. The stock-based compensation expense accrued under this bonus plan represents stock-settled debt per ASC 718 and ASC 480, as such, the Company has recorded a liability for bonuses expected to be paid in fully vested RSUs in "accrued employee compensation" in the Company's consolidated balance sheets.
Stock-based compensation expense recognized in the consolidated statements of operations is based on equity awards ultimately expected to vest. The Company estimates forfeitures at the time of grant and revises forfeitures, if necessary, in subsequent periods with a cumulative catch up adjustment if actual forfeitures differ from those estimates. For market-condition awards, because the effect of the market-condition is reflected as an adjustment to the awards' fair value at grant date, subsequent forfeitures due to the Company's stock price performance do not result in a reversal of expense.

Recent Accounting Pronouncements

In May 2014, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2014-09, Revenue from Contracts with Customers. The standard provides companies with a single model for accounting for revenue arising from contracts with customers and supersedes current revenue recognition guidance, including industry-specific revenue guidance. The core principle of the model is to recognize revenue when control of the goods or services transfers to the customer, as opposed to recognizing revenue when the risks and rewards transfer to the customer under the existing revenue guidance. The guidance permits companies to either apply the requirements retrospectively to all prior periods presented, or apply the requirements in the year of adoption, through a cumulative adjustment. In August 2015, the FASB issued ASU 2015-14, Deferral of the Effective Date, which defers the required adoption date of ASU 2014-09 by one year. As a result of the deferred effective date, ASU 2014-09 will be effective for the Company in its first quarter of fiscal 2018. Early adoption is permitted but not before the original effective date of the new standard of the first quarter of fiscal 2017. The following ASUs were subsequently issued by the FASB to clarify the implementation guidance in some areas and add practical expedients: In March 2016, ASU 2016-08, Revenue from Contracts with Customers: Principal versus Agent Considerations; in April 2016, ASU 2016-10, Revenue from Contracts with Customers: Identifying Performance Obligations and Licensing; in May 2016, ASU 2016-12, Revenue from Contracts with Customers: Narrow Scope Improvements and Practical Expedients; and in December 2016, ASU 2016-20, Technical Corrections and Improvements to Revenue from Contracts with Customers. The Company's is currently finalizing its evaluation of standard product sales arrangements and has identified an adoption impact related to revenue from certain distributor agreements which was deferred until the period in which the distributor sells through the inventory to the end customer. In connection with the adoption of ASU 2014-09, the Company will change the recognition of sales to these distributors whereby revenue will be estimated and recognized in the period in which the Company transfers control of the product to the distributor; the adoption impact is not expected to be material. Other than this impact, the Company has not identified any expected impact on the timing and measurement of revenue for standard product sales arrangements from the adoption of the standard and the Company is currently formalizing its final conclusions. The Company is also formalizing its evaluation of the impact of adoption on non-product sales arrangements, which represent less than five percent of revenue. The Company has developed and used a comprehensive project plan to guide implementation of the new standard and is currently completing its assessment. The Company will adopt the new accounting standard using the modified retrospective transition method effective January 1, 2018.
In February 2016, the FASB issued ASU No. 2016-02, Leases. The standard requires that a lessee recognize the assets and liabilities that arise from operating leases. A lessee should recognize in its balance sheet a liability to make lease payments (the lease liability) and a right-of-use asset representing its right to use the underlying asset for the lease term. For leases with a term of 12 months or less, a lessee is permitted to make an accounting policy election by class of underlying asset not to recognize lease assets and lease liabilities. In transition, lessees and lessors are required to recognize and measure leases at the beginning of the earliest period presented using a modified retrospective approach. The guidance in ASU 2016-02 is effective for annual and interim reporting periods beginning after

December 15, 2018. The Company's initial evaluation of its current leases does not indicate that the adoption of this standard will have a material impact on its consolidated statements of operations. The Company expects that the adoption of the standard will have a material impact on its consolidated balance sheets for the recognition of certain operating leases as right-of-use assets and lease liabilities.

In March 2016, the FASB issued ASU No. 2016-09, Improvements to Employee Share-Based Payment Accounting, which changes the accounting for employee share-based payments, including the accounting for income taxes, forfeitures, and statutory tax withholding requirements, as well as classification in the statement of cash flows. Under the new guidance, excess tax benefits associated with share-based payment awards will be recognized in the income statement when the awards vest or settle, rather than in stockholders' equity. In addition, it will increase the number of shares an employer can withhold to cover income taxes on share-based payment awards and still qualify for the exemption to liability classification. The guidance was effective for the Company in the first quarter of 2017. The adoption of this standard resulted in the recognition of $10.0 million of gross deferred tax assets related to stock-based compensation and a corresponding increase in the Company's valuation allowance. The Company has elected to account for forfeitures of share-based payments by estimating the number of awards expected to be forfeited at the time of grant and adjusting the estimate to reflect changes in expected vesting of shares.

In November 2016, the FASB issued ASU No. 2016-18, Statement of Cash Flows - Restricted Cash, which requires entities to show the changes in the total of cash, cash equivalents, restricted cash and restricted cash equivalents in the statement of cash flows. The guidance will be effective for the Company in its first quarter of fiscal 2018. Early adoption is permitted, including adoption in an interim period, but any adjustments must be reflected as of the beginning of the fiscal year that includes that interim period. The new standard must be adopted retrospectively. The Company early adopted this standard in the fourth quarter of 2016. In accordance with the Company's early adoption of ASU No. 2016-18, the retrospective restatement was limited to including restricted cash balances in the amount of $0.4 million in beginning cash, cash equivalents and restricted cash balances for the year ended December 31, 2016 in the consolidated statements of cash flows. The retrospective adoption did not impact reported net loss and does not otherwise have a material impact on the presentation of the overall financial statements.

In January 2017, the FASB issued ASU No. 2017-04, Intangibles - Goodwill and Other, which eliminates step two of the quantitative goodwill impairment test. Step two required determination of the implied fair value of a reporting unit, and then a comparison of this implied fair value with the carrying amount of goodwill for the reporting unit, in order to determine any goodwill impairment. Under the new guidance, an entity is only required to complete a one-step quantitative test, by comparing the fair value of a reporting unit with its carrying amount, and any goodwill impairment charge is determined by the amount by which the carrying amount exceeds the reporting unit's fair value. However, the loss should not exceed the total amount of goodwill allocated to the reporting unit. The standard is effective for the Company in the first quarter of 2020, with early adoption permitted as of January 1, 2017, and is to be applied on a prospective basis. The adoption of the standard will not materially impact the Company's consolidated financial statements unless step one of the annual goodwill impairment test fails. The Company early adopted this standard on January 1, 2017 and the adoption did not have an effect on the Company's consolidated financial statements.

In March 2017, the FASB issued ASU No. 2017-07, Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost, which changes how employers that sponsor defined benefit pension or other postretirement benefit plans present the net periodic benefit cost in the statement of operations. The new guidance requires entities to report the service cost component in the same line item or items as other compensation costs. The other components of net benefit cost are required to be presented in the statement of operations separately from the service cost component and outside the subtotal of loss from operations. ASU 2017-07 also provides that only the service cost component is eligible for capitalization. The standard is effective for the Company in the first quarter of 2018, with adoption to be applied on a retrospective basis. The Company's 2017 and 2016 loss from operations, when restated, will increase $0.7 million and $0.5 million, respectively, due to the reclassification of the non-service cost components of net benefit cost which will be moved to a line below loss from operations. There is no impact to net loss or net loss per share in the Company's consolidated statements of operations. The Company applied the practical expedient as the estimation basis for this reclassification.

In May 2017, the FASB issued ASU No. 2017-09, Compensation-Stock Compensation: Scope of Modification Accounting, which provides clarification on when modification accounting should be used for changes to the terms or conditions of a share-based payment award. This ASU does not change the accounting for modifications but clarifies that modification accounting guidance should only be applied if there is a change to the value, vesting conditions or award classification and would not be required if the changes are considered non-substantive. The amendments of this

ASU are effective for the Company in the first quarter of 2018, with early adoption permitted. The adoption of ASU 2017-09 is not expected to have an impact on the Company's consolidated financial statements.
In August 2017, the FASB issued ASU No. 2017-12, Derivatives and Hedging - Targeted Improvements to Accounting for Hedging Activities, which modifies the presentation and disclosure of hedging results. Further, it provides partial relief on the timing of certain aspects of hedge documentation and eliminates the requirement to recognize hedge ineffectiveness separately in income. The amendments in this ASU are effective for the Company in the first quarter of 2019. The Company does not expect this ASU to have a material impact on its consolidated financial statements.

Business Enterprise Information

The Company operates as a single operating segment. According to the FASB ASC Topic Disclosures about Segments of an Enterprise and Related Information, operating segments are defined as components of an enterprise for which separate financial information is evaluated regularly by the chief operating decision maker ("CODM") in deciding how to allocate resources and in assessing performance. The Company's CODM is the Chief Executive Officer who evaluates the Company's financial information and resources and assesses performance on a consolidated basis.

Revenue by product line and geographic area is presented below (in thousands):

	Years ended December 31,		
Revenue by product line:	2017	2016	2015
Ultracapacitors	$87,709	$71,491	$114,525
High-voltage capacitors	42,659	45,177	41,718
Microelectronic products	—	4,576	11,129
Total	$130,368	$121,244	$167,372

	Years ended December 31,		
Revenue from external customers located in[1]:	2017	2016	2015
China	$44,945	$48,191	$87,856
United States	13,874	12,041	20,836
Germany	16,287	12,854	13,972
Hungary	13,454	11,473	11,630
All other countries [2]	41,808	36,685	33,078
Total	$130,368	$121,244	$167,372

(1) Location is determined by shipment destination.

(2) Revenue from external customers located in countries included in "All other countries" does not individually comprise more than 10% of total revenue for any of the years presented.

Long-lived assets by geographic location are as follows (in thousands):

	As of December 31,		
	2017	2016	2015
United States	$14,443	$19,267	$22,267
China	1,107	1,477	4,148
South Korea	4,398	—	—
Switzerland	8,096	5,376	6,021
Total	$28,044	$26,120	$32,436

Note 2—Balance Sheet Details (in thousands):

Inventories

	December 31, 2017	December 31, 2016
Raw materials and purchased parts	$ 12,675	$ 12,210
Work-in-process	1,756	858
Finished goods	17,797	19,180
Total inventories	$ 32,228	$ 32,248

Warranty

Activity in the warranty reserve, which is included in “accounts payable and accrued liabilities” in the consolidated balance sheets, is as follows:

	Years Ended December 31,	
	2017	2016
Beginning balance	$1,213	$1,288
Acquired liability from Nesscap	773	—
Product warranties issued	177	486
Settlement of warranties	(876)	(458)
Changes related to preexisting warranties	126	(103)
Ending balance	$1,413	$1,213

Property and equipment, net

	December 31,	
	2017	2016
Machinery, furniture and office equipment	$67,963	$62,583
Computer hardware and software	10,436	10,071
Leasehold improvements	21,599	20,320
Construction in progress	5,461	1,401
Property and equipment, gross	105,459	94,375
Less accumulated depreciation and amortization	(77,415)	(68,255)
Total property and equipment, net	$28,044	$26,120

Accounts payable and accrued liabilities

	December 31,	
	2017	2016
Accounts payable	$21,242	$13,109
Income tax payable	1,737	1,066
Accrued warranty	1,413	1,213
Other accrued liabilities	8,366	3,793
Total accounts payable and accrued liabilities	$32,758	$19,181

Accumulated Other Comprehensive Income (Loss)

	Foreign Currency Translation Adjustment	Pension and Defined Benefit Plan	Accumulated Other Comprehensive Income	Affected Line Items in the Statement of Operations
Balance as of December 31, 2016	$ 7,826	$(2,426)	$ 5,400	
Other comprehensive income before reclassification	5,131	—	5,131	
Amounts reclassified from accumulated other comprehensive income (loss)	—	1,545	1,545	Cost of Sales, Selling, General and Administrative and Research and Development Expense
Net other comprehensive income	5,131	1,545	6,676	
Balance as of December 31, 2017	$ 12,957	$(881)	$ 12,076	

Note 3 – Business Combination

On April 28, 2017, the Company acquired substantially all of the assets and business of Nesscap Energy, Inc. (“Nesscap”), a developer and manufacturer of ultracapacitor products for use in transportation, renewable energy, industrial and consumer markets, in exchange for the issuance of approximately 4.1 million shares of Maxwell common stock (the “Share Consideration”) and the assumption of certain liabilities pursuant to the terms of the previously announced Arrangement Agreement dated as of February 28, 2017 between Maxwell and Nesscap (the “ Nesscap Acquisition”). The value of the Share Consideration was approximately $25.3 million based on the closing price of the Company’s common stock on April 28, 2017. Additionally, per the Arrangement Agreement, the Company paid approximately $1.0 million of transaction taxes on behalf of the seller. The Nesscap Acquisition was effected by means of a court-approved statutory plan of arrangement and was approved by the requisite vote cast by shareholders of Nesscap at a special meeting of Nesscap’s shareholders held on April 24, 2017.

The Share Consideration represents approximately 11.3% of the outstanding shares of Maxwell, based on the number of shares of Maxwell common stock outstanding as of April 28, 2017.

The Nesscap Acquisition adds scale to the Company’s operations and expands the Company’s portfolio of ultracapacitor products.

The fair value of the purchase price consideration consisted of the following (in thousands):

Maxwell common stock	$25,294
Settlement of seller’s transaction expenses	1,006
Total estimated purchase price	$26,300

The acquisition has been accounted for under the acquisition method of accounting in accordance with ASC 805, Business Combinations. Under this method of accounting, the Company recorded the acquisition based on the fair value of the consideration given and the cash consideration paid. The Company allocated the acquisition consideration paid to the identifiable assets acquired and liabilities assumed based on their respective fair values at the date of completion of the acquisition. Any excess of the value of consideration paid over the aggregate fair value of those net assets has been recorded as goodwill, which is attributable to expected synergies from combining operations, the acquired workforce, as well as intangible assets which do not qualify for separate recognition. The Company has allocated the goodwill to a new reporting unit. The goodwill associated with the acquisition is not deductible for income tax purposes.

The fair values of net tangible assets and intangible assets acquired were based upon the Company's estimates and assumptions at the acquisition date. The following table summarizes the allocation of the assets acquired and liabilities assumed at the acquisition date (in thousands):

	Fair Value
Cash and cash equivalents	$909
Accounts receivable	2,545
Inventories	4,397
Prepaid expenses and other assets	764
Property and equipment	3,314
Intangible assets	11,800
Accounts payable, accrued compensation and other liabilities	(5,713)
Employee severance obligation	(3,340)
Total identifiable net assets	14,676
Goodwill	11,624
Total purchase price	$26,300

The fair value of inventories acquired included an acquisition accounting fair market value step-up of $686,000. In the year ended December 31, 2017, the Company recognized $646,000 of the step-up as a component of cost of revenue for acquired inventory sold during the period. Included in inventory as of December 31, 2017, was $40,000 related to the remaining fair value step-up associated with the acquisition.

For the year ended December 31, 2017, acquisition-related costs of $1.9 million were included in selling, general, and administrative expenses in the Company's consolidated statements of operations.

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The following table presents details of the identified intangible assets acquired through the Nesscap Acquisition (in thousands):

	Estimated Useful Life (in years)	Fair Value
Customer relationships - institutional	14	$3,200
Customer relationships - non-institutional	10	4,400
Trademarks and trade names	10	1,500
Developed technology	8	2,700
Total intangible assets		$11,800

The fair value of the $11.8 million of identified intangible assets acquired in connection with the Nesscap Acquisition was estimated using an income approach. Under the income approach, an intangible asset's fair value is equal to the present value of future economic benefits to be derived from ownership of the asset. More specifically, the fair values of the customer relationship intangible assets were determined using the multi-period excess earnings method, which estimates an intangible asset’s value based on the present value of the incremental after-tax cash flows attributable only to the intangible asset. The fair values of the trademark and trade names and developed technology intangible assets were valued using the relief from royalty method, which is based on the principle that ownership of the intangible asset relieves the owner of the need to pay a royalty to another party in exchange for rights to use the asset.

The following unaudited pro forma financial information presents the combined results of operations for each of the periods presented, as if the Nesscap Acquisition had occurred at the beginning of fiscal year 2016 (in thousands, except per share amounts):

	Years Ended December 31,	
	2017	2016
Net revenues	$135,534	$141,724
Net loss	(43,849)	(28,701)
Net loss per share:		
Basic and diluted	(1.19)	(0.80)
Weighted average common shares outstanding:		
Basic and diluted	36,809	36,017

The unaudited pro forma information has been adjusted to reflect the following:

- Amortization expense for acquired intangibles and removal of Nesscap historical intangibles amortization
- Removal of historical Nesscap interest expenses, gains and losses related to debt not acquired
- Recognition of expense associated with the valuation of inventory acquired

The pro forma data is presented for illustrative purposes only and is not necessarily indicative of the consolidated results of operations of the combined business had the acquisition actually occurred at the beginning of fiscal year 2016 or of the results of future operations of the combined business. The unaudited pro forma financial information does not reflect any operating efficiencies and cost saving that may be realized from the integration of the acquisition.

For the year ended December 31, 2017, $17.3 million of revenue and $0.9 million of net loss included in the Company's consolidated statements of operations was related to Nesscap operations. The Company does not consider the 2017 revenue and net loss related to Nesscap operations to be indicative of the results of the Nesscap Acquisition due to integration activities since the acquisition date.

Also see Note 5, Goodwill and Intangible Assets, for further information on goodwill and intangible assets related to the Nesscap Acquisition.

Note 4 – Sale of Microelectronics Product Line

On April 27, 2016, the Company sold substantially all of the assets and liabilities comprising its microelectronics product line to Data Device Corporation, a privately-held Delaware corporation. The transaction purchase price was $21.0 million, subject to a working capital adjustment and a one year $1.5 million escrow holdback on the purchase price, which was received in May 2017.

The assets sold were primarily comprised of inventory, accounts receivable and property and equipment. The liabilities sold were comprised mainly of deferred revenue, accounts payable and other current liabilities. During the first quarter of 2016, the Company met the held for sale criteria in accordance with ASC Topic 380, Impairment or Disposal of Long Lived Assets, and the Company ceased depreciation on the property and equipment and classified the assets to be sold as held for sale. During the second quarter of 2016, all assets and liabilities formerly classified as held for sale were disposed of pursuant to the sale. The sale of the microelectronics product line did not represent a strategic shift that had a major effect on the Company's operations and financial results. As such, the Company did not account for the disposition as a discontinued operation. During the year ended December 31, 2016, the Company recorded a gain of $6.7 million related to the sale of the microelectronics product line.

Note 5—Goodwill and Intangible Assets

The Company performs an impairment test for goodwill annually according to the Intangibles—Goodwill and Other Topic of the FASB ASC. On January 1, 2017, the Company also early adopted ASU 2017 No. 2017-04, Intangibles - Goodwill and Other, which eliminates step two of the quantitative goodwill impairment test. The Company first makes a qualitative assessment of the likelihood of goodwill impairment and if it concludes that it is more likely than not that the carrying amount of a reporting unit is greater than its fair value, then it will be required to perform a quantitative impairment test. Otherwise, performing the impairment test is not required. Qualitative factors assessed at the reporting unit level include, but are not limited to, changes in industry and market structure, competitive environments, planned capacity and new product launches, cost factors such as raw material prices and financial performance of the reporting unit. The Company may also determine to skip the qualitative assessment in any year and move directly to the quantitative test.

The quantitative impairment test consists of estimating the fair value and comparing the estimated fair value with the carrying value of the reporting unit. Any goodwill impairment charge is determined by the amount by which the carrying amount exceeds the reporting unit's fair value. However, the loss should not exceed the total amount of goodwill allocated to the reporting unit. The guidance requires goodwill to be reviewed annually at the same time every year or when an event occurs or circumstances change such that it is reasonably possible that an impairment may exist. The Company selected December 31 as its annual testing date.

In 2017, the Company performed a qualitative assessment of its reporting units which included an evaluation of changes in industry, market and macroeconomic conditions as well as consideration of each reporting unit's financial performance and any significant trends. The Company's qualitative assessment indicated that it was not more likely that not that goodwill is impaired. Further, the Company noted no significant negative trends or decreases in its long-range plan that would indicate a different result compared to its 2016 quantitative analysis of its ultracapacitor reporting unit.

In 2016, the Company assessed the qualitative factors for one of its two reporting units and concluded that it was more likely than not that its fair value exceeded its carrying value and therefore did not perform quantitative testing for the reporting unit. For its other reporting unit, the Company determined to skip the qualitative assessment and moved directly to the quantitative test. The Company utilized a discounted cash flow methodology to calculate the fair value of the reporting unit. Based on the fair value analysis, management concluded that fair value exceeded carrying value of the reporting unit and no additional quantitative testing was required. As a result of the Company's annual assessments, no impairments were recorded during the years ended December 31, 2017, 2016 and 2015.

The change in the carrying amount of goodwill during 2016 and 2017 was as follows (in thousands):

Balance at December 31, 2015	$23,635
Foreign currency translation adjustments	(545)
Disposition of microelectronics product line	(291)
Balance at December 31, 2016	22,799
Foreign currency translation adjustments	1,638
Goodwill from Nesscap Acquisition	11,624
Balance at December 31, 2017	$36,061

The composition of intangible assets subject to amortization was as follows (in thousands):

	As of December 31, 2017				
	Useful Life (in years)	Gross Initial Carrying Value	Cumulative Foreign Currency Translation Adjustment	Accumulated Amortization	Net Carrying Value
Customer relationships - institutional	14	$ 3,200	$ 197	$ (156)	$ 3,241
Customer relationships - non-institutional	10	4,400	266	(304)	4,362
Trademarks and trade names	10	1,500	90	(103)	1,487
Developed technology	8	2,700	160	(235)	2,625
Total intangible assets		$ 11,800	$ 713	$ (798)	$ 11,715

The useful life of intangible assets reflects the period the assets are expected to contribute directly or indirectly to future cash flows. Intangible assets are amortized over the useful lives of the assets utilizing the straight-line method, which is materially consistent with the pattern in which the expected benefits will be consumed, calculated using undiscounted cash flows.

For the year ended December 31, 2017, amortization expense of $0.2 million was recorded to “cost of revenue” and $0.6 million was recorded to “selling, general and administrative.” Estimated amortization expense for the years 2018 through 2021 is $1.2 million each year. The expected amortization expense is an estimate and actual amounts could differ due to additional intangible asset acquisitions, changes in foreign currency rates or impairment of intangible assets.

Note 6 – Restructuring and Exit Costs

2017 Restructuring Plans

In September 2017, the Company initiated a restructuring plan to optimize headcount in connection with the acquisition and integration of the assets and business of Nesscap, as well as to implement additional organizational efficiencies. Total charges for the September 2017 restructuring plan were approximately $1.2 million, all of which were incurred in 2017.

In February 2017, the Company implemented a comprehensive restructuring plan that included a wide range of organizational efficiency initiatives and other cost reduction opportunities. Total charges for the year ended December 31, 2017 for the February 2017 restructuring plan were approximately $0.9 million.

The Company accounts for charges resulting from restructuring and exit activities in accordance with ASC Topic 420, Exit or Disposal Cost Obligations (“ASC 420”), and ASC Topic 712, Compensation-Nonretirement Postemployment Benefits, for employee termination benefits to be paid in accordance with its ongoing employee termination benefit arrangement.

The charges related to both of the 2017 restructuring plans consist of employee severance costs and have been or will be paid in cash. The charges were recorded within “restructuring and exit costs” in the consolidated statements of operations.

The following table summarizes the changes in the liabilities for each of the 2017 restructuring plans, which are recorded in “accrued employee compensation” in the Company’s condensed consolidated balance sheet for the year ended December 31, 2017 (in thousands):

	February 2017 Plan	September 2017 Plan
	Employee Severance Costs	
Restructuring plans liability as of December 31, 2016	$ —	$ —
Costs incurred	997	1,275
Amounts paid	(855)	(431)
Accruals released	(142)	(27)

Restructuring liability as of December 31, 2017	$ —	$ 817

2015 Restructuring Plan

In 2015, the Company initiated a restructuring plan to consolidate U.S. manufacturing operations and to reduce headcount and operating expenses in order to align the Company's cost structure with the current business forecast and to improve operational efficiency. The 2015 plan also included the disposition of the Company's microelectronics product line which was completed in April 2016. With the exception of lease assumption revisions described below, the plan was completed in 2016. Total restructuring and exit costs for the 2015 plan were $3.0 million, which included $1.5 million in facilities costs related to the consolidation of manufacturing operations, $1.2 million in employee severance costs and $0.3 million in other exit costs. The Company also incurred $0.6 million in accelerated equipment depreciation expense related to the consolidation of manufacturing operations. Total cash expenditures, excluding lease payments, related to the 2015 restructuring plan activities were approximately $1.5 million.

In June 2015, the Company ceased use of approximately 60,000 square feet of its Peoria, AZ manufacturing facility, and determined this leased space would have no future economic benefit to the Company based on the current business forecast. As a result, in June 2015, the Company recorded a liability for the future rent obligation associated with this space, net of estimated sublease income, in accordance with ASC Topic 420. For the year ended December 31, 2015, the expense related to the exit of this leased space was $1.2 million, before tax, and was recorded as a component of total restructuring and exit costs. During the years ended December 31, 2017 and 2016, the Company recorded additional restructuring and exit costs of $0.2 million and $0.1 million, respectively, related to revisions to the sublease income assumption.

For the years ended December 31, 2017, 2016 and 2015, the Company recorded total charges related to its 2015 restructuring plan of $0.2 million, $0.3 million and $2.5 million, respectively, within "restructuring and exit costs" in the consolidated statements of operations. Additionally, for the years ended December 31, 2016 and 2015, the Company recorded $0.1 million and $0.4 million, respectively, of accelerated depreciation expense within "cost of revenue" in the consolidated statements of operations.

As of December 31, 2017, the Company's consolidated balance sheet includes restructuring liability associated with lease obligation costs of $0.3 million in "accounts payable and accrued liabilities" and $0.4 million in "other long term liabilities."

The following table summarizes restructuring and exit costs related to the 2015 restructuring plan for the years ended December 31, 2017, 2016 and 2015 (in thousands):

	Employee Severance Costs	Lease Obligation Costs	Other Exit Costs	Total
Restructuring liability as of December 31, 2014	$ —	$ —	$ —	$—
Costs incurred	1,439	1,208	—	2,647
Restructuring cash payments	(1,010)	—	—	(1,010)
Accruals released	(135)	—	—	(135)
Lease payments and accretion	—	(165)	—	(165)
Restructuring liability as of December 31, 2015	294	1,043	—	1,337
Costs incurred	67	86	298	451
Restructuring cash payments	(207)	—	(246)	(453)
Accruals released	(154)	—	—	(154)
Lease payments and accretion	—	(327)	(52)	(379)
Restructuring liability as of December 31, 2016	—	802	—	802
Costs incurred	—	179	—	179
Lease payments and accretion	—	(311)	—	(311)
Restructuring liability as of December 31, 2017	$ —	$ 670	$ —	$670

Note 7—Debt and Credit Facilities

Convertible Senior Notes

On September 25, 2017 and October 11, 2017, the Company issued $40.0 million and $6.0 million, respectively, of 5.50% Convertible Senior Notes due 2022 (the "Notes"). The Company received net proceeds, after deducting the initial purchaser's discount and offering expenses payable by the Company, of approximately $43.0 million. The Notes bear

interest at a rate of 5.50% per year, payable semi-annually in arrears on March 15 and September 15 of each year, with payments commencing on March 15, 2018. The Notes mature on September 15, 2022, unless earlier purchased by the Company, redeemed, or converted.

The Notes are unsecured obligations of Maxwell and rank senior in right of payment to any of Maxwell's subordinated indebtedness; equal in right of payment to all of Maxwell's unsecured indebtedness that is not subordinated; effectively subordinated in right of payment to any of Maxwell's secured indebtedness to the extent of the value of the assets securing such indebtedness; and structurally subordinated to all indebtedness and other liabilities (including trade payables) of Maxwell's subsidiaries.

The Notes are convertible into cash, shares of the Company's common stock, or a combination thereof, at the Company's election, upon the satisfaction of specified conditions and during certain periods as described below. The initial conversion rate is 157.5101 shares of the Company's common stock per $1,000 principal amount of Notes, representing an initial effective conversion price of $6.35 per share of common stock and premiums of 27% and 29% to the Company's $5.00 and $4.94 stock prices at the September 25, 2017 and October 11, 2017 dates of issuance, respectively. The conversion rate may be subject to adjustment upon the occurrence of certain specified events as provided in the indenture governing the Notes, dated September 25, 2017 between the Company and Wilmington Trust, National Association, as trustee (the "Indenture"), but will not be adjusted for accrued but unpaid interest. As of December 31, 2017, the if-converted value of the Notes did not exceed the principal value of the Notes.

Prior to the close of business on the business day immediately preceding June 15, 2022, the Notes will be convertible at the option of holders only upon the satisfaction of specified conditions and during certain periods. Thereafter until the close of business on the business day immediately preceding maturity, the Notes will be convertible at the option of the holders at any time regardless of these conditions.

Upon the occurrence of certain fundamental changes involving the Company, holders of the Notes may require the Company to repurchase for cash all or part of their Notes at a repurchase price equal to 100% of the principal amount of the Notes to be repurchased, plus accrued and unpaid interest, if any, to, but excluding, the fundamental change repurchase date.

The Company may not redeem the Notes prior to September 20, 2020. The Company may redeem the Notes, at its option, in whole or in part on or after September 20, 2020 if the last reported sale price of the Company's common stock has been at least 130% of the conversion price then in effect for at least 20 trading days

The Company considered the features embedded in the Notes, that is, the conversion feature, the Company's call feature, and the make-whole feature, and concluded that they are not required to be bifurcated and accounted for separately from the host debt instrument.

The Notes included an initial purchaser's discount of $2.5 million, or 5.5%. This discount is recorded as an offset to the debt and is amortized over the expected life of the Notes using the effective interest method.

Upon conversion by the holders, the Company may elect to settle such conversion in shares of its common stock, cash, or a combination thereof. As a result of its cash conversion option, the Company segregated the liability component of the instrument from the equity component. The liability component was measured by estimating the fair value of a non-convertible debt instrument that is similar in its terms to the Notes. The calculation of the fair value of the debt component required the use of Level 3 inputs, including utilization of credit assumptions and high yield bond indices. Fair value was estimated using an income approach, through discounting future interest and principal payments due under the Notes at a discount rate of 12.0%, an interest rate equal to the estimated borrowing rate for similar non-convertible debt. The excess of the initial proceeds from the Notes over the estimated fair value of the liability component was $8.5 million and was recognized as a debt discount and recorded as an increase to additional paid-in capital, and will be amortized over the expected life of the Notes using the effective interest method. Amortization of the debt discount is recognized as non-cash interest expense.

The transaction costs of $0.5 million incurred in connection with the issuance of the Notes were allocated to the liability and equity components based on their relative fair values. Transaction costs allocated to the liability component are being amortized using the effective interest method and recognized as non-cash interest expense over the expected term of the Notes. Transaction costs allocated to the equity component of $0.1 million reduced the value of the equity component recognized in stockholders' equity.

The initial purchaser debt discount, the equity component debt discount and the transaction costs allocated to the liability are being amortized over the contractual term to maturity of the Notes using an effective interest rate of 12.2%.

The carrying value of the Notes is as follows (in thousands):

	As of December 31, 2017
Principal amount	$ 46,000
Unamortized debt discount - equity component	(8,144)
Unamortized debt discount - initial purchaser	(2,431)
Unamortized transaction costs	(383)
Net carrying value	$ 35,042

Total interest expense related to the Notes is as follows (in thousands):

	Year ended December 31, 2017
Cash interest expense	
Coupon interest expense	$ 661
Non-cash interest expense	
Amortization of debt discount - equity component	330
Amortization of debt discount - initial purchaser	98
Amortization of transaction costs	16
Total interest expense	$ 1,105

Revolving Line of Credit

In July 2015, the Company entered into a Loan and Security Agreement (the “Loan Agreement”) with East West Bank (“EWB”), whereby EWB made available to the Company a secured credit facility in the form of a revolving line of credit (the “Revolving Line of Credit”). The Revolving Line of Credit is available up to a maximum of the lesser of: (a) $25.0 million; or (b) a certain percentage of domestic and foreign trade receivables. As of December 31, 2017 the amount available under the Revolving Line of Credit was $13.3 million. In general, amounts borrowed under the Revolving Line of Credit are secured by a lien on all of the Company’s assets, including its intellectual property, as well as a pledge of 100% of its equity interests in Maxwell SA. The obligations under the Loan Agreement are also guaranteed directly by Maxwell SA. The Revolving Line of Credit will mature on July 3, 2018. In the event that the Company is in violation of the representations, warranties and covenants made in the Loan Agreement, including certain financial covenants set forth therein, the Company may not be able to utilize the Revolving Line of Credit or repayment of amounts owed pursuant to the Loan Agreement could be accelerated. The Company is currently in compliance with the financial covenants that it is required to meet during the term of the credit agreement including the minimum four-quarter rolling EBITDA, quarterly minimum quick ratio and monthly minimum cash requirements. On March 1, 2017, the Company entered into an amendment to the Loan Agreement to approve the acquisition of substantially all of the assets and business of Nesscap Energy, Inc., and to modify certain financial covenants.

Amounts borrowed under the Revolving Line of Credit bear interest, payable monthly. Such interest shall accrue based upon, at the Company’s election, subject to certain limitations, either the Prime Rate plus a margin ranging from 0% to 0.50% or the LIBOR Rate plus a margin ranging from 2.75% to 3.25%, the specific rate for each as determined based upon the Company’s leverage ratio from time to time.

The Company is required to pay an annual commitment fee of $125,000, and an unused commitment fee of the average daily unused amount of the Revolving Line of Credit, payable monthly, equal to a per annum rate in a range of 0.30% to 0.50%, as determined by the Company’s leverage ratio on the last day of the previous fiscal quarter. No amounts have been borrowed under the Revolving Line of Credit as of December 31, 2017.

Former Credit Facility

In December 2011, the Company obtained a secured credit facility in the form of a revolving line of credit (the “Former Revolving Line of Credit”) and an equipment term loan (the “Equipment Term Loan”) (together, the “Former Credit Facility”). Borrowings under the Former Credit Facility bore interest, payable monthly, at either (i) the bank’s prime rate or (ii) LIBOR plus 2.25%, at the Company’s option subject to certain limitations. The Equipment Term Loan was available to finance 80% of eligible equipment purchases made between April 1, 2011 and April 30, 2012. During this period, the Company borrowed $5.0 million under the Equipment Term Loan. The balance of the Equipment Term Loan was paid in full by the maturity date of April 30, 2015. Concurrently with entering into the Loan Agreement described above, in July 2015, the Company repaid all outstanding loans under the Former Revolving Line of Credit and the Former Credit Facility was terminated. The Company did not incur any early termination or prepayment penalties under the Former Credit Facility in connection with the above transactions.

Other Long-term Borrowings

Maxwell SA has various financing agreements for vehicles. These agreements are for up to an original three-year repayment period with interest rates ranging from 0.9% to 1.9%. At December 31, 2017 and 2016, $115,000 and $83,000, respectively, was outstanding under these agreements.

Note 8—Fair Value Measurement

The Company records certain financial instruments at fair value in accordance with the Fair Value Measurements and Disclosures Topic of the FASB ASC. Historically, the financial instruments to which this topic applied were foreign currency forward contracts and pension assets. The fair value of foreign currency forward contracts was recorded as a liability or asset in the consolidated balance sheets. During the second quarter of 2016, the Company ceased using foreign currency forward contracts to hedge foreign currency exposure as management determined its foreign currency exposure is no longer significant. Therefore, no foreign currency forward contracts were outstanding as of December 31, 2017 or 2016. The fair value of derivative instruments was measured using models following quoted market prices in active markets for identical instruments, which is a Level 2 input under the fair value hierarchy of the Fair Value Measurements and Disclosures Topic of the FASB ASC. Also see Note 9, Foreign Currency Derivative Instruments, and Note 14, Pension and Other Postretirement Benefit Plans, of this Annual Report on Form 10-K, for further discussion of fair value measurements.

As of December 31, 2017, the fair value of the Company’s convertible senior notes issued in September and October 2017 is approximately $52.6 million, and was measured using Level 2 inputs. The carrying value of short-term and long-term borrowings approximates fair value because of the relative short maturity of these instruments and the interest rates the Company could currently obtain.

Note 9—Foreign Currency Derivative Instruments

The Company has historically used forward contracts to hedge certain monetary assets and liabilities, primarily receivables, payables, and cash balances, denominated in foreign currencies. During the year ended December 31, 2016, the Company ceased using foreign currency forward contracts to hedge foreign currency exposure as management determined its foreign currency exposure is no longer significant. The change in fair value of these forward contracts represented a natural hedge as gains and losses on these instruments partially offset the changes in the fair value of the underlying monetary assets and liabilities due to movements in currency exchange rates. These forward contracts generally expired in one month. These contracts were considered economic hedges but were not designated as hedges under the Derivatives and Hedging Topic of the FASB ASC, therefore, the change in the fair value of the instruments was recognized each period in the consolidated statements of operations.

The net losses on foreign currency forward contracts included in “foreign currency exchange loss, net” in the consolidated statements of operations are as follows (in thousands):

	Year Ended December 31,		
	2017	2016	2015
Total loss	$—	$(88)	$(720)

The net losses on foreign currency derivative contracts were partially offset by net gains and losses on the underlying monetary assets and liabilities. The net foreign currency gains or losses on those underlying monetary assets and liabilities included in “foreign currency exchange loss, net” in the consolidated statements of operations are as follows (in thousands):

	Year Ended December 31,		
	2017	2016	2015
Total gain (loss)	$—	$(37)	$179

Note 10—Stock Plans

Equity Incentive Plans

The Company has two active share-based compensation plans as of December 31, 2017: the 2004 Employee Stock Purchase Plan (“ESPP”) and the 2013 Omnibus Equity Incentive Plan (the “Incentive Plan”), as approved by the stockholders. Under the Incentive Plan, incentive stock options, non-qualified stock options, restricted stock awards (“RSAs”) and restricted stock units (“RSUs”) have been granted to employees and non-employee directors. Generally, these awards vest over periods of one to four years. In addition, equity awards have been issued to senior management where vesting of the award is tied to Company performance or market conditions. The Company’s policy is to issue new shares of its common stock upon the exercise of stock options, vesting of restricted stock units, granting of restricted stock awards or ESPP purchases.

The Company’s Incentive Plan currently provides for an equity incentive pool of 6,400,000 shares. Shares reserved for issuance are replenished by forfeited shares from the Incentive Plan. Additionally, equity awards forfeited under the Company’s former 2005 equity incentive plan and shares that were available under other predecessor plans are included in the total shares available for issuance under the Incentive Plan.

For the year ended December 31, 2017, the tax benefit associated with stock option exercises, restricted stock unit vesting, restricted stock grants, and disqualifying dispositions of both incentive stock options and stock issued under the Company’s ESPP, was approximately $4.2 million.

Stock Options

The Company grants stock options to its employees, executive management and directors on a discretionary basis. The following table summarizes total aggregate stock option activity for the year ended December 31, 2017 (in thousands, except for per share data):

	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value
Balance at December 31, 2016	414	$ 8.97		
Granted	50	5.56		
Cancelled	(103)	10.56		
Balance at December 31, 2017	361	$ 8.05	5.72	$ 67
Vested or expected to vest at December 31, 2017	354	$ 8.09	5.68	$ 65
Exercisable at December 31, 2017	220	$ 9.20	4.39	$ 30

The weighted-average grant date fair value of stock options granted during the years ended December 31, 2017 and 2015 was $2.97 and $3.34, respectively. No stock options were granted during the year ended December 31, 2016. The total intrinsic value of options exercised during the year ended December 31, 2015 was $16,000. There were no option exercises for the years ended December 31, 2017 and 2016.

The fair value of the stock options granted during the years ended December 31, 2017 and 2015 was estimated using the Black-Scholes valuation model using the following assumptions:

	Years Ended December 31,	
	2017	2015
Expected dividends	— %	— %
Expected volatility range	58% to 59%	60% to 61%
Expected volatility weighted average	59 %	60 %
Risk-free interest rate	1.9 %	1.6 %
Expected life/term weighted average (in years)	5.5	4.9

The expected dividend yield is zero because the Company has never paid cash dividends and has no present intention to pay cash dividends. The expected term is based on the Company's historical experience from previous stock option grants. Expected volatility is based on the historical volatility of the Company's stock measured over a period commensurate with the expected option term. The Company does not consider implied volatility due to the low volume of publicly traded options in the Company's stock. The risk-free interest rate is derived from the zero coupon rate on U.S. Treasury instruments with a term comparable to the option's expected term.

As of December 31, 2017, there was $0.3 million of total unrecognized compensation cost related to stock options. The cost is expected to be recognized over a weighted average period of 1.1 years.

Restricted Stock Awards

During the year ended December 31, 2014, the Company ceased granting RSAs and began granting RSUs to employees and executive management as part of its annual equity incentive award program.

The following table summarizes RSA activity for the year ended December 31, 2017 (in thousands, except for per share data):

	Shares	Weighted Average Grant Date Fair Value
Nonvested at December 31, 2016	88	$ 13.37
Vested	(53)	12.58
Forfeited	(9)	14.57
Nonvested at December 31, 2017	26	$ 14.57

No RSAs were granted during the years ended December 31, 2017, 2016 and 2015. The vest date fair value of RSAs vested in 2017, 2016 and 2015 was $0.3 million, $0.6 million and $1.2 million, respectively. As of December 31, 2017, there was $0.1 million of unrecognized compensation cost related to nonvested RSAs expected to be recognized over a weighted average period of 0.2 years.

Restricted Stock Units

Non-employee directors receive annual RSU awards, normally in February of each year, as partial consideration for their annual retainer compensation. These awards vest in full one year from the date of grant provided the non-employee director provides continued service. Additionally, new directors normally receive RSUs upon their election to the board. The Company also grants RSUs to employees as part of its annual equity incentive award program, with vesting typically in equal annual installments over four years of continuous service. Additionally, the Company grants performance-based restricted stock units ("PSUs") to executives with vesting contingent on continued service and achievement of specified performance objectives or stock price performance. Each RSU represents the right to receive one unrestricted share of the Company's common stock upon vesting.

The following table summarizes RSU activity for both service-based awards and performance-based awards for the year ended December 31, 2017 (in thousands, except for per share data):

	Shares	Weighted Average Grant Date Fair Value
Nonvested at December 31, 2016	1,748	$ 6.40
Granted	1,796	5.89
Released	(540)	5.86
Forfeited	(354)	6.45
Nonvested at December 31, 2017	2,650	$ 6.16

The weighted average grant date fair value of RSUs granted, including PSUs, in the years ended December 31, 2017, 2016 and 2015 was $5.89, $6.00 and $7.02, respectively. The release date fair value of RSUs in the years ended December 31, 2017, 2016 and 2015 was $2.9 million, $1.3 million and $0.5 million, respectively. As of December 31, 2017, there was $8.3 million of unrecognized compensation cost related to nonvested RSU awards. The cost is expected to be recognized over a weighted average period of 2.2 years.

RSU activity included 158,000, 46,224 and 214,831 PSUs granted in the years ended December 31, 2017, 2016 and 2015 with a weighted average grant date fair value of $5.73, $5.08 and $7.18 per share, respectively, with vesting contingent upon specified Company performance conditions or objectives.

Additionally, for the year ended December 31, 2017, RSUs granted included 367,874 market-condition PSUs with a weighted average grant date fair value of $7.22. For the year ended December 31, 2016, RSUs granted included 313,460 market-condition PSUs with a weighted average grant date fair value of $7.76. The market-condition PSUs will be earned based on the level of the Company's stock price performance against a determined market index over one, two and three-year performance periods. The market-condition PSUs have the potential to vest between 0% and 200% depending on the Company's stock price performance and the recipients must remain employed through the end of each performance period in order to vest. No market-condition PSUs were granted during the year ended December 31, 2015. The fair value of market-condition PSUs granted was calculated using a Monte Carlo valuation model with the following assumptions:

	Years Ended December 31,	
	2017	2016
Expected dividend yield	— %	— %
Expected volatility	53 %	62 %
Risk-free interest rate	1.55%	1.07%
Expected term (in years)	2.8	3.0

The following table summarizes the amount of compensation expense recognized for RSUs for the years ended December 31, 2017, 2016 and 2015 (in thousands):

	Years Ended December 31,		
RSU Type	2017	2016	2015
Service-based	$3,268	$2,243	$1,362
Performance objectives	379	103	(28)
Market-condition	1,539	869	128
	$5,186	$3,215	$1,462

Employee Stock Purchase Plan

In 2013, the Company amended and restated the 2004 Employee Stock Purchase Plan ("ESPP"). Pursuant to the ESPP, the aggregate number of shares of common stock which may be purchased shall not exceed 1,500,000 shares of common stock of the Company. For the years ended December 31, 2017, 2016 and 2015, 77,914, 111,832 and 145,733 shares, respectively, were purchased under the ESPP.

The ESPP permits substantially all employees to purchase common stock through payroll deductions, at 85% of the lower of the trading price of the stock at the beginning or at the end of each six-month offering period. The number of

shares purchased is based on participants’ contributions made during the offering period.

The fair value of the “look back” option for ESPP shares issued during the offering period is estimated using the Black-Scholes valuation model for a call and a put option. The share price used for the model is a 15% discount on the stock price on the last trading day before the offering period; the number of shares to be purchased is based on employee contributions. The fair value of ESPP awards was calculated using the following weighted-average assumptions:

	Years Ended December 31,		
	2017	2016	2015
Expected dividends	— %	— %	— %
Expected volatility	34 %	57 %	57 %
Risk-free interest rate	0.89 %	0.43 %	0.29 %
Expected life (in years)	0.45	0.5	0.5
Fair value per share	$1.30	$1.93	$1.86

The intrinsic value of shares of the Company’s stock purchased pursuant to the ESPP for offering periods within the years ended December 31, 2017, 2016 and 2015 was $0.1 million, $0.1 million and $0.2 million, respectively.

Bonuses Settled in Stock

On January 15, 2016, the Compensation Committee of the Board of Directors of the Company adopted the Maxwell Technologies, Inc. Incentive Bonus Plan to enable participants to earn annual incentive bonuses based upon achievement of specified financial and strategic performance objectives. The Company may settle bonuses earned under the plan in either cash or stock, and currently intends to settle the majority of bonuses earned under the plan in stock. During the year ended December 31, 2017, the Company settled the bonuses earned under the plan for the 2016 performance period with 302,326 shares of fully vested common stock. The Company intends to settle bonuses earned under the plan for the fiscal year 2017 performance period with fully vested common stock of the Company in the first quarter of 2018.

The Company recorded $2.8 million and $1.4 million of stock compensation expense related to the bonus plan during the years ended December 31, 2017 and 2016, respectively.

Director Fees Settled in Stock

In 2017, the Board approved a deferred compensation program under which non-employee directors may make irrevocable elections to receive all or a portion of their cash-based non-employee director fees (including, as applicable, any annual retainer fee, committee fee and any other compensation payable with respect to their service as a member of the Board) in stock and to elect to defer receipt of those shares. In the event that a director makes such an election, the Company will grant fully vested RSUs in lieu of cash, with an initial value equal to the cash fees, which will be settled either in the year granted or at a future date elected by the respective non-employee director through the issuance of Maxwell common stock. In addition, non-employee directors may elect to defer settlement of the initial and annual RSU awards granted to them in connection with their service as a non-employee director. During the year ended December 31, 2017, the Company settled $164,000 of director fees earned in 2017 with 28,732 fully vested RSUs. The Company recorded $258,000 of stock compensation expense related to director fees to be settled in stock during the year ended December 31, 2017.

Stock-based Compensation Expense

Compensation cost for stock options, RSAs, RSUs, ESPP, bonuses and director fees is as follows (in thousands):

	Years Ended December 31,		
	2017	2016	2015
Stock options	$237	$171	$232
Restricted stock awards	416	388	1,974
Restricted stock units	5,186	3,215	1,462
ESPP	114	231	278
Bonuses settled in stock	2,826	1,359	—
Director fees settled in stock	258	—	—
Total stock-based compensation expense	$9,037	$5,364	$3,946

Stock-based compensation cost included in cost of revenue; selling, general and administrative expense; and research and development expense is as follows (in thousands):

	Years Ended December 31,		
	2017	2016	2015
Cost of revenue	$1,070	$854	$644
Selling, general and administrative	6,606	3,674	2,502
Research and development	1,361	836	800
Total stock-based compensation expense	$9,037	$5,364	$3,946

Share Reservations

The following table summarizes the shares available for grant under the Company's stock-based compensation plans as of December 31, 2017:

2013 Omnibus Equity Incentive Plan	3,138,321
2004 Employee Stock Purchase Plan	617,609
Total	3,755,930

Note 11—Shelf Registration Statements

On November 9, 2017, the Company filed a shelf registration statement on Form S-3 with the SEC to, from time to time, sell up to an aggregate of $125 million of any combination of its common stock, warrants, debt securities or units. On November 16, 2017, the registration statement was declared effective by the SEC, which will allow the Company to access the capital markets for the three-year period following this effective date. As of December 31, 2017, no securities have been issued under the Company's shelf registration statement. Net proceeds, terms and pricing of each offering of securities issued under the shelf registration statement will be determined at the time of such offerings.

On April 23, 2015, under a previous shelf registration statement effective June 30, 2014, the Company entered into an At-the-Market Equity Offering Sales Agreement ("Sales Agreement") with Cowen and Company, LLC ("Cowen") pursuant to which they could sell, up to an aggregate of $10.0 million in shares of common stock through Cowen, as sales agent. Under the Sales Agreement, the Company agreed to pay Cowen a commission equal to 3.0% of the gross proceeds from the sale of shares of our common stock. On June 11, 2015, the Company completed the sale of approximately $10.0 million of common stock and terminated the offering. Approximately 1.83 million shares were sold in the offering at an average share price of $5.46. The Company received net proceeds of $9.6 million after commissions and offering costs of $0.4 million.

Note 12—Income Taxes

On December 22, 2017, the President of the United States signed into law the Tax Cuts and Jobs Act. The legislation significantly changes U.S. tax law by, among other things, reducing the US federal corporate tax rate from 35% to 21%, implementing a territorial tax system and imposing a repatriation tax on deemed repatriated earnings of foreign subsidiaries. Pursuant to the SEC's Staff Accounting Bulletin No. 118, Income Tax Accounting Implications of the Tax Cuts and Jobs Act ("SAB 118"), given the amount and complexity of the changes in the tax law resulting from the tax legislation, the Company has not finalized the accounting for the income tax effects of the tax legislation. This includes the provisional amounts recorded related to the transition tax and the remeasurement of deferred taxes. The impact of the tax legislation may differ from this estimate, during the one-year measurement period due to, among other things, further refinement of the Company's calculations, changes in interpretations and assumptions the Company has made, guidance that may be issued and actions the Company may take as a result of the tax legislation. The Company has remeasured its U.S. deferred tax assets and liabilities based on the rates at which they are expected to reverse in the future, which is generally 21%. The Company recorded a provisional decrease related to its deferred tax assets and liabilities of $34.7 million with a corresponding adjustment to its valuation allowance for the year ended December 31, 2017. However, we are still analyzing certain aspects of the Act and refining our calculations, which could potentially affect the measurement of these balances or potentially give rise to new deferred tax amounts. As the Company's deferred tax asset is offset by a full valuation allowance, this change in rates had no impact on the Company's financial position or results of operations.

The one-time transition tax is based on the Company's total post-1986 earnings and profits ("E&P") that were previously deferred from U.S. income taxes. To determine the amount of the transition tax, the Company must determine, in addition to other factors, the amount of post-1986 E&P of its relevant subsidiaries. The Company recorded a provisional amount of additional U.S. taxable income of $8.4 million, which did not result in additional tax expense due to its net operating losses. However, the Company is continuing to gather additional information to more precisely compute the amount of the transition tax. As the Company has significant net operating losses, any change to this provisional amount would have no impact on the Company's financial position or results of operations.
For financial reporting purposes, loss before income taxes includes the following components (in thousands):

	Years Ended December 31,		
	2017	2016	2015
United States	$(49,167)	$(38,319)	$(35,074)
Foreign	9,695	18,759	17,344
Total	$(39,472)	$(19,560)	$(17,730)

The provision for income taxes based on loss before income taxes is as follows (in thousands):

	Years Ended December 31,		
	2017	2016	2015
Federal:			
Current	$—	$—	$—
Deferred	18,646	(11,360)	(4,297)
	18,646	(11,360)	(4,297)
State:			
Current	5	7	6
Deferred	231	923	62
	236	930	68
Foreign:			
Current	3,155	3,742	4,930
Deferred	(1,418)	561	8
	1,737	4,303	4,938
(Decrease) increase in valuation allowance	(16,962)	10,272	3,894
Tax provision	$3,657	$4,145	$4,603

The provision for income taxes in the accompanying consolidated statements of operations differs from the amount calculated by applying the statutory income tax rate to loss before income taxes. The primary components of such difference are as follows (in thousands):

	Years Ended December 31,		
	2017	2016	2015
Taxes at federal statutory rate	$(13,420)	$(6,650)	$(6,028)
State taxes, net of federal benefit	(236)	(208)	(236)
Effect of tax rate differential for foreign subsidiary	(1,646)	(2,985)	(2,641)
Valuation allowance, including tax benefits of stock activity	(16,962)	10,272	3,894
Tax rate change	34,732	—	—
Foreign taxes on unremitted earnings	—	1,204	2,085
Stock-based compensation	224	441	134
Foreign withholding taxes	295	260	180
Return to provision adjustments	(2,931)	1,062	1,131
Subpart F income inclusion	2,998	906	5,914
SEC settlement penalty	959	—	—
Business combination	(1,914)	—	—
Other	1,558	(157)	170
Tax provision	$3,657	$4,145	$4,603

The Company has established a valuation allowance against its U.S. federal and state deferred tax assets due to the uncertainty surrounding the realization of such assets as evidenced by the cumulative losses from operations through December 31, 2017. Management periodically evaluates the recoverability of the deferred tax assets. At such time as it is determined that it is more likely than not that deferred assets are realizable, the valuation allowance will be reduced accordingly and recorded as a tax benefit. The Company has recorded a valuation allowance of $61.4 million as of December 31, 2017 to reflect the estimated amount of deferred tax assets that may not be realized. The Company decreased its valuation allowance by $17.0 million for the year ended December 31, 2017.

At December 31, 2017, the Company has federal and state net operating loss carryforwards of approximately $219.0 million and $37.7 million, respectively. The federal tax loss carryforwards will begin to expire in 2020 and the state tax loss carryforwards will begin to expire in 2018. In addition, the Company has research and development and other tax credit carryforwards for federal and state income tax purposes as of December 31, 2017 of $7.0 million and $9.0 million, respectively. The federal credits will begin to expire in 2019 unless utilized and the state credits have an indefinite life. Pursuant to Internal Revenue Code Sections 382 and 383, use of the Company’s federal net operating loss and credit carryforwards may be limited upon a cumulative change in ownership of more than 50% within a three-year period.

The Company was granted a tax holiday in Switzerland, which was effective as of January 1, 2012 for up to 10 years. The tax holiday was conditioned upon the Company meeting certain employment and investment thresholds. As of January 1, 2017, the Company was no longer eligible for the tax holiday due to not meeting the employment threshold. The impact of the tax holiday decreased foreign taxes by $0.6 million and $0.7 million for 2016 and 2015, respectively. The benefit of the tax holiday on net loss per diluted share was $0.02 for both 2016 and 2015. On January 16th, 2018, the Company was granted a new tax holiday in Switzerland, which was retroactively effective as of January 1, 2017 with a term through December 31, 2021. The new tax holiday is conditioned upon the Company meeting certain investment thresholds. The retroactive effect of the tax holiday will be recorded in the first quarter of 2018, in accordance with the enacted date of the new tax holiday.

The Company records U.S. income taxes on the undistributed earnings of foreign subsidiaries unless the subsidiaries’ earnings are considered indefinitely reinvested outside of the U.S. As of December 31, 2017, the Company has recorded a $4.9 million deferred tax liability for Swiss withholding taxes associated with $97.6 million of undistributed earnings of its Swiss subsidiary that are no longer considered indefinitely reinvested. In the event that the Company repatriates these funds, this withholding tax would become payable to the Swiss government. During the years ended December 31, 2017, 2016 and 2015, income tax expense associated with undistributed earnings of its Swiss subsidiary that are no longer considered indefinitely reinvested was $0, $1.2 million and $2.1 million, respectively. As of December 31, 2017, there were $11.8 million of undistributed earnings considered indefinitely reinvested. Determination of the amount of any unrecognized deferred income tax liability on the excess of the financial reporting basis over the tax basis of investments in foreign subsidiaries is not practicable because of the complexities of the hypothetical calculation.

Items that give rise to significant portions of the deferred tax accounts are as follows (in thousands):

	December 31,	
	2017	2016
Deferred tax assets:		
Tax loss carryforwards	$50,183	$62,994
Tax credit carryforwards	792	19
Uniform capitalization, contract and inventory related reserves	805	598
Accrued vacation	301	514
Stock-based compensation	2,029	2,130
Capitalized research and development	3,043	5,532
Tax basis depreciation less book depreciation	1,523	1,661
Intangible assets	—	1,354
Deferred revenue	175	33
Accrued foreign taxes	1,044	1,263
Other	2,369	2,523
Total	62,264	78,621
Deferred tax liabilities:		
Inventory deduction	(587)	(369)
Pension assets	(1,326)	(1,733)
Allowance for doubtful accounts	(534)	(677)
Withholding tax on undistributed earnings of foreign subsidiary	(4,879)	(4,879)
Unrealized gains and losses	(351)	(733)
Intangible assets	(1,514)	—
Total	(9,191)	(8,391)
Net deferred tax assets before valuation allowance	53,073	70,230
Valuation allowance	(61,403)	(78,366)
Net deferred tax liabilities	$(8,330)	$(8,136)

As of both December 31, 2017 and 2016, deferred tax assets of $0.4 million were included in other non-current assets in the consolidated balance sheets.

The Company accounts for uncertain tax benefits in accordance with the provisions of section 740-10 of the Accounting for Uncertainty in Income Taxes Topic of the FASB ASC. Of the total unrecognized tax benefits at December 31, 2017, approximately $16.0 million was recorded as a reduction to deferred tax assets, which caused a corresponding reduction in the Company's valuation allowance of $16.0 million. To the extent unrecognized tax benefits are recognized at a time when a valuation allowance does not exist, the recognition of the $16.0 million tax benefit would reduce the effective tax rate. The Company does not anticipate that the amount of unrecognized tax benefits as of December 31, 2017 will change materially within the 12-month period following December 31, 2017.

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

Balance at December 31, 2015	$14,014
Increase in current period positions	1,596
Increase in prior period positions	116
Decrease in prior period positions	(147)
Balance at December 31, 2016	15,579
Increase in current period positions	1,081
Decrease in prior period positions	(518)
Balance at December 31, 2017	$16,142

The Company recognizes interest and penalties as a component of income tax expense. Interest and penalties for the years ended December 31, 2017, 2016 and 2015 were $29,000, $148,000 and $119,000, respectively.

The Company's U.S. federal income tax returns for tax years subsequent to 2014 are subject to examination by the Internal Revenue Service and its state income tax returns subsequent to 2013 are subject to examination by state tax authorities. The Company's foreign tax returns subsequent to 2012 are subject to examination by the foreign tax

authorities.

Net operating losses from years for which the statute of limitations has expired (2014 and prior for federal and 2013 and prior for state) could be adjusted in the event that the taxing jurisdictions challenge the amounts of net operating loss carryforwards from such years.

Note 13—Leases

Rental expense amounted to $4.3 million, $4.1 million and $5.0 million for the years ended December 31, 2017, 2016 and 2015, respectively, and was incurred primarily for facility leases. Future annual minimum rental commitments as of December 31, 2017 are as follows (in thousands):

Fiscal Years	
2018	$3,824
2019	3,850
2020	3,099
2021	2,124
2022	2,202
Thereafter	4,033
Total	$19,132

Note 14—Pension and Other Postretirement Benefit Plans

Maxwell SA Pension Plan

The Compensation—Retirement Benefits Subtopic of the FASB ASC requires balance sheet recognition of the total over funded or underfunded status of pension and postretirement benefit plans. Under the guidance, actuarial gains and losses, prior service costs or credits, and any remaining transition assets or obligations that have not been recognized under previous accounting standards must be recognized as a component of accumulated other comprehensive income (loss) within stockholders' equity, net of tax effects, until they are amortized as a component of net periodic benefit cost (income).

The Company's plan is regulated by the Swiss Government and is funded by the employees and the Company. The pension benefit is based on compensation, length of service and credited investment earnings. The plan guarantees both a minimum rate of return as well as minimum annuity purchase rates. The Company's funding policy with respect to the pension plan is to contribute the amount required by Swiss law, using the required percentage applied to the employee's compensation. In addition, participating employees are required to contribute to the pension plan. The Company made pension contributions of $0.6 million in each of the years ended December 31, 2017, 2016 and 2015; approximately 45% of the total contributions to the plan each year are made by the employees. This plan has a measurement date of December 31. The Company does not have any rights to the assets of the plan other than the right to offset the liabilities of the plan.

The net pension asset increased from $8.9 million to $11.7 million during the year ended December 31, 2017. The increase in plan assets was primarily due to a higher return on plan assets than expected and higher than expected withdrawal and mortality experience during the year. The accumulated benefit obligation was $29.9 million and $28.9 million as of December 31, 2017 and 2016, respectively. The increase in the benefit obligation was primarily due to a lower amount of benefits paid during the year than new obligations incurred. The plan is fully funded and continues to be in a surplus condition.

The following table reflects changes in the pension benefit obligation and plan assets for the years ended December 31, 2017 and 2016 (in thousands):

	Years ended December 31,	
	2017	2016
Change in benefit obligation:		
Benefit obligation at beginning of year	$30,257	$33,153
Service cost	982	1,171
Interest cost	230	246
Plan participant contributions	527	509
Benefits paid	(1,729)	(1,570)
Actuarial (gain) loss	119	(2,425)
Effect of foreign currency translation	1,330	(827)
Projected benefit obligation at end of year	31,716	30,257
Changes in plan assets:		
Fair value of plan assets at beginning of year	39,144	39,002
Actual return on plan assets	3,131	1,657
Company contributions	615	596
Plan participant contributions	527	509
Benefits paid	(1,729)	(1,570)
Effect of foreign currency translation	1,740	(1,050)
Fair value of plan assets at end of year	43,428	39,144
Funded status at end of year	$11,712	$8,887

Amounts recognized in the consolidated balance sheets consist of (in thousands):

	As of December 31,	
	2017	2016
Net long-term pension asset	$11,712	$8,887
Accumulated other comprehensive loss consists of the following:		
Net prior service cost	782	779
Net loss	1,391	3,113
Accumulated other comprehensive loss before taxes	$2,173	$3,892

The components of net periodic pension cost and other amounts recognized in other comprehensive income (loss) before taxes are as follows (in thousands):

	Years ended December 31,		
	2017	2016	2015
Components of net periodic pension cost:			
Service cost	$982	$1,171	$958
Interest cost	230	246	332
Expected return on plan assets	(1,009)	(1,175)	(1,551)
Prior service cost amortization	151	150	136
Deferred loss amortization	—	243	45
Settlement cost	—	—	492
Net periodic pension cost	$354	$635	$412
Other amounts recognized in other comprehensive income (loss) before income taxes are as follows:			
Prior service cost amortization	$(151)	$(150)	$(136)
(Gain) loss on value of plan assets	(2,118)	(476)	1,131
Actuarial (gain) loss on benefit obligation	119	(2,425)	1,262
Plan change	—	—	83
Settlement	—	—	(492)
Deferred loss amortization	—	(243)	(45)
Total (income) loss recognized in other comprehensive income, before taxes	$(2,150)	$(3,294)	$1,803
Total (income) recognized in net periodic pension cost and other comprehensive income, before taxes	$(1,796)	$(2,659)	$2,215

Assumptions used to determine the benefit obligation and net periodic pension cost are as follows:

	Years ended December 31,	
	2017	2016
Weighted-average assumptions used to determine benefit obligation:		
Discount rate	0.75 %	0.75 %
Rate of compensation increase	2.00 %	2.00 %
Measurement date	11/30/2017	11/30/2016
Weighted-average assumptions used to determine net periodic pension cost:		
Discount rate	0.75 %	0.75 %
Expected long-term return on plan assets	2.50 %	3.00 %
Rate of compensation increase	2.00 %	2.50 %
Percentage of the fair value of total plan assets held in each major category of plan assets:		
Equity securities	33 %	29 %
Debt securities	21 %	23 %
Real estate investment funds	39 %	43 %
Other	7 %	5 %
Total	100 %	100 %

The pension plan's overall strategy and investment policy is managed by the board of the plan. The overall long-term rate is based on the target asset allocation of 14% Swiss bonds, 10% non-Swiss hedged bonds, 10% Swiss equities, 15% global equities, 5% emerging market equities, 4% alternative investments, 40% Swiss real estate and 2% cash and equivalents.

The 2018 expected future long-term rate of return is estimated to be 3.00%, which is based on historical asset rates of return for each asset allocation classification of (0.69)% for Swiss bonds, (0.43)% for non-Swiss hedged bonds, 3.50% for Swiss equities, 5.38% for global equities, 5.79% for emerging market equities, 2.52% for alternative investments, 2.54% for Swiss real estate and 0.27% for cash and equivalents. The 2017 expected long-term rate of return was

2.50% and was based on the historical asset rates of return of (1.11)% for Swiss bonds, (1.20)% for non-Swiss hedged bonds, 3.00% for Swiss equities, 4.80% for global equities, 5.00% for emerging market equities, 1.80% for alternative investments, 2.10% for real estate and (0.20)% for cash and equivalents.

Expected amortization during the year ending December 31, 2018 is as follows (in thousands):

Amortization of net prior service costs	$97

The following benefit payments, which reflect expected future service, as appropriate, are expected to be paid (in thousands):

2018	$1,349
2019	1,316
2020	1,256
2021	1,294
2022	1,452
Years 2023 through 2027	7,094
Total	$13,761

The Company expects to contribute approximately $0.6 million to the pension plan in 2018.

Investment objectives:

The primary investment goal of the pension plan is to achieve a total annualized return sufficient to fund its obligations over the long-term. The investments are evaluated, compared and benchmarked to plans with similar investment strategies. The plan also attempts to minimize risk by not having any single security or class of securities with a disproportionate impact on the plan. As a guideline, assets are diversified by asset classes (equity, fixed income/bonds, and alternative investments).

The fair values of the plans assets at December 31, 2017 and 2016, by asset category, are as follows (in thousands):

		Fair Value Measurements at December 31, 2017		
	Total	Active Market Prices (Level 1)	Significant Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Cash held in Swiss Franc, Euro and USD	$ 1,670	$ 1,670	$ —	$ —
Equity securities	15,487	14,364	1,123	—
Fixed income / Bond securities:	9,235	9,235	—	—
Other assets (accounts receivable, assets at real estate management company)	29	—	29	—
Investments measured at net asset value [1]	17,007			
Net assets of pension plan	$ 43,428	$ 25,269	$ 1,152	$ —

		Fair Value Measurements at December 31, 2016		
	Total	Active Market Prices	Significant Observable Inputs	Significant Unobservable Inputs

		(Level 1)	(Level 2)	(Level 3)
Cash held in Swiss Franc, Euro and USD	$ 705	$ 705	$ —	$ —
Equity securities	12,534	11,481	1,053	—
Fixed income / Bond securities:	8,842	8,842	—	—
Other assets (accounts receivable, assets at real estate management company)	29	—	29	—
Investments measured at net asset value [1]	17,034			
Net assets of pension plan	$ 39,144	$ 21,028	$ 1,082	$ —

(1) Investments measured at net asset value represent real estate investment funds that are measured at fair value using the net asset value per share (or its equivalent) practical expedient and therefore have not been categorized in the fair value hierarchy. The fair value amounts presented in these tables are intended to permit reconciliation of the fair value hierarchy to the total plan assets disclosed above.

Fair Value of Assets
Level 1: Observable inputs such as quoted prices in active markets for identical assets.
Level 2: Inputs other than quoted prices that are observable for the asset or liability, either directly or indirectly. These include quoted prices for similar assets or liabilities in active markets and quoted prices for identical or similar assets or liabilities in markets that are not active.
Level 3: Unobservable inputs that reflect the reporting entity's own assumptions.
Korea Defined Benefit Plan
In connection with the Nesscap Acquisition on April 28, 2017, the Company assumed the defined benefit plan liability related to Nesscap Korea's employees. Pursuant to the Labor Standards Act of Korea, employees and most executive officers with one or more years of service are entitled to lump sum separation benefits upon the termination of their employment based on their length of service and rate of pay.
The following table reflects changes in the defined benefit plan obligation for the period from acquisition to December 31, 2017 (in thousands):

	April 29, 2017 through December 31, 2017
Change in benefit obligation:	
Benefit obligation on April 28, 2017	$ 3,360
Service cost	361
Interest cost	55
Benefits paid	(212)
Actuarial loss	174
Effect of foreign currency translation	228
Projected benefit obligation at end of year	3,966
Fair value of plan assets	24
Unfunded status at end of year	3,942

Amounts recognized in the consolidated balance sheets consist of (in thousands):

	As of December 31, 2017
Net defined benefit plan liability	$ 3,942
Accumulated other comprehensive loss includes the following:	
Actuarial loss before taxes	$ 174

The components of net periodic pension cost and other amounts recognized in other comprehensive income (loss) before taxes are as follows (in thousands):

	May 1, 2017 through December 31, 2017
Components of net periodic defined benefit plan cost:	
Service cost	$ 361
Interest cost	55
Net periodic defined benefit plan cost	$ 416

Other amounts recognized in other comprehensive income (loss) before income taxes are as follows:

Actuarial loss on benefit obligation	$ 174
Total loss recognized in other comprehensive income, before taxes	174
Total loss recognized in net periodic defined benefit plan cost and other comprehensive income, before taxes	$ 590

Assumptions used to determine the benefit obligation and net periodic defined benefit plan cost are as follows:

	May 1, 2017 through December 31, 2017	
Discount rate	2.98	%
Rate of compensation increase	6.11	%

The following benefit payments, which reflect expected future service, as appropriate, are expected to be paid (in thousands):

2018	$332
2019	332
2020	370
2021	338
2022	265
Years 2023 through 2027	1,237
Total	$2,874

In compliance with local labor law, the Company is required to make contributions for foreign line workers. Employer contributions of $6,000 were paid during the period from acquisition to December 31, 2017. The Company expects to make contributions of approximately $8,000 in 2018.

U.S. Plan

The Company has a postretirement benefit plan covering its employees in the United States. Substantially all U.S. employees are eligible to elect coverage under a contributory employee savings plan which provides for Company matching contributions based on one-half of employee contributions up to certain plan limits. The Company's matching contributions under this plan totaled $0.5 million, $0.5 million and $0.6 million for the years ended December 31, 2017, 2016 and 2015, respectively.

Note 15—Legal Proceedings

Although the Company expects to incur legal fees in connection with the below legal proceedings, the Company is unable to estimate the amount of such legal fees and therefore, such fees will be expensed in the period the legal services are performed.

FCPA Matter

In January 2011, the Company reached settlements with the U.S. Securities and Exchange Commission ("SEC") and the U.S. Department of Justice ("DOJ") with respect to charges asserted by the SEC and DOJ relating to the anti-bribery, books and records, internal controls, and disclosure provisions of the U.S. Foreign Corrupt Practices Act ("FCPA") and other securities laws violations. The Company paid the monetary penalties under these settlements in installments such that all monetary penalties were paid in full by January 2013. With respect to the DOJ charges, a judgment of dismissal was issued in the U.S. District Court for the Southern District of California on March 28, 2014.

On October 15, 2013, the Company received an informal notice from the DOJ that an indictment against the former Senior Vice President and General Manager of its Swiss subsidiary had been filed in the United States District Court for the Southern District of California. The indictment is against the individual, a former officer, and not against the Company and the Company does not foresee that further penalties or fines could be assessed against it as a corporate entity for this matter. However, the Company may be required throughout the term of the action to advance the legal fees and costs incurred by the individual defendant and to incur other financial obligations. While the Company maintains directors' and officers' insurance policies which are intended to cover legal expenses related to its indemnification obligations in situations such as these, the Company cannot determine if and to what extent the insurance policy will cover the ongoing legal fees for this matter. Accordingly, the legal fees that may be incurred by the Company in defending this former officer could have a material impact on its financial condition and results of operation.

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Swiss Bribery Matter

In August 2013, the Company's Swiss subsidiary was served with a search warrant from the Swiss federal prosecutor's office. At the end of the search, the Swiss federal prosecutor presented the Company with a listing of the materials gathered by the representatives and then removed the materials from its premises for keeping at the prosecutor's office. Based upon the Company's exposure to the case, the Company believes this action to be related to the same or similar facts and circumstances as the FCPA action previously settled with the SEC and the DOJ. During initial discussions, the Swiss prosecutor has acknowledged both the existence of the Company's deferred prosecution agreement with the DOJ and its cooperation efforts thereunder, both of which should have a positive impact on discussions going forward. Additionally, other than the activities previously reviewed in conjunction with the SEC and DOJ matters under the FCPA, the Company has no reason to believe that additional facts or circumstances are under review by the Swiss authorities. To date, the Swiss prosecutor has not issued its formal decision as to whether the charges will be brought against individuals or the Company or whether the proceeding will be abandoned. At this time, the Company continues to cooperate with the Swiss prosecutor and while there continues to be no resolution of this matter, the Company has re-assessed the probable outcome of the matter and accrued an insignificant amount in our financial statements for the fourth quarter of 2017. However, a more adverse result, such as the incurrence of more excessive fines in accordance with Swiss bribery laws, could occur and have a material adverse impact on the Company's financial condition and results of operation.

Government Investigations

In early 2013, the Company voluntarily provided information to the SEC and the United States Attorney's Office for the Southern District of California related to its announcement that it intended to file restated financial statements for fiscal years 2011 and 2012. On June 11, 2015 and June 16, 2016, the Company received subpoenas from the SEC requesting certain documents related to, among other things, the facts and circumstances surrounding the restated financial statements. The Company has provided documents and information to the SEC in response to the subpoenas. In September 2016, the Company entered into a tolling agreement effective for the period beginning on September 12, 2016, and running through June 30, 2017, with the SEC related to these matters. In June 2017, the Company entered into an amended and restated version of this tolling agreement effective for the period beginning on September 12, 2016, and running through October 31, 2017. In November 2017, the Company entered into an amended and restated version of this tolling agreement effective for the period beginning on September 12, 2016, and running through December 22, 2017. In December 2017, the Company entered into another amended and restated version of this tolling agreement effective for the period beginning on September 12, 2016, and running through March 2, 2018. The Company is cooperating with the investigation and recently made an offer of settlement to resolve the matter, which is subject to approval by the SEC Commissioners. The proposed settlement would be entered into by the Company without admitting or denying the SEC's findings and would resolve alleged violations of certain anti-fraud and books and records provisions of the federal securities laws and related rules. Under the terms of the proposed settlement, the Company would pay $2.8 million in a civil penalty and agree not to commit or cause any violations of certain anti-fraud and books and records provisions of the federal securities laws and related rules. In the third quarter of 2017, the Company has made a corresponding accrual for the settlement amount as an operating expense in its financial statements.

Note 16—Unaudited Quarterly Financial Information

	Quarter Ended			
	March 31	June 30	September 30	December 31
	(in thousands except per share data)			
Year Ended December 31, 2017				
Operating:				
Total revenue	$26,686	$37,103	$ 35,816	$ 30,763
Gross profit	6,191	7,827	7,396	7,381
Net income (loss)	(10,399) (a)	(10,118) (b)	(13,860) (c)	(8,752) (d)
Basic and diluted net loss per share	$(0.32)	$(0.28)	$ (0.37)	$ (0.24)

	Quarter Ended			
	March 31	June 30	September 30	December 31
	(in thousands except per share data)			
Year Ended December 31, 2016				
Operating:				
Total revenue	$35,203	$34,135	$ 25,506	$ 26,400
Gross profit	9,653	9,981	7,628	5,708
Net income (loss)	(6,848) (e)	2,167 (f)	(6,855) (g)	(12,169) (h)
Basic and diluted net income (loss) per share	$(0.22)	$0.07	$ (0.21)	$ (0.38)

(a) Includes restructuring and exit costs of $1.0 million and non-cash expense for stock-based compensation of $1.5 million.

(b) Includes acquisition related expense of $1.8 million and non-cash expense for stock-based compensation of $2.3 million.

(c) Includes restructuring and exit costs of $1.3 million, SEC and FCPA legal and settlement costs of $3.0 million and non-cash expense for stock-based compensation of $2.8 million.

(d) Includes non-cash expense for stock-based compensation of $2.5 million.

(e) Includes non-cash expense for stock-based compensation of $1.2 million.

(f) Includes gain on sale of product line of $6.7 million, release of tax liability of $1.5 million and non-cash expense for stock-based compensation of $1.5 million.

(g) Includes non-cash expense for stock-based compensation of $1.1 million.

(h) Includes impairment of assets of $1.2 million, non-cash deferred tax expense of $1.2 million in connection with the probable repatriation of a portion of the unremitted earnings of a foreign subsidiary and non-cash expense for stock-based compensation of $1.6 million.

Schedule II
Valuation and Qualifying Accounts (in thousands)

	Balance at the Beginning of the Year ($)	Charged to Expense ($)	Acquisitions/ Transfers and Other ($)	Write-offs Net of Recoveries ($)	Balance at the End of the Year ($)
Allowance for Doubtful Accounts:					
December 31, 2015	143	304	1	(196)	252
December 31, 2016	252	(106)	—	(120)	26
December 31, 2017	26	10	—	—	36

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure
None.

Item 9A. Controls and Procedures
Evaluation of Disclosure Controls and Procedures
We are committed to maintaining disclosure controls and procedures designed to ensure that information required to be disclosed in our periodic reports filed under the Securities and Exchange Act of 1934 (the “Exchange Act”) is recorded, processed, summarized and reported within the time periods specified in the SEC’s rules and forms, and that such information is accumulated and communicated to our management, including our Principal Executive Officer and Principal Financial Officer, as appropriate, to allow for timely decisions regarding required disclosure.
Under the supervision and with the participation of our management, including our Principal Executive Officer and Principal Financial Officer, we conducted an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures as of December 31, 2017, as such term is defined under Rules 13a-15(e) and 15d-15(e) promulgated under the Exchange Act. Based on this evaluation, our Principal Executive Officer and Principal Financial Officer concluded that our disclosure controls and procedures were effective as of the end of the period covered by this Annual Report on Form 10-K.
Management’s Annual Report on Internal Control over Financial Reporting
Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rules 13a-15(f) and 15d-15(f). Under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework in Internal Control—Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Our evaluation of internal control over financial reporting excludes an assessment of internal control over Nesscap which was acquired on April 28, 2017, as discussed below. Nesscap constituted 19% and 28% of total assets and net assets, respectively, as of December 31, 2017, and 13% and 2% of revenues and net loss, respectively, for the year then ended.
Because of its inherent limitations, internal control over financial reporting is not intended to provide absolute assurance that a misstatement of our financial statements would be prevented or detected. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions or because the degree of compliance with policies or procedures may deteriorate. Based on our evaluation under the framework in Internal Control—Integrated Framework (2013), management concluded that our internal control over financial reporting was effective as of December 31, 2017.
BDO USA, LLP, the independent registered public accounting firm that audited the consolidated financial statements of Maxwell in this Annual Report on Form 10-K, has issued an unqualified opinion on the effectiveness of our internal controls over financial reporting as of December 31, 2017 which is included in this Item under the heading “Report of Independent Registered Public Accounting Firm”.
Changes in Internal Control Over Financial Reporting
There have been no changes in our internal control over financial reporting identified in connection with the evaluation required by paragraph (d) of Rules 13a-15 or 15d-15 under the Securities Exchange Act of 1934 that occurred during our most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.
As permitted by SEC staff interpretive guidance for newly acquired businesses, management has excluded the internal controls of Nesscap from its assessment of internal control over financial reporting as of December 31, 2017 because the acquisition was consummated on April 28, 2017. For additional information on this acquisition, refer to Note 3, Business Combination, in the notes to our consolidated financial statements. We are in the process of evaluating the internal controls of Nesscap and integrating it into our overall system of internal control over financial reporting.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Shareholders and Board of Directors
Maxwell Technologies, Inc.
San Diego, California

Opinion on Internal Control over Financial Reporting
We have audited Maxwell Technology, Inc.'s (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 (the "COSO criteria"). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2017, based on the COSO criteria.
We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the consolidated balance sheets of the Company as of December 31, 2017 and 2016, the related consolidated statements of operations, comprehensive loss, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2017, and the related notes and Schedule II-Valuation and Qualifying Accounts listed in the accompanying index and our report dated February 16, 2018 expressed an unqualified opinion thereon.
Basis for Opinion
The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying "Item 9A, Management's Report on Internal Control over Financial Reporting". Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.
We conducted our audit of internal control over financial reporting in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.
As indicated in the accompanying "Item 9A, Management's Report on Internal Control over Financial Reporting", management's assessment of and conclusion on the effectiveness of internal control over financial reporting did not include the internal controls of Nesscap Energy Inc. ("Nesscap"), which was acquired on April 28, 2017, and which is included in the consolidated balance sheets of the Company as of December 31, 2017, and the related consolidated statements of operations, comprehensive loss, stockholders' equity, and cash flows for the year then ended. Nesscap constituted 19% and 28% of total assets and net assets, respectively, as of December 31, 2017, and 13% and 2% of revenues and net loss, respectively, for the year then ended. Management did not assess the effectiveness of internal control over financial reporting of Nesscap because of the timing of the acquisition which was completed on April 28, 2017. Our audit of internal control over financial reporting of the Company also did not include an evaluation of the internal control over financial reporting of Nesscap.
Definition and Limitations of Internal Control over Financial Reporting
A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance

with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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

/s/ BDO USA, LLP
San Diego, California
February 16, 2018

Item 9B. Other Information

None.

PART III

DOCUMENTS INCORPORATED BY REFERENCE

The information required by Part III of this Annual Report on Form 10-K will be set forth in the registrant's proxy statement for its 2018 annual meeting of stockholders (the "Proxy Statement") and is incorporated herein by reference.

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this item will be set forth in the Proxy Statement and is incorporated in this Annual Report on Form 10-K by reference.

Item 11. Executive Compensation

The information required by this item will be set forth in the Proxy Statement and is incorporated in this Annual Report on Form 10-K by reference.

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

The information required by this item will be set forth in the Proxy Statement and is incorporated in this Annual Report on Form 10-K by reference.

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

The information required by this item will be set forth in the Proxy Statement and is incorporated in this Annual Report on Form 10-K by reference.

Item 14. Principal Accounting Fees and Services

The information required by this item will be set forth in the Proxy Statement and is incorporated in this Annual Report on Form 10-K by reference.

PART IV

Item 15. Exhibits and Financial Statement Schedules

(a) Documents filed as part of this report.

1. Financial Statements. The consolidated financial statements required by this item are submitted in a separate section beginning on page 58 of this Annual Report on Form 10-K.
2. Financial Statement Schedules. The financial statement schedule entitled “Valuation and Qualifying Accounts” required by this item is submitted in a separate section beginning on page 97 of this Annual Report on Form 10-K.
3. Exhibits.

Exhibit Number	Exhibit Title	Filed Herewith	Form	File No.	Date Filed
3.1	Composite Certificate of Incorporation of Registrant.	X			
3.2	Amended and Restated Bylaws of Registrant.		8-K	001-15477	01/05/16
4.1	Indenture dated as of September 25, 2017 between the Company and the Trustee.		8-K	001-15477	09/26/17
4.2	Form of 5.50% Convertible Senior Note due 2022 (included in Exhibit 4.1).		8-K	001-15477	09/26/17
10.1*	Indemnity Agreement for Directors of Registrant dated December 2003.		10-K	001-15477	03/30/04
10.2*	Registrant’s 2005 Omnibus Equity Incentive Plan, as amended through May 6, 2010.		8-K	001-15477	05/10/10
10.3*	Form of Restricted Stock Unit Award Agreement under the 2005 Omnibus Equity Incentive Plan.		10-Q	001-15477	08/10/09
10.4*	Form of Restricted Stock Agreement for Service-based Awards under the 2005 Omnibus Equity Incentive Plan, as amended through May 6, 2010.		10-K	001-15477	03/10/11
10.5*	Form of Restricted Stock Agreement for Performance-based Awards under the 2005 Omnibus Equity Incentive Plan, as amended through May 6, 2010.		10-K	001-15477	03/10/11
10.6*	Amended and Restated 2004 Employee Stock Purchase Plan of Registrant.		DEF14A	001-15477	06/02/17
10.7*	Registrant’s 2013 Omnibus Equity Incentive Plan.		DEF14A	001-15477	06/02/17
10.8*	Form of Option Agreement under the 2013 Omnibus Incentive Plan.		8-K	001-15477	03/17/15
10.9*	Form of Restricted Stock Unit Agreement under the 2013 Omnibus Equity Incentive Plan.		8-K/A	001-15477	03/23/15
10.10*	Form of Performance Restricted Stock Unit Agreement under the 2013 Omnibus Equity Incentive Plan.		8-K	001-15477	03/17/15
10.11*	Form of Market Stock Unit Award Agreement under the 2013 Omnibus Equity Incentive Plan.		8-K	001-15477	01/19/16
10.12*	Maxwell Technologies, Inc. Incentive Bonus Plan.		8-K	001-15477	01/19/16
10.13*	Maxwell Technologies, Inc. Severance and Change in Control Plan.		8-K	001-15477	01/19/16
10.14*	Transition Agreement and Release of All Claims between the Registrant and Kevin S. Royal, dated May 8, 2015.		8-K	001-15477	05/11/15
10.15*	Employment Agreement between the Registrant and David Lyle, dated May 8, 2015.		8-K	001-15477	05/11/15
10.16*	Amendment to Employment Agreement between the Registrant and David Lyle, dated January 15, 2016.		8-K	001-15477	01/19/16
10.17*	Employment Agreement between the Registrant and Franz Fink, dated April 25, 2014.		8-K	001-15477	05/01/14
10.18*			8-K	001-15477	01/19/16

	Amendment to Employment Agreement between the Registrant and Franz Fink, dated January 15, 2016.			
10.19	Loan and Security Agreement between the Registrant and East West Bank, dated July 3, 2015.	8-K	001-15477	07/07/15
10.20	Agreement, dated as of March 11, 2016, by and among the Registrant and Viex Capital Advisors, LLC and its affiliates.	8-K	001-15477	03/14/16

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Exhibit Number	Exhibit Title	Filed Herewith	Form	File No.	Date Filed
10.21	Asset Purchase Agreement by and between the Registrant and Data Device Corporation, dated April 12, 2016.		8-K	001-15477	04/12/16
10.22	Amendment No. 1 to Loan and Security Agreement between the Registrant and East West Bank, dated April 12, 2016.		8-K	001-15477	04/12/16
10.23	Amendment No. 2 to Loan and Security Agreement between the Registrant and East West Bank, dated July 27, 2016.		10-Q	001-15477	08/03/16
10.24	Amendment No. 3 to Loan and Security Agreement between the Registrant and East West Bank, dated October 31, 2016.		10-Q	001-15477	11/02/16
10.25†	Localization Agreement, dated January 25, 2017, by and between the Company and CRRC Qingdao Sifang Rolling Stock Research Institute Co., Ltd.		10-K	001-15477	03/01/17
10.26	Amendment No. 4 to Loan and Security Agreement between the Registrant and East West Bank, dated March 1, 2017.		10-K	001-15477	03/01/17
10.27	Arrangement Agreement, dated February 28, 2017, between Maxwell Technologies, Inc. and Nesscap Energy, Inc.		8-K	001-15477	02/28/17
10.28	Form of Voting Agreement, dated February 28, 2017, among Maxwell Technologies, Inc., Nesscap Energy, Inc. and each of the shareholders a party thereto.		8-K	001-15477	02/28/17
10.29	Principal Shareholder Agreement, dated February 28, 2017, among Maxwell Technologies, Inc. and I2BF Energy, Limited and Arbat Capital Group Ltd.		8-K	001-15477	02/28/17
10.30	Amending Agreement to the Arrangement Agreement, dated March 21, 2017, between Maxwell Technologies, Inc. and Nesscap Energy, Inc.		10-Q	001-15477	05/10/17
10.31	Stock Purchase Agreement, dated April 10, 2017, between Maxwell Technologies, Inc. and SDIC Fund Management Co., Ltd.		8-K	001-15477	04/10/17
10.32	Principal Shareholder Agreement, dated April 10, 2017, between Maxwell Technologies, Inc. and SDIC Fund Management Co., Ltd.		8-K	001-15477	04/10/17
10.33	Registration Rights Agreement, dated April 10, 2017, between Maxwell Technologies, Inc. and SDIC Fund Management Co., Ltd.		8-K	001-15477	04/10/17
10.34	Agreement, dated as of April 10, 2017, by and among Maxwell Technologies, Inc. and Viex Capital Advisors, LLC and its affiliates.		8-K	001-15477	04/10/17
10.35	Form of Non-Employee Director Restricted Stock Unit Deferral Election		10-Q	001-15477	05/10/17
10.36	Form of Non-Employee Director Fee Election		10-Q	001-15477	05/10/17
10.37	Amended and Restated Agreement, dated September 18, 2017, by and among the Company and Viex Capital Advisors, LLC and certain of its affiliates named therein		8-K	001-15477	09/19/17
10.38	Amendment No. 5 to Loan and Security Agreement, dated September 20, 2017, by and among the Company and East West Bank		8-K	001-15477	09/21/17
10.39	Purchase Agreement, dated September 20, 2017, by and between the Company and Barclays Capital, Inc.		8-K	001-15477	09/26/17
21.1	List of Subsidiaries of Registrant	X			
23.1	Consent of Independent Registered Public Accounting Firm	X			
31.1	Certification of Chief Executive Officer pursuant to Rule 13a-14(a) (Section 302 Certification) as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002	X			
31.2	Certification of Chief Executive Officer pursuant to Rule 13a-14(a) (Section 302 Certification) as adopted pursuant to Section 302 of the	X			

	Sarbanes-Oxley Act of 2002	
32.1	Certification of Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002	X
32.2	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002	X
101.INS	XBRL Instance Document	X
101.SCH	XBRL Taxonomy Extension Schema	X
101.CAL	XBRL Taxonomy Extension Calculation Linkbase	X

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Exhibit Number	Exhibit Title	Filed Herewith	Form	File No.	Date Filed
101.DEF	XBRL Taxonomy Extension Definition Linkbase	X			
101.LAB	XBRL Taxonomy Extension Label Linkbase	X			
101.PRE	XBRL Taxonomy Presentation Linkbase	X			

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* Management contract or compensatory plan or arrangement of the company required to be filed as an exhibit.

† This Exhibit has been filed separately with the Secretary of the Securities and Exchange Commission without redaction pursuant to a Confidential Treatment Request under Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

(b) See the exhibits required by this item under Item 15(a)(3) above.

(c) See the financial statement schedule required by this item under Item 15(a)(2) above.

Item 16. Form 10-K Summary.

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, on this 16st day of February 2018.

MAXWELL TECHNOLOGIES, INC.

By: /S/ FRANZ FINK
Franz Fink
President and Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each of the undersigned hereby constitutes and appoints Franz Fink and David Lyle, jointly and severally, as his or her true and lawful attorneys-in-fact and agents, each with full power of substitution and resubstitution, for him or her and on his or her behalf to sign, execute and file this Annual Report on Form 10-K and any or all amendments to this Annual Report on Form 10-K, and to file the same, with all exhibits thereto and any and all documents required to be filed with respect therewith, with the Securities and Exchange Commission or any regulatory authority, granting unto such attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith and about the premises in order to effectuate the same as fully to all intents and purposes as he or she might or could do if personally present, hereby ratifying and confirming all that such attorneys-in-fact and agents, or his or her substitute or substitutes, may lawfully do or cause to be done.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ FRANZ FINK	President, Chief Executive Officer and Director	February 16, 2018
Franz Fink	(Principal Executive Officer)	
/s/ DAVID LYLE	Senior Vice President, Chief Financial Officer, Treasurer and Secretary	February 16, 2018
David Lyle	(Principal Financial and Accounting Officer)	
/s/ RICK BERGMAN	Director	February 16, 2018
Rick Bergman		
/s/ STEVEN BILODEAU	Director	February 16, 2018
Steven Bilodeau		
/s/ JÖRG BUCHHEIM	Director	February 16, 2018
Jörg Buchheim		
/s/ BURKHARD GOESCHEL	Director	February 16, 2018
Burkhard Goeschel		
/s/ ILYA GOLUBOVICH	Director	

Ilya Golubovich		February 16, 2018
/s/ JOHN MUTCH	Director	February 16, 2018
John Mutch		

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