Integer Holdings Corp
Form 10-K
February 22, 2019

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

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FORM 10-K

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ANNUAL REPORT PURSUANT TO SECTION 13 or 15(d)
OF THE SECURITIES EXCHANGE ACT OF 1934
For The Fiscal Year Ended December 28, 2018
Commission File Number 1-16137

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INTEGER HOLDINGS CORPORATION
(Exact name of Registrant as specified in its charter)

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Delaware	16-1531026
(State of Incorporation)	(I.R.S. Employer Identification No.)

5830 Granite Parkway
Suite 1150
Plano, Texas 75024
(Address of principal executive offices)
(214) 618-5243
(Registrant's telephone number, including area code)
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 $0.001 Per Share	New York Stock Exchange

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 x No ¨
Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ¨ No 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 ¨
Indicate by checkmark whether the registrant has submitted electronically every Interactive Data File required to be submitted 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 such files). Yes x No ¨

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 Form 10-K or any amendment to this Form 10-K. x

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 x Accelerated filer ¨

Non-accelerated filer ¨ Smaller reporting company ¨

Emerging growth company ¨

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

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

The aggregate market value of common stock held by non-affiliates as of June 29, 2018 (the last business day of the registrant's most recently completed second fiscal quarter), based on the last sale price of $64.65, as reported on the New York Stock Exchange on that date: $2.1 billion. Solely for the purpose of this calculation, shares held by directors and officers and 10 percent stockholders of the registrant have been excluded. This exclusion should not be deemed a determination or an admission that these individuals are, in fact, affiliates of the registrant.

Shares of common stock outstanding as of February 15, 2019: 32,516,677

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the following document are specifically incorporated by reference into the indicated parts of this report:

Document	Part
Proxy Statement for the 2019 Annual Meeting of Stockholders	Part III, Item 10 "Directors, Executive Officers and Corporate Governance"
	Part III, Item 11 "Executive Compensation"
	Part III, Item 12 "Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters"
	Part III, Item 13 "Certain Relationships and Related Transactions, and Director Independence"
	Part III, Item 14 "Principal Accountant Fees and Services"

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PART I

ITEM 1. BUSINESS

OVERVIEW

Integer Holdings Corporation, headquartered in Plano, Texas, is among the world's largest medical device outsource ("MDO") manufacturing companies, serving the cardiac, neuromodulation, orthopedics, vascular, advanced surgical and portable medical market. We provide innovative, high quality medical technologies that enhance the lives of patients worldwide. In addition, we develop batteries for high-end niche applications in energy, military, and environmental markets. Our brands include Greatbatch™ Medical, Lake Region Medical™ and Electrochem™. Our primary customers include large, multi-national original equipment manufacturers ("OEMs") and their affiliated subsidiaries. When used in this report, the terms "Integer," "we," "us," "our" and the "Company" mean Integer Holdings Corporation and its subsidiaries.

We organize our business into two reportable segments, Medical and Non-Medical, and derive our revenues from four principal product lines. The Medical segment includes the Cardio & Vascular, Cardiac & Neuromodulation and Advanced Surgical, Orthopedics & Portable Medical product lines and the Non-Medical segment is comprised of the Electrochem product line.

Our Acquisitions and Divestitures

On July 2, 2018, we completed the sale of the Advanced Surgical and Orthopedic product lines (the "AS&O Product Line") to Viant. As a result, we classified the results of operations of the AS&O Product Line as discontinued operations in the Consolidated Statements of Operations for all periods presented and classified the related assets and liabilities associated with the discontinued operations as held for sale in the Consolidated Balance Sheet as of December 29, 2017. All results and information presented exclude the AS&O Product Line unless otherwise noted. Refer to Note 2 "Discontinued Operations and Divestiture" of the Notes to Consolidated Financial Statements contained in Item 8 of this report for additional information about the divestiture.

On March 14, 2016, we completed the spin-off of a portion of our former QiG segment through a tax-free distribution of all of the shares of our former QiG Group, LLC subsidiary to Integer's stockholders of record as of the close of business on March 7, 2016 (the "Spin-off"). Immediately prior to completion of the Spin-off, QiG Group, LLC was converted into a corporation incorporated under the laws of Delaware and changed its name to Nuvectra Corporation ("Nuvectra"). Each Integer stockholder received one share of Nuvectra common stock for every three shares of Integer common stock held as of the record date. As a result, Nuvectra became an independent, publicly traded company listed on the NASDAQ stock exchange. Integer retains no ownership interest in Nuvectra.

On October 27, 2015, we completed the acquisition of Lake Region Medical Holdings, Inc. ("LRM"), headquartered in Wilmington, MA, in a cash and stock transaction for a total purchase price including debt assumed of approximately $1.77 billion. LRM was primarily a manufacturer of interventional and diagnostic wire-formed medical devices and components specializing in minimally invasive devices for cardiovascular, endovascular, and neurovascular applications. The acquisition of LRM added scale and diversity to our legacy operations, which has enhanced our opportunities to access customers and customer experience by providing a more comprehensive portfolio of technologies.

MEDICAL SEGMENT

Cardio & Vascular

The Cardio & Vascular product line offers a full range of products and services from our global facilities for the development of diagnostic and interventional cardiac and endovascular devices. Our comprehensive design and development services produce components, subassemblies and finished devices for a range of cardiac and endovascular procedures.

The following are the principal products and services offered by our Cardio & Vascular product line:

Cardiovascular and Structural Heart. Cardiovascular and structural heart products include products used for vascular, cardiac surgery and structural heart disease such as guidewire and catheter components, subassemblies and completed devices for cardiovascular, cardiac surgery and structural heart disease applications. For vascular procedures, product applications include introducers, steerable sheaths, guidewires, guide catheters, microcatheters, ultrasound catheters, and delivery systems, balloon expandable delivery systems, stents, atherectomy devices, embolic protection devices, catheter design and assembly, sterile packaging, catheter shafts, radiopaque marker bands, molded hubs, fabricated hypotube assembly, and wire stent frames. For cardiac surgery and structural heart disease procedures, product applications are comprised of access and delivery systems for patent foramen ovale closure devices, vessel harvesting systems, beating heart surgery systems, transcatheter heart valves, heart valves and leaflets, and anastomosis devices.

Peripheral Vascular, Neurovascular, Urology and Oncology. Our peripheral vascular, neurovascular, urology and oncology products are primarily focused on the design and manufacturing of devices used during the treatment of peripheral arterial disease, peripheral transcatheter embolization and occlusion, aortic aneurysm repair, arteriovenous malformations and endoscopic retrograde cholangiopancreatography. We design and manufacture guidewire and catheter components, subassemblies and completed devices for various applications.

The primary neurovascular applications for these products are cerebrovascular aneurysms, while the urology and oncology applications are stone retrieval, thermal tumor ablation, transarterial chemoembolization and radio frequency probes. Our products within this area include peripheral vascular and urology guidewires, neurovascular and oncology micro-guidewires, angiographic and diagnostic guidewires, guiding catheters, support and crossing catheters, embolic protection devices, micro-catheters, and delivery systems.

Electrophysiology, Infusion Therapy & Hemodialysis. Our electrophysiology and infusion therapy products include devices that are used in the electrophysiology ablation catheter and cardiac rhythm systems such as guidewire and catheter components, subassemblies and completed devices for the various electrophysiology applications, as well as components and assemblies for cardiac and neurostimulation leads and implantable pulse generators (“IPG”). Electrophysiology atrial fibrillation ablation catheters, which deliver therapy to the heart and eliminate tissue paths for irregular electrical impulses, and electrophysiology catheters, which diagnose irregular electrical impulses in the heart’s electrical system, are the focal points of our electrophysiology offering. For stimulation therapy applications, cardiac rhythm management (“CRM”) devices, such as pacemakers, implantable cardioverter defibrillator, cardiac leads and neurostimulation devices for spinal cord and deep brain stimulation, are the primary applications of focus.

Cardiac & Neuromodulation

The Cardiac & Neuromodulation product line offers a comprehensive collection of technologies and capabilities. Our complete spectrum of design, development, and manufacturing expertise provides our customers with a superior quality solution in an efficient, cost-effective and consistent manner.

Cardiac and neuromodulation products include batteries, capacitors, filtered and unfiltered feedthroughs, engineered components, implantable stimulation leads and enclosures used in implantable medical devices (“IMD”). Additionally, we offer value-added assembly for these IMDs. An IMD is an instrument that is surgically inserted into the body to provide diagnosis and/or therapy. One sector of the IMD market is cardiac, which is comprised of devices such as implantable pacemakers, implantable cardioverter defibrillators (“ICD”), cardiac resynchronization therapy (“CRT”) devices, cardiac resynchronization therapy with backup defibrillation devices (“CRT-D”), insertable cardiac monitors (“ICM”), and ventricular assist devices. Another sector of the IMD market is neuromodulation, comprised of pacemaker-type devices that stimulate nerves for the treatment of various conditions. Beyond established therapies for pain control, incontinence, movement disorders (Parkinson’s disease, essential tremor and dystonia) and epilepsy, nerve stimulation for the treatment of other disabilities such as sleep apnea, heart failure, migraines, obesity and

depression has shown promising results.

The following are the main categories of battery-powered IMDs and the principal illness or symptoms treated by each device:

Device	Principal Illness or Symptom
Pacemakers	Abnormally slow heartbeat (Bradycardia)
ICDs	Rapid and irregular heartbeat (Tachycardia)
CRT/CRT-Ds	Congestive heart failure
ICMs	Unexplained fainting or risk of cardiac arrhythmias
Neurostimulators	Chronic pain, incontinence, movement disorders, epilepsy, obesity or depression
Cochlear hearing devices	Hearing loss

IMD systems generally include an IPG and one or more stimulation leads. An IPG is a battery powered device that produces electrical pulses. A lead then carries this electrical pulse from the IPG to the heart, spinal cord or other location in the body. Our portfolio of proprietary technologies, products, and capabilities has been built to provide our cardiac and neuromodulation customers with a single source for the vast majority of the components and subassemblies required to manufacture an IPG or lead, including complete lead systems. Our investments in research and development have generated proprietary products such as the QHR®, QMR®, and QCAPS™ primary battery and capacitor lines, which have enabled our OEM partners to make improvements in their system offerings in terms of device reliability, size, longevity and power. Our Xcellion™ line of lithium-ion rechargeable batteries leverages decades of implantable battery research, development and manufacturing expertise. This line of battery cells includes the optional CoreGuard™ feature, which enables batteries to discharge to zero volts without performance degradation.

The following are the principal products and services offered by our Cardiac & Neuromodulation product line:

Cardiac Rhythm Management. We provide a broad range of products and services to enable next generation CRM medical devices to address heart disease and heart rhythm disorders through such systems as: pacemakers, implantable cardiac defibrillators, cardiac resynchronization therapy devices, implantable cardiac monitors and other novel implantable devices. Our battery and capacitor technologies provide a reliable and safe power source for our customers' CRM system, based on decades of research, development and manufacturing experience. As a leading supplier of low-polarization specialty-coated electrodes and lead components, we provide a full range of therapy delivery development and manufacturing solutions. We are also a leading supplier of medical stamped components, and shallow and deep draw casings and assemblies.

Neuromodulation. We offer a wide range of products and services for our customers' next generation neuromodulation medical devices. Examples include implantable medical devices that address chronic pain, hearing loss, incontinence, movement disorders, psychiatric disorders and sleep disorders.

We help our customers develop and manufacture unique neuromodulation solutions, including IPGs, programmer systems, battery chargers, and patient controllers. We offer a full range of therapy delivery development and manufacturing solutions for low-polarization specialty-coated electrodes, lead components and fully finished lead systems.

Advanced Surgical, Orthopedics & Portable Medical

The Advanced Surgical, Orthopedics & Portable Medical ("AS&O") product line offers a broad range of products and services across the many businesses it serves. This product line includes sales to the acquirer of our AS&O Product Line, Viant. In partnership with customers, AS&O offers advanced development, engineering and program management, which provides us with an in-depth understanding of our customers' market drivers and end-user needs.

The following are the principal products and services offered by our AS&O product line:

Portable Medical. Our comprehensive capabilities include expertise in a range of cell technologies. Today, our batteries power over 100 external medical devices. We provide complete mission critical batteries and other power solutions through the combined efforts of innovative research, product development, manufacturing and customer partnerships to advance the way healthcare is powered. Our offerings include state of the art customized rechargeable batteries and chargers and non-rechargeable batteries. We design and develop basic and "smart" chargers and docking stations of varying complexities to safely and reliably maximize the efficiency of the rechargeable batteries. We develop batteries, and the attendant chargers, for patient monitoring, portable defibrillators, and portable ultrasound, X-Ray machines, hearing devices and other devices. We collaborate with our customers on product development

opportunities incorporating our power solutions into Class I, II or III medical devices.

Arthroscopic Devices & Components. Our arthroscopic devices & component products include devices used for minimally invasive surgery in the joint space, also referred to as "sports medicine." Our products include shaver blades and burrs, ablation probes, and suture anchors, which are used in procedures such as arthroscopic ACL reconstruction, arthroscopic repair, rotator cuff repair, and hip labrum repair.

Laparoscopic & General Surgery. Our laparoscopic & general surgery products include devices used primarily for minimally invasive procedures in the abdominal space, but may also be used in open or general surgery. Customers of our laparoscopy and general surgery products require energy-based devices and endomechanical devices that are efficient and reliable. Our products include, harmonic scalpels, radio frequency probes, and ophthalmic surgery devices.

Orthopedic. Our orthopedic products include hip and shoulder joint reconstruction implants, plates, screws and spinal devices, as well as instruments and delivery systems used in hip and knee replacement, trauma fixation, extremity and spine surgeries. Orthopedic implants are used in reconstructive surgeries to replace or repair hips, knees and other joints, such as shoulders, ankles and elbows that have deteriorated as a result of disease or injury. Trauma implant systems are used primarily to reattach or stabilize damaged bone or tissue while the body heals. Spinal implant systems are used by orthopedic surgeons and neurosurgeons in the treatment of degenerative diseases, deformities and injuries in various regions of the spine.

Each implant system typically has an associated instrument set that is used specifically in the surgical implant procedure. Instruments included in a set vary by implant system. Orthopedic trays have generally been designed to allow for sterilization and re-use after an implant or other surgical procedure is performed. Recently, the industry trend is moving towards single use instrumentation. Cases are used to store, transport and arrange implant systems and other medical devices and related surgical instruments. The majority of cases are tailored for a specific implant procedure so that the instruments, implants, and other devices are arranged to match the order of use in the procedure and are securely held in clearly labeled, custom-formed pockets or brackets.

NON-MEDICAL SEGMENT

Our power solutions enable the success and advancement of our customers' critical non-medical applications. We provide custom battery packs to the energy, military and environmental markets for use in extreme environments where failure is not an option.

The following are the principal products and services offered by our Non-Medical product line:

Electrochem. Electrochem provides customized battery power and management systems, charging and docking stations, and power supplies to markets where safety, reliability, quality and durability are critical. We design customized primary (non-rechargeable) and secondary (rechargeable) battery solutions, which are used in the energy, military and environmental markets.

Electrochem's primary lithium power solutions, which include high, moderate and low rate non-rechargeable cell solutions, are utilized in extreme conditions and can withstand exceptionally high and low temperatures, and high shock and vibration. Electrochem's product design capability includes protective circuitry, glass-to-metal hermetic seals, fuses and diodes to help ensure safe, durable and reliable power as devices using our battery solutions are subjected to harsh conditions. Our primary batteries are often used in remote and demanding environments, including down hole drilling tools, military devices, and oceanographic buoys.

In addition to primary power solutions, Electrochem offers customized secondary or rechargeable battery packs, in a diverse range of chemistries for critical applications requiring rechargeable solutions. Rechargeable chemistries include lithium ion, lithium ion polymer, nickel metal hydride, nickel cadmium, lithium iron phosphate and sealed lead acid. Electrochem's rechargeable battery packs include advanced electronics, smart charging and battery management systems and are used in critical military and industrial applications.

OTHER FACTORS IMPACTING OUR OPERATIONS

Customers

Our products are designed to provide reliable, long-lasting solutions that meet the evolving requirements and needs of our customers. The nature and extent of our commercial relationships with each of our customers are different in terms of breadth of products purchased, purchased product volumes, length of contractual commitment, ordering patterns, inventory management, and selling prices. Contracts with customers can include tiered pricing arrangements based on pre-determined volume levels, in which higher volume levels typically have lower pricing, or fixed annual price downs that are offered to customers in exchange for increased volume levels and/or longer contract terms. Typically, our contracts specify minimum order quantities and lead times. Revenue from contracts with customers is recognized based upon the transaction price and when performance obligations are satisfied and the customer has

obtained control of the products, which typically occurs when title and risk of loss ownership transfers to the customer, primarily determined by shipping terms. The transaction price is determined based on the unit price and the number of units ordered, less any rebates or other price concessions expected to be earned on those units, and is allocated to each performance obligation on a relative standalone selling price basis.

Our visibility into customer forecasted purchases is only over a relatively short period of time into the future. Our customers may have inventory management programs, vertical integration plans and/or alternate supply arrangements that may not be communicated to or shared with us. Additionally, the relative market share among the OEM manufacturers changes periodically. Consequently, these and other factors can significantly impact our sales in any given period. Our customers may initiate field actions with respect to market-released products. These actions may include product recalls or communications with a significant number of physicians about a product or labeling issue. The scope of such actions can range from very minor issues affecting a small number of units to more significant actions. There are a number of factors, both short-term and long-term, related to these field actions that may impact our results. In the short-term, if a product has to be replaced, or customer inventory levels have to be restored, demand will increase. Also, changing customer order patterns due to market share shifts or accelerated device replacements may also have a positive or negative impact on our sales results in the near-term. These same factors may have longer-term implications as well. Customer inventory levels may ultimately have to be rebalanced to match new demand.

Our Medical customers include large multi-national medical device OEMs and their subsidiaries such as Abbott Laboratories, Biotronik, Boehringer Ingelheim, Boston Scientific, Cardinal Health, Johnson & Johnson, LivaNova, Medtronic, Nevro Corp., Philips Healthcare, Smith & Nephew, Stryker, Viant and Zimmer Biomet. During 2018, sales to Abbott Laboratories, Medtronic and Boston Scientific were each in excess of 10% of total sales and collectively accounted for 52% of our total sales. We believe that the diversification of our sales among the various subsidiaries and market segments with those three customers reduces our exposure to negative developments with any one customer. The loss of a significant amount of business from any of these three customers or a further consolidation of such customers could have a material adverse effect on our financial condition and results of operations, as further explained in Item 1A “Risk Factors” of this report.

Our Non-Medical customers include large multi-national OEMs and their subsidiaries serving the energy, military and environmental services markets such as Halliburton, Teledyne Technologies and Weatherford International.

Sales and Marketing

We sell our products directly to our customers. In 2018, approximately 57% of our products were sold in the U.S. Sales outside the U.S. are primarily to customers whose corporate offices are located and headquartered in the U.S. Information regarding our sales by geographic area is set forth in Note 17 “Segment and Geographic Information” of the Notes to Consolidated Financial Statements contained in Item 8 of this report.

Although the majority of our customers contract with us to develop custom components and assemblies to fit their product specifications, we also provide system and device solutions ready for market distribution by OEMs. We have established close working relationships between our internal program managers and our customers. We market our products and technologies at industry meetings and trade shows domestically and internationally. We have placed additional emphasis on reaching long-term agreements with our OEM customers in order to secure our revenue base. Internal account executives support all sales activity and involve engineers and technology professionals in the sales process to address customer requests across all product lines. For system and device solutions, we partner with our customers’ research, marketing, and clinical groups to jointly develop technology platforms in alignment with their product roadmaps and therapy needs.

We leverage our account executives with support from our engineers to design and sell product solutions into our targeted markets. Our account executives are trained to assist our customers in selecting appropriate materials and configurations. We market our products and services through well-defined selling strategies and marketing campaigns that are customized for each of the industries we target.

Firm backlog orders at December 28, 2018 were approximately $268 million. The majority of the orders outstanding at December 28, 2018 are expected to be shipped within one year.

Competition

The MDO manufacturing industry has traditionally been highly fragmented with several thousand companies, many of which we believe have limited manufacturing capabilities and limited sales and marketing expertise. We believe that very few companies offer the scope of manufacturing capabilities and services that we provide to medical device companies, however, we may compete in the future against other companies that provide broad manufacturing

capabilities and related services. We compete against different companies depending on the type of product or service offered or the geographic area served. We also face competition from existing and prospective customers that employ in-house capabilities to produce some of the products we provide.

Our existing or potential competitors include suppliers with different subsets of our manufacturing capabilities, suppliers that concentrate in niche markets, and suppliers that have, are developing, or may in the future develop, broad manufacturing capabilities and related services. We compete for new business at all phases of the product life cycle, which includes development of new products, the redesign of existing products and transfer of mature product lines to outsourced manufacturers. Competitive advantage is generally based on reputation, quality, delivery, responsiveness, breadth of capabilities, including design and engineering support, price, customer relationships and increasingly the ability to provide complete supply chain solutions rather than only producing and providing individual components.

Many of our customers, if they choose to undertake vertical integration initiatives, also have the capability to manufacture similar products, in house, to those that we currently supply to them.

Acquisitions and Investments

One facet of our growth strategy is to make acquisitions that complement our core competencies in technology and manufacturing to enable us to manufacture and sell additional products to our existing customers and to expand our business into related markets.

The rapid pace of technological development in the medical industry and the specialized expertise required in different areas of medicine make it difficult for one company alone to develop an all-encompassing portfolio of technological solutions. In addition to internally generated growth through our research, development and engineering ("RD&E") efforts, we have relied, and expect to continue to rely, upon acquisitions, investments, and alliances to provide access to new technologies both in areas served by our existing businesses as well as in new areas and markets. This strategy also aligns with our customers' expectations of increasing the speed to market of critical solutions.

We expect to make future investments or acquisitions where we believe that we can stimulate the development of, or acquire, new technologies and products to further our strategic objectives, and strengthen our existing businesses. Our acquisition focus will be primarily directed at smaller "bolt-on" or adjacent acquisition opportunities that have a strategic fit with our existing core businesses, particularly opportunities that support our enterprise strategy and enhance the value proposition of our product offerings.

Research and Product Development

Our position as a leading developer and manufacturer of medical devices and components is largely the result of our long history of technological innovation. Our scientists, engineers and technicians focus on developing new products, improving and enhancing existing products, and expanding the use of our products in new or tangential applications. In addition to our internal technology and product development efforts, we also engage outside research institutions for unique technology projects.

Medical. We believe our core business is well positioned because our OEM customers leverage our portfolio of intellectual property. We continue to build a healthy pipeline of diverse medical technology opportunities and provide a new level of industry leading capabilities and services to our OEM customers across the full range of medical device products and services continuum. We are at the forefront of innovating technologies and products that help change the face of healthcare, enabling us to provide our customers with a distinct advantage as they bring complete medical systems and solutions to market. In turn, our customers are able to accelerate patient access to life enhancing therapies. We offer our customers a comprehensive portfolio comprising the best technologies, providing a single point of support, and driving optimal outcomes. Some of the more significant product development opportunities our Medical segment is pursuing are as follows:

Product Line	Product Development Opportunities
Cardio & Vascular	Developing a portfolio of catheter, introducer, wire-based, sensor and coating products for the cardio and vascular markets.
Cardiac & Neuromodulation	Developing next generation technology programs for our batteries, filtered feedthroughs, high voltage capacitors and lead solutions to reduce the size and cost, while increasing performance for cardiac and neuromodulation devices.

Non-Medical. Some of the more significant product development opportunities our Non-Medical segment is pursuing include developing the next generation medium-rate and high rate batteries, as well as products with extended performance such as higher power pulsing capabilities and increased operating temperature range.

Patents and Proprietary Technology

Our policy is to protect our intellectual property rights related to our technologies and products, and we rely on a combination of patents, licenses, trade secrets and know-how to establish and protect our rights. Where appropriate, we apply for U.S. and foreign patents. We also are a party to license agreements with third parties under which we have obtained, on varying terms, exclusive or non-exclusive rights to patents held by them. In the aggregate, these intellectual property assets and licenses are of material importance to our business; however, we believe that no single patent, technology, trademark, intellectual property asset or license is material in relation to any segment of our business or to our business as a whole. As of December 28, 2018, we owned 695 U.S. and foreign patents and held licenses to an additional 270 U.S. and foreign patents.

Design, development and regulatory aspects of our business also provide competitive advantages, and we require our employees, consultants and other parties having access to our confidential information to execute confidentiality agreements. These agreements prohibit disclosure of confidential information to third parties, except in specified circumstances. In the case of employees and consultants, the agreements generally provide that all confidential information relating to our business is the exclusive property of Integer.

Manufacturing and Quality Control

We leverage our strength as an innovative designer and manufacturer of finished devices and components to the medical device industry. Our manufacturing and engineering services include: design, testing, component production, and device assembly. We have integrated our proprietary technologies in our own products and those of our customers. Our flexible, high productivity manufacturing capabilities span sites across the United States, Mexico, Uruguay, Europe, and Malaysia.

Due to the highly regulated nature of the products we produce, we have implemented strong quality systems across all sites. The quality systems at our sites are compliant with and certified to various recognized international standards, requirements, and directives. Each site’s quality system is certified under an applicable International Organization for Standardization (“ISO”) quality system standard, such as ISO 13485 or ISO 9001. This certification requires, among other things, an implemented quality system that applies (where applicable) to the design and manufacture of components, assemblies and finished medical devices, including component quality and supplier control. Maintenance of these certifications for each facility requires periodic re-examination from an independent notified body.

Along with ISO 13485, the facilities producing finished medical devices are subject to oversight by Notified Bodies and extensive and rigorous regulation by numerous government bodies, including the U.S. Food and Drug Administration (“FDA”) and other international regulatory agencies and, in order to assure the conformance of devices and components of a worldwide basis. For these facilities, we maintain FDA registration and compliance with all applicable domestic and international regulations. Compliance with applicable regulatory requirements is subject to continual review and is monitored through periodic inspections by the FDA and other international regulatory bodies.

Suppliers and Raw Materials

We purchase critical raw materials from a limited number of suppliers due to the technically challenging requirements of the supplied product and/or the lengthy process required to qualify these materials both internally and with our customers. We cannot quickly establish additional or replacement suppliers for these materials because of these rigid requirements. For these critical raw materials, we maintain minimum safety stock levels and partner with suppliers through contract to help ensure the continuity of supply. Historically, we have not experienced any significant interruptions or delays in obtaining critical raw materials.

Many of the raw materials that are used in our products are subject to fluctuations in market price. In particular, the prices of stainless steel, titanium and precious metals, such as platinum, have historically fluctuated, and the prices that we pay for these materials, and, in some cases, their availability, are dependent upon general market conditions. In most cases, we have pass-through pricing arrangements with our customers that purchase components containing precious metals or have established firm-pricing agreements with our suppliers that are designed to minimize our exposure to market fluctuations.

For non-critical raw material purchases, we utilize competitive pricing methods such as bulk purchases, precious metal pool buys, blanket orders, and long-term contracts to secure supply. We believe that there are alternative suppliers or substitute products available at competitive prices for all of these non-critical raw materials.

As discussed more fully in Item 1A “Risk Factors” of this report, our business depends on a continuous supply of raw materials from a limited number of suppliers. If an unforeseen interruption of supply were to occur, we may be unable to obtain substitute sources for these raw materials on a timely basis, on terms acceptable to us or at all, which could harm our ability to manufacture our products profitably or on time. Additionally, we may be unable to quickly establish additional or replacement suppliers for these materials as there are a limited number of worldwide suppliers.

Working Capital Practices

Our goal is to carry sufficient levels of inventory to ensure that we have adequate supply of raw materials from suppliers and meet the product delivery needs of our customers. We also provide payment terms to customers in the normal course of business and rights to return product under warranty to meet the operational demands of our customers. It will continue to be a priority for us to maintain appropriate working capital levels while improving our operating cash flow and pay down outstanding debt.

Government Regulation

Medical Device Regulation

The development, manufacture and sale of our products is subject to regulation by numerous agencies and legislative bodies, including the FDA and comparable foreign counterparts. In the U.S., these regulations were enacted under the Medical Device Amendments of 1976 to the Federal Food, Drug and Cosmetic Act and its subsequent amendments, and the regulations issued or proposed thereunder. These regulatory requirements subject our products and our business to numerous risks that are specifically discussed within "Risks Related to Our Industries" under Item 1A "Risk Factors" of this report. A summary of critical aspects of our regulatory environment is included below.

The FDA's Quality System Regulations set forth requirements for our product design and manufacturing processes, require the maintenance of certain records, and provide for on-site inspection of our facilities and continuing review by the FDA. Authorization to commercially market our non-exempt products in the U.S. is granted by the FDA under procedures referred to as 510(k) pre-market notification or pre-market approval ("PMA"). These processes require us to notify the FDA of the new product and obtain FDA clearance or approval before marketing the device.

The FDA classifies medical devices based on the risks associated with the device. Devices are classified into one of three categories - Class I, Class II, or Class III. Class I devices are deemed to be low risk and are therefore subject to the least regulatory controls. Class II devices are higher risk devices than Class I and require greater regulatory controls, generally a

510(k) pre-market notification, to provide reasonable assurance of the device's safety and effectiveness as well as substantial equivalence to a previously cleared device, as demonstrated by data. Class III devices are generally the highest risk devices and are therefore subject to the highest level of regulatory control, requiring a PMA by the FDA before they are marketed.

We market our products in numerous foreign countries and therefore are subject to regulations affecting, among other things, product standards, sterilization, packaging requirements, labeling requirements, import laws and onsite inspection by independent bodies with the authority to issue or not issue certifications we may require to be able to sell products in certain countries. Many of the regulations applicable to our devices and products in these countries are similar to those of the FDA. The member countries of the European Union ("EU") have adopted the European Medical Device Directives, which create a single set of medical device regulations for all member countries. These regulations require companies that wish to manufacture and distribute medical devices in the EU to maintain quality system certifications through EU recognized Notified Bodies. These Notified Bodies authorize the use of the CE Mark, which allows for free movement of our products throughout the member countries. Requirements pertaining to our products vary widely from country to country, ranging from simple product registrations to detailed submissions such as those required by the FDA.

In the U.S., our introducer, guidewire, and delivery catheter products are considered Class II devices and generally the 510(k) process applies. Orthopedic instruments are considered Class I exempt, while pacing leads are subject to the Class III PMA process. In Europe, these devices are considered either Class I, Class IIa, Class III, or AIMD, under European Medical Device Directives. These Directives require companies that wish to manufacture and distribute medical devices in EU member countries to obtain a CE Mark for those products, which indicate that the products meet minimum standards of performance, essential requirements, safety conformity assessment and quality.

We believe that the procedures we use for quality controls, development, testing, manufacturing, labeling, marketing and distribution of our medical devices conform to the requirements of all pertinent regulations.

Environmental Health and Safety Laws

We are subject to direct governmental regulation, including the laws and regulations generally applicable to all businesses in the jurisdictions in which we operate. We are subject to federal, state and local environmental laws and regulations governing the emission, discharge, use, storage and disposal of hazardous materials and the remediation of contamination associated with the release of these materials at our facilities and at off-site disposal locations. Our manufacturing and RD&E activities may involve the controlled use of small amounts of hazardous materials. Liabilities associated with hazardous material releases arise principally under the Federal Comprehensive Environmental Response, Compensation and Liability Act and analogous state laws that impose strict, joint and several liability on owners and operators of contaminated facilities and parties that arrange for the off-site disposal of hazardous materials. We are not aware of any material noncompliance with the environmental laws currently applicable to our business and we are not subject to any material claim for liability with respect to contamination at any of our facilities or any off-site location. We may, however, become subject to these environmental liabilities in the future as a result of our historic or current operations.

Conflict Minerals and Supply Chain

We are subject to Securities and Exchange Commission ("SEC") rules adopted pursuant to the Dodd-Frank Wall Street Reform and Consumer Protection Act concerning "conflict minerals" (generally tin, tantalum, tungsten and gold) and similar rules are being implemented by the EU. Certain of these conflict minerals are used in the manufacture of our products. These rules require us to investigate the source of any conflict minerals necessary to the production or functionality of our products. If any such conflict minerals originated in the Democratic Republic of the Congo or adjoining countries (the "DRC region"), we must undertake due diligence efforts to determine whether such minerals financed or benefited armed groups in the DRC region. Since our supply chain is complex, our ongoing compliance with these rules could affect the pricing, sourcing and availability of conflict minerals used in the manufacture of our products.

We are also subject to disclosure requirements regarding abusive labor practices in portions of our supply chain under the California Transparency in Supply Chains Act and the UK Modern Slavery Act.

Other Laws and Regulations

Our sales and marketing practices are subject to regulation by the U.S. Department of Health and Human Services pursuant to federal anti-kickback laws, and are also subject to similar state laws.

Employees

As of December 28, 2018, we employed approximately 8,250 persons, of whom approximately 3,650 are located in the U.S., 2,700 are located in Mexico, 1,300 are located in Europe, 300 are located in South America, and 250 are located in Asia. We also employ approximately 150 temporary employees worldwide to assist us with various projects and service functions and address peaks in staff requirements. We believe that we have a good relationship with our employees.

Seasonality

Our financial results have been, from time to time, subject to seasonal patterns. We cannot assure you that these patterns will continue.

Available Information

Our Internet address is www.integer.net. We also make available free of charge through our website our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after we electronically file those reports with, or furnish them to, the SEC. The information contained on our website is not incorporated by reference in this annual report on Form 10-K and should not be considered a part of this report. The SEC maintains a website that contains reports, proxy and information statements, and other information regarding issuers, including the Company, that file electronically with the SEC. The public can obtain any documents that we file with the SEC at www.sec.gov.

EXECUTIVE OFFICERS OF THE COMPANY

Information concerning our executive officers is presented below as of February 22, 2019. The officers' terms of office run from year to year until the first meeting of the Board of Directors occurring immediately following our Annual Meeting of Stockholders, and until their successors are elected and qualified, except in the case of earlier death, retirement, resignation or removal.

Joseph W. Dziedzic, age 50, is President and Chief Executive Officer of the Company and a member of our Board of Directors. He assumed that role on July 16, 2017 following his appointment as interim President & Chief Executive Officer on March 27, 2017. Mr. Dziedzic was the Executive Vice President and Chief Financial Officer of The Brink's Company from 2009 to 2016, and prior to joining The Brink's Company in 2009, he had a 20-year career with General Electric.

Jason K. Garland, age 45, is the Company's Executive Vice President and Chief Financial Officer. Mr. Garland had served as Divisional Vice President & Chief Financial Officer, Global Sales, for Tiffany & Co. from October 2017 until joining the Company in October 2018, and had served as Divisional Vice President & Chief Financial Officer, Diamond & Jewelry Supply, for Tiffany & Co. from July 2015 to October 2017. From 1995 to 2015, Mr. Garland served in various financial and operational roles at General Electric, including as Chief Financial Officer, GE Industrial Solutions, from March 2010 to June 2015.

Jennifer M. Bolt, age 50, is President, Electrochem, and has served in that position since October 2015. In November 2017, Ms. Bolt assumed leadership of the Portable Medical product line, and in February 2018, she assumed leadership for the Integer Manufacturing Excellence strategic imperative. From June 2013 to October 2015 she was Vice President, Supply Chain and Operational Excellence for Greatbatch. Ms. Bolt held the position of Vice President, Operations for Electrochem from May 2012 to June 2013, and prior to that served as Director of Operations of our Raynham, MA facility from September 2007 to May 2012. Ms. Bolt joined our Company in May 2005 as the Manufacturing Engineering Manager for our Alden, NY facility. Prior to joining our Company, she served in a variety of engineering and operational roles at General Motors/Delphi and Eastman Kodak.

Joseph Flanagan, age 60, is Executive Vice President for Quality and Regulatory Affairs, a position he has held since October 2015. In February 2018, he assumed co-leadership for the Integer Business Process Excellence strategic imperative. From January 2012 until the Company's acquisition of Lake Region Medical in October 2015, he was Vice President of Quality and Regulatory Affairs for Lake Region Medical. Prior to joining Lake Region Medical, Mr. Flanagan served as Vice President of Quality and Regulatory Affairs for NP Medical from April 2008 until January 2012.

Antonio Gonzalez, age 45, is President, CRM & Neuromodulation, and has served in that office since October 2015. Mr. Gonzalez is also the leader for the Integer Sales Force Excellence strategic imperative. From October 2014 to October 2015, he served as Vice President, Operations, Greatbatch Medical Mexico. Previously, Mr. Gonzalez served as Executive Director, Operations Mexico between November 2011 and October 2014, Director of Global Supply Chain from November 2007 to November 2011, Director of Strategic Projects from March 2006 to November 2007, and Supply Chain Manager for Greatbatch Tecnologías de Mexico from January 2005 to March 2006. Prior to joining our Company, he served in a variety of finance, operations, supply chain and customer management roles with Sanmina-SCI, BellSouth Telecommunications, HSBC and ING Bank.

Payman Khales, age 49, is President, Cardio & Vascular, and joined the company on February 20, 2018. Mr. Khales is also the leader for the Integer Market Focused Innovation strategic imperative. Prior to joining Integer, Mr. Khales was the President of the Environmental Technologies Segment at CECO Environmental Company from May 2014 through July 2017. Previously, he was employed by Ingersoll Rand Company where he held a variety of different roles in the United States and Canada, including Vice President Product Management for the global Power Tools division from January 2012 through April 2014, and Vice President Strategic Accounts & Channels from February 2010 through December 2011.

Timothy G. McEvoy, age 61, is Senior Vice President, General Counsel & Secretary, and has served in that office since joining our Company in February 2007. From 1992 until January 2007, he was employed in a variety of legal roles by Manufacturers and Traders Trust Company.

Michael L. Spencer, age 49, is Senior Vice President and Chief Ethics & Compliance Officer. Prior to joining the Company in October 2015, Mr. Spencer was Chief Ethics and Compliance Officer of Orthofix Inc. where he had served since August of 2013. Prior to that, between 2001 and 2013, he served as Ethics and Compliance Officer for the Smith and Nephew Advanced Surgical Division.

Kirk Thor, age 54, is Executive Vice President and Chief Human Resources Officer. From 2013 until joining the Company in January 2018, Mr. Thor was Vice President for Global Talent Management & Organization Effectiveness at Flowserve Corporation. From 2007 to 2012, he served as Vice President for Talent Management & Organization Development at JC Penney. In February 2018, he assumed leadership for the Integer Culture strategic imperative.

CAUTIONARY FACTORS THAT MAY AFFECT FUTURE RESULTS

Some of the statements contained in this annual report on Form 10-K and other written and oral statements made from time to time by us are not statements of historical or current fact. As such, they are "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). We have based these forward-looking statements on our current expectations, and these statements are subject to known and unknown risks, uncertainties and assumptions.

Forward-looking statements include statements relating to:

- future sales, expenses and profitability;
- future development and expected growth of our business and industry;
- our ability to execute our business model and our business strategy;
- our ability to identify trends within our industries and to offer products and services that meet the changing needs of those markets; and
- projected capital expenditures.

You can identify forward-looking statements by terminology such as "may," "will," "should," "could," "expects," "intends," "p "anticipates," "believes," "estimates," "predicts," "potential" or "continue" or "variations" or the negative of these terms or oth comparable terminology. These statements are only predictions. Actual events or results may differ materially from those stated or implied by these forward-looking statements. In evaluating these statements and our prospects, you should carefully consider the factors set forth below. All forward-looking statements attributable to us or persons acting on our behalf are expressly qualified in their entirety by these cautionary factors and to others contained throughout this report. Except as required by applicable law, we are under no duty to update any of the forward-looking statements after the date of this report or to conform these statements to actual results.

Although it is not possible to create a comprehensive list of all factors that may cause actual results to differ from the results expressed or implied by our forward-looking statements or that may affect our future results, some of these factors include the following: our high level of indebtedness, our inability to pay principal and interest on this high level of outstanding indebtedness or to remain in compliance with financial and other covenants under our senior secured credit facilities, and the risk that this high level of indebtedness limits our ability to invest in our business and overall financial flexibility; our dependence upon a limited number of customers; customer ordering patterns; product obsolescence; our inability to market current or future products; pricing pressure from customers; our ability to timely and successfully implement cost savings and consolidation initiatives; our reliance on third party suppliers for raw materials, products and subcomponents; fluctuating operating results; our inability to maintain high quality standards for our products; challenges to our intellectual property rights; product liability claims; product field actions or recalls; our inability to successfully consummate and integrate acquisitions and to realize synergies and to operate these acquired businesses, in accordance with expectations; our unsuccessful expansion into new markets; our failure to develop new products; the timing, progress and ultimate success of pending regulatory actions and approvals; our inability to obtain licenses to key technology; regulatory changes, including health care reform, or consolidation in the healthcare industry; global economic factors, including currency exchange rates and interest rates; the resolution of various legal actions brought against the Company; enactment related and ongoing impacts related to the U.S. Tax Cuts and Jobs Act (the "Tax Reform Act"), including the Global Intangible Low-Taxed Income ("GILTI") tax; and other risks and uncertainties that arise from time to time and are described in Item 1A "Risk Factors" of this report.

ITEM 1A. RISK FACTORS

Our business faces many risks. Any of the risks discussed below, or elsewhere in this report or in our other SEC filings, could have a material impact on our business, financial condition or results of operations.

Risks Related To Our Business

We depend heavily on a limited number of customers, and if we lose any of them or they reduce their business with us, we would lose a substantial portion of our revenues.

In 2018, our top three customers collectively accounted for approximately 52% of our revenues. Our supply agreements with these customers may not be renewed. Furthermore, many of our supply agreements do not contain minimum purchase level requirements and therefore there is no guaranteed source of revenue that we can depend upon under these agreements. The loss of any large customer, a reduction of business with that customer, or a delay or failure by that customer to make payments due to us, would harm our business, financial condition and results of operations.

If we do not respond to changes in technology, our products may become obsolete and we may experience a loss of customers and lower revenues.

We sell our products to customers in several industries that experience rapid technological changes, new product introductions and evolving industry standards. Without the timely introduction of new products, technologies and enhancements, our products and services will likely become technologically obsolete over time and we may lose or see a reduction in business from a significant number of our customers. We dedicate a significant amount of resources to the development of our products, technologies and enhancements. Our product development efforts may be affected by a number of factors, including our ability to anticipate customer needs, develop new technologies and enhancements, secure intellectual property protection for our products, and manufacture products in a cost effective manner. We would be harmed if we did not meet customer requirements and expectations. Our inability, for technological or other reasons, to successfully develop and introduce new and innovative products, technologies and enhancements could result in a loss of customers and lower revenues.

We may face competition that could harm our business and we may be unable to compete successfully against new entrants and established companies with greater resources.

Competition in connection with the manufacturing of our medical products has intensified in recent years and may continue to intensify in the future. One or more of our medical customers may undertake additional vertical integration and/or supplier diversification initiatives and begin to manufacture or dual-source some or all of their components that we currently supply to them, which could cause our operating results to suffer. The market for commercial power sources is competitive, fragmented and subject to rapid technological change. Many other commercial power source suppliers are larger and have greater financial, operational, economies of scale, personnel, sales, technical and marketing resources than us. These and other companies may develop products that are superior, technologically or otherwise, or more cost effective to ours, which could result in lower revenues and operating results.

If we are unable to successfully market our current or future products, our business will be harmed and our revenues and operating results will be adversely affected.

The markets for our products have been changing in recent years. If the markets for our products do not grow as forecasted by industry experts, our revenues could be less than expected. Furthermore, it is difficult to predict the rate at which the markets for our products will grow or if new and increased competition will result in market saturation. Slower growth in the cardiac, neuromodulation, cardio and vascular, environmental, military or energy markets in particular would negatively impact our revenues. In addition, we face the risk that our products will lose widespread market acceptance. Our customers may not continue to utilize the products we offer and a market may not develop for our future products.

We may at times determine that it is not technically or economically feasible for us to continue to manufacture certain products and we may not be successful in developing or marketing them. Additionally, new technologies that we develop may not be rapidly accepted because of industry-specific factors, including the need for regulatory clearance,

entrenched patterns of clinical practice and uncertainty over third party reimbursement. If this occurs, our business will be harmed and our revenues and operating results will be adversely affected.

We intend to develop new products and expand into new markets, which may not be successful and could harm our operating results.

We intend to expand into new markets and develop new and modified products based on our existing technologies and engineering capabilities. These efforts have required and will continue to require us to make substantial investments, including significant RD&E expenditures and capital expenditures for new, expanded or improved manufacturing facilities. Additionally, many of the new products we are working on and developing take longer and more resources to develop and commercialize, including obtaining regulatory approval.

Specific risks in connection with expanding into new products and markets include: longer product development cycles, the inability to transfer our quality standards and technology into new products, the failure to receive or the delay in receipt of regulatory approval for new products or modifications to existing products, and the failure of our customers to accept the new or modified products. Our inability to develop new products or expand into new markets, as currently intended, could hurt our business, financial condition and results of operations.

We may never realize the full value of our intangible assets, which represent a significant portion of our total assets.

At December 28, 2018, we had $1.6 billion of goodwill and other intangible assets, representing 71% of our total assets. These intangible assets consist primarily of goodwill, trademarks, tradenames, customer lists and patented technology arising from our acquisitions. Goodwill and other intangible assets with indefinite lives are not amortized, but are tested annually or upon the occurrence of certain events that indicate that the assets may be impaired. Definite lived intangible assets are amortized over their estimated useful lives and are tested for impairment upon the occurrence of certain events that indicate that the assets may be impaired. We may not receive the recorded value for our intangible assets if we sell or liquidate our business or assets. In addition, this significant amount of intangible assets increases the risk of a large charge to earnings in the event that the recoverability of these intangible assets is impaired. In the event of such a charge to earnings, the market price of our common stock could be negatively affected. In addition, intangible assets with definite lives, which represent $722.1 million of our net intangible assets at December 28, 2018, will continue to be amortized. These expenses will continue to reduce our future earnings or increase our future losses.

We are subject to pricing pressures from customers, which could harm our operating results.

Given the competitive industry in which we operate, we have made price concessions to some of our larger customers in recent years and we expect customer pressure for price concessions will continue in the future. Price concessions or reductions may cause our operating results to suffer.

We rely on third party suppliers for raw materials, key products and subcomponents, and if we are unable to obtain these materials, products and/or subcomponents on a timely basis or on terms acceptable to us, our ability to manufacture products will suffer.

Our business depends on a continuous supply of raw materials. The principal raw materials used in our business include lithium, iodine, gold, CFx, palladium, stainless steel, aluminum, cobalt chrome, tantalum, platinum, ruthenium, gallium trichloride, vanadium oxide, iridium, titanium and plastics. The supply and price of these raw materials are susceptible to fluctuations due to transportation issues, government regulations, price controls, foreign civil unrest, tariffs, worldwide economic conditions or other unforeseen circumstances. Increasing global demand for these raw materials has caused prices of these materials to increase. In addition, there are a limited number of worldwide suppliers of several raw materials needed to manufacture our products. For reasons of quality, cost effectiveness or availability, we obtain some raw materials from a single supplier. Although we work closely with our suppliers to seek to ensure continuity of supply, we may not be able to continue to procure raw materials critical to our business at all or to procure them at acceptable price levels.

In addition, we rely on third party manufacturers to supply many of the products and subcomponents that are incorporated into our own products and components. Manufacturing problems may occur with these and other outside sources, as a supplier may fail to develop and supply products and subcomponents to us on a timely basis, or may supply us with products and subcomponents that do not meet our quality, quantity and cost requirements. If any of these problems occur, we may be unable to obtain substitute sources for these products and subcomponents on a timely basis or on terms acceptable to us, which could harm our ability to manufacture our own products and components profitably or on time. In addition, to the extent the processes our suppliers use to manufacture products

and subcomponents are proprietary, we may be unable to obtain comparable products and subcomponents from alternative suppliers.

Quality problems with our products could harm our reputation and erode our competitive advantage.

Quality is important to us and our customers, and our products, given their intended uses, are held to high quality and performance standards. In the event our products fail to meet these standards, our reputation could be harmed, which could erode our competitive advantage over competitors, causing us to lose or see a reduction in business from customers and resulting in lower revenues.

Quality problems with our products could result in warranty claims and additional costs.

We generally allow customers to return defective or damaged products for credit, replacement or repair. We generally warrant that our products will meet customer specifications and will be free from defects in materials and workmanship. Additionally, we carry a safety stock of inventory for our customers that may be impacted by warranty claims. We reserve for our exposure to warranty claims based upon recent historical experience and other specific information as it becomes available. However, these reserves may not be adequate to cover future warranty claims. If these reserves are inadequate, additional warranty costs or inventory write-offs may need to be incurred in the future, which could harm our operating results.

Regulatory issues resulting from product complaints, or recalls, or regulatory audits could harm our ability to produce and supply products or bring new products to market.

Our products are designed, manufactured and distributed globally in compliance with applicable regulations and standards. However, a product complaint, recall or negative regulatory audit may cause our products to be removed from the market and harm our operating results or financial condition. In addition, during the period in which corrective action is being taken by us to remedy a complaint, recall or negative audit, regulators may not allow our new products to be cleared for marketing and sale.

If we become subject to product liability claims, our operating results and financial condition could suffer.

Our business exposes us to potential product liability claims, which may take the form of a one-off claim from a single claimant or a class action lawsuit covering multiple claimants, that are inherent in the design, manufacture and sales of our products. Product failures, including those that arise from the failure to meet product specifications, misuse or malfunction, or design flaws, or the use of our products with components or systems not manufactured or sold by us could result in product liability claims or a recall. Many of our products are components and function in interaction with our customers' medical devices. For example, our batteries are produced to meet electrical performance, longevity and other specifications, but the actual performance of those products is dependent on how they are utilized as part of our customers' devices over the lifetime of their products. Product performance and device interaction from time to time have been, and may in the future be, different than expected for a number of reasons. Consequently, it is possible that customers may experience problems with their medical devices that could require device recall or other corrective action, where our batteries met the specification at delivery, and for reasons that are not related primarily or at all to any failure by our product to perform in accordance with specifications. It is possible that our customers (or end-users) may in the future assert that our products caused or contributed to device failure. Even if these assertions do not lead to product liability or contract claims, they could harm our reputation and our customer relationships.

Provisions contained in our agreements with key customers attempting to limit our damages, including provisions to limit damages to liability for negligence, may not be enforceable in all instances or may otherwise fail to adequately protect us from liability for damages. Product liability claims or product recalls, regardless of their ultimate outcome, could require us to spend significant time and money in litigation and require us to pay significant damages and could divert the attention of our management from our business operations. The occurrence of product liability claims or product recalls could affect our operating results and financial condition.

We carry product liability insurance with coverage that is limited in scope and amount. We may not be able to maintain this insurance at a reasonable cost or on reasonable terms, or at all. This insurance may not be adequate to protect us against a product liability claim that arises in the future.

Our operating results may fluctuate, which may make it difficult to forecast our future performance and may result in volatility in our stock price.

Our operating results have fluctuated in the past and are likely to continue to fluctuate from quarter to quarter, making forecasting future performance difficult and resulting in volatility in our stock price. These fluctuations are due to a variety of factors, including the following:

- a substantial percentage of our costs are fixed in nature, which results in our operations being particularly sensitive to fluctuations in production volumes;
- changes in the mix of our revenue represented by our various products and customers could result in reductions in our profits if the mix of our revenue represented by lower margin products increases;
- timing of orders placed by our principal customers who account for a significant portion of our revenues; and

- increased costs of raw materials or supplies.

If we are unable to protect our intellectual property and proprietary rights, our business could be harmed.

We rely on a combination of patents, licenses, trade secrets and know-how to establish and protect our rights to our technologies and products. However, we cannot assure you that any of our patent rights, whether issued, subject to license or in process, will not be misappropriated, circumvented or invalidated. In addition, competitors may design around our technology or develop competing technologies that do not infringe our proprietary rights. As patents and other intellectual property protection expire, we may lose our competitive advantage. If third parties infringe or misappropriate our patents or other proprietary rights, our businesses could be seriously harmed.

In addition, we cannot be assured that our existing or planned products do not or will not infringe on the intellectual property rights of others or that others will not claim such infringement. Our industry has experienced extensive ongoing patent litigation which can result in the incurrence of significant legal costs for indeterminate periods of time, injunctions against the manufacture or sale of infringing products and significant royalty payments. At any given time, we may be a plaintiff or defendant in such an action. We cannot assure you that we will be able to prevent competitors from challenging our patents or other intellectual property rights or entering markets we currently serve.

In addition to seeking formal patent protection whenever possible, we attempt to protect our proprietary rights and trade secrets by entering into confidentiality agreements with employees, consultants and third parties with which we do business. However, these agreements may be breached and, if a breach occurs, there may be no adequate remedies available to us and we may be unable to prevent the unauthorized disclosure or use of our technical knowledge, practices and/or procedures. If our trade secrets become known, we may lose our competitive advantages.

We may be subject to intellectual property claims, which could be costly and time consuming and could divert our management's attention from our business operations.

In producing our products, third parties may claim that we are infringing on their intellectual property rights, and we may be found to have infringed on those intellectual property rights. We may be unaware of intellectual property rights of others that may be used in our technology and products. In addition, third parties may claim that our patents have been improperly granted and may seek to invalidate our existing or future patents. If any claim for invalidation prevailed, third parties may manufacture and sell products that compete with our products and our revenues from any related license agreements would decrease accordingly. We also typically do not receive significant indemnification from parties that license technology to us against third party claims of intellectual property infringement.

Any litigation or other challenges regarding our patents or other intellectual property could be costly and time consuming and could divert the attention of our management and key personnel from our business operations. The complexity of the technology involved in producing our products and the uncertainty of intellectual property litigation increases these risks. Claims of intellectual property infringement may also require us to enter into costly royalty or license agreements. However, we may not be able to obtain royalty or license agreements on terms acceptable to us, or at all. We also may be made subject to significant damages or injunctions against development and sale of our products.

Our failure to obtain licenses from third parties for new technologies or the loss of these licenses could impair our ability to design and manufacture new products and reduce our revenues.

We occasionally license technologies from third parties rather than depending exclusively on our own proprietary technology and developments. Our ability to license new technologies from third parties is and will continue to be critical to our ability to offer new and improved products. We may not be able to continue to identify new technologies developed by others and even if we are able to identify new technologies, we may not be able to negotiate licenses on favorable terms, or at all. Additionally, we could lose rights granted under licenses for reasons beyond our control.

We may not be able to attract, train and retain a sufficient number of qualified associates to maintain and grow our business.

We monitor the markets in which we compete and assess opportunities to better align expenses with revenues, while preserving our ability to make needed investments in RD&E projects, capital and our associates that we believe are critical to our long-term success. Our success will depend in large part upon our ability to attract, train, retain and motivate highly skilled associates. There is currently aggressive competition for employees who have experience in technology and engineering. We compete intensely with other companies to recruit and hire from this limited pool.

The industries in which we compete for employees are characterized by high levels of employee attrition. Although we believe we offer competitive salaries and benefits, we may have to increase spending in order to attract, train and retain qualified personnel.

We are dependent upon our senior management team and key technical personnel and the loss of any of them could significantly harm us.

Our future performance depends to a significant degree upon the continued contributions of our senior management team and key technical personnel. In general, only highly qualified and trained scientists have the necessary skills to develop our products, which are often highly technical in nature. The loss or unavailability to us of any member of our senior management team or a key technical employee could significantly harm us. We face intense competition for these professionals from our competitors, customers and companies operating in our industry. To the extent that the services of members of our senior management team and key technical personnel would be unavailable to us for any reason, we would be required to hire other personnel to manage and operate our Company and to develop our products and technology, which could negatively impact our business. We may not be able to locate or employ these qualified personnel on acceptable terms or may need to increase spending in order to attract these qualified personnel.

We have significant indebtedness that could affect our operations and financial condition, and our failure to meet certain financial covenants required by our debt agreements may materially and adversely affect our assets, financial position and cash flows.

At December 28, 2018,we had $942 million in principal amount of debt outstanding. As of December 28, 2018, our debt service obligations, comprised of principal and interest, during the 2019 fiscal year ending January 3, 2020 are estimated to be approximately $86 million. The outstanding indebtedness and the terms and covenants of the agreements under which this debt was incurred, could, among other things:

- require us to dedicate a large portion of our cash flow from operations to the servicing and repayment of our outstanding indebtedness, thereby reducing funds available for working capital, capital expenditures, RD&E expenditures and other general corporate requirements;
- limit our ability to obtain additional financing to fund future working capital, capital expenditures, RD&E expenditures and other general corporate requirements in the future;
- limit our flexibility in planning for, or reacting to, changes in our business and the industry in which we operate;
- restrict our ability to make strategic acquisitions or dispositions or to exploit business opportunities;
- place us at a competitive disadvantage compared to our competitors that have less outstanding indebtedness; and
- adversely affect the market price of our common stock.

If we are not successful in making acquisitions to expand and develop our business, our operating results may suffer.

One facet of our growth strategy is to make acquisitions that complement our core competencies in technology and manufacturing to enable us to manufacture and sell additional products to our existing customers and to expand our business into related markets. Our continued growth may depend on our ability to successfully identify and acquire companies that complement or enhance our existing business on acceptable terms. We may not be able to identify or complete future acquisitions. In addition, we will need to comply with the terms of our Senior Secured Credit Facility. In connection with pursuing this growth strategy, some of the risks that we may encounter include expenses associated with and difficulties in identifying potential targets, the costs associated with unsuccessful acquisitions, and higher prices for acquired companies because of competition for attractive acquisition targets.

We may not realize the expected benefits from our cost savings and consolidation initiatives or those initiatives may have unintended consequences, which may harm our business.

We have incurred significant charges related to various cost savings and consolidation initiatives. These initiatives were undertaken to improve our operational effectiveness, efficiencies and profitability. Information regarding some of these initiatives is discussed in Note 11 “Other Operating Expenses” of the Notes to Consolidated Financial Statements contained in Item 8 of this report. Cost reduction efforts under these initiatives include various cost and efficiency improvement measures, such as headcount reductions, the relocation of resources and administrative and functional activities, the closure of facilities, the transfer of production lines, the sale of non-strategic assets and other efforts to streamline our business, among other actions. These measures could yield unintended consequences, such as distraction of our management and associates, business disruption, disputes with customers, attrition beyond our planned reduction in workforce and reduced associate productivity. If any of these unintended consequences were to occur, they could negatively affect our business, financial condition and results of operations. In addition, headcount reductions and customer disputes may subject us to the risk of litigation, which could result in the incurrence of

substantial costs. Moreover, our cost reduction efforts result in charges and expenses that impact our operating results. Our cost savings and consolidation initiatives, or other expense reduction measures we take in the future, may not result in the expected cost savings.

Successful integration and anticipated benefits of acquisitions cannot be assured and integration matters could divert attention of management away from operations.

Part of our business strategy includes acquiring additional businesses and assets. If we do not successfully integrate acquisitions, we may not realize anticipated operating advantages and cost savings. Our ability to realize the anticipated benefits from acquisitions will depend, to a large extent, on our ability to integrate these acquired businesses with our legacy businesses. Integrating and coordinating aspects of the operations and personnel of the acquired business with legacy businesses involves complex operational, technological and personnel-related challenges. This process is time-consuming and expensive, disrupts the businesses of both companies and may not result in the achievement of the full benefits expected by us, including cost synergies expected to arise from supply chain efficiencies and overlapping general and administrative functions.

The potential difficulties, and resulting costs and delays, include:

- managing a larger combined company;
- consolidating corporate and administrative infrastructures;
- issues in integrating manufacturing, warehouse and distribution facilities, RD&E and sales forces;
- difficulties attracting and retaining key personnel;
- loss of customers and suppliers and inability to attract new customers and suppliers;
- unanticipated issues in integrating information technology, communications and other systems;
- incompatibility of purchasing, logistics, marketing, administration and other systems and processes; and
- unforeseen and unexpected liabilities related to the acquired business.

Additionally, the integration of our legacy businesses with an acquired company's operations, products and personnel may place a significant burden on management and other internal resources. The attention of our management may be directed towards integration considerations and may be diverted from our day-to-day business operations, and matters related to the integration may require commitments of time and resources that could otherwise have been devoted to other opportunities that might have been beneficial to us and our business. The diversion of management's attention, and any difficulties encountered in the transition and integration process, could harm our business, financial condition and operating results.

We may not be able to maintain the levels of operating efficiency that acquired companies have achieved or might achieve separately. Successful integration of each acquisition will depend upon our ability to manage those operations and to eliminate redundant and excess costs. Difficulties in integration may be magnified if we make multiple acquisitions over a relatively short period of time. Because of difficulties in combining and expanding operations, we may not be able to achieve the cost savings and other size-related benefits that we hoped to achieve after these acquisitions.

Any of the matters described above could adversely affect our business or harm our financial condition, results of operations or business prospects.

Interruptions of our manufacturing operations could delay production and negatively affect our operations.

Our products are designed and manufactured in facilities located around the world. In most cases, the manufacturing of specific product lines is concentrated in one or a few locations. If an event (including any weather or natural disaster-related event) occurred that resulted in material damage or loss of one or more of these manufacturing facilities or we lacked sufficient labor to fully operate the facility, we might be unable to transfer the manufacture of the relevant products to another facility or location in a cost-effective or timely manner, if at all. This potential inability to transfer production could occur for a number of reasons, including but not limited to a lack of necessary relevant manufacturing capability at another facility, or the regulatory requirements of the FDA or other governmental regulatory bodies. In addition, our business involves complex manufacturing processes and hazardous materials that can be dangerous to our associates. Although we employ safety procedures in the design and operation of our facilities, there is a risk that an accident or death could occur. Any accident, such as a chemical spill or fire, could result in significant manufacturing delays or claims for damages resulting from injuries, which would harm our operations and financial condition. The potential liability resulting from any such accident or death, to the extent not covered by insurance, could harm our financial condition or operating results. Any disruption of operations at any of our facilities, and in particular our larger facilities, could result in production delays, which could affect our operations

and harm our business.

We have a complex tax profile due to the global nature of our operations and may experience significant variability in our quarterly and annual effective tax rate due to several factors, including changes in the mix of pre-tax income and the jurisdictions to which it relates, business acquisitions, settlements with taxing authorities, and changes in tax rates.
Our global operations encompass multiple taxing jurisdictions. Variability in the mix and profitability of domestic and international activities, identification and resolution of various tax uncertainties, changes in tax laws and rates, and the extent to which we are able to realize net operating loss and other carryforwards included in deferred tax assets and avoid potential adverse outcomes included in deferred tax liabilities, among other matters, may significantly affect our effective income tax rate in the future.
Changes in international tax laws or additional changes in U.S. tax laws could materially affect our financial position and results of operations. In addition, many countries in the EU, as well as a number of other countries and organizations such as the Organization for Economic Cooperation and Development, are also actively considering changes to existing tax laws. If tax laws and related regulations change, our financial results could be materially impacted. Given the unpredictability of these possible changes and their potential interdependency, it is possible such changes could adversely impact our financial results.
Our effective income tax rate is the result of the income tax rates in the various countries in which we do business. Our mix of income and losses in these jurisdictions affects our effective tax rate. For example, relatively more income in higher tax rate jurisdictions would increase our effective tax rate and thus lower our net income. Similarly, if we generate losses in tax jurisdictions for which no benefits are available, our effective income tax rate will increase. Our effective income tax rate may also be impacted by the recognition of discrete income tax items, such as required adjustments to our liabilities for uncertain tax positions or our deferred tax asset valuation allowance. A significant increase in our effective income tax rate could have a material adverse impact on our earnings.
We have recorded deferred tax assets based on our assessment that we will be able to realize the benefits of our net operating losses and other favorable tax attributes. Realization of deferred tax assets involve significant judgments and estimates which are subject to change and ultimately depends on generating sufficient taxable income of the appropriate character during the appropriate periods. Changes in circumstances may affect the likelihood of such realization, which in turn may trigger a write-down of our deferred tax assets, the amount of which would depend on a number of factors. A write-down would reduce our reported net income, which may adversely impact our financial condition or results of operations or cash flows. In addition, we are potentially subject to ongoing and periodic tax examinations and audits in various jurisdictions, including with respect to the amount of our net operating losses and any limitation thereon. An adjustment to such net operating loss carryforwards, including an adjustment from a taxing authority, could result in higher tax costs, penalties and interest, thereby adversely impacting our financial condition, results of operations or cash flows.
Our operations are subject to cyber-attacks that could have a material adverse effect on our business, consolidated results of operations and consolidated financial condition.
In the ordinary course of business, our operations are, and in the future are expected to continue to be, dependent on digital technologies and information technology systems. We use these technologies and systems for internal purposes, including data storage, processing and transmissions, as well as in our interactions with customers and suppliers. The security of this information and these systems are important to our operations and business strategy. Digital technologies and systems have been, and in the future are expected to continue to be, subject to the risk of cyber-attacks. Despite our security measures, our information technology systems and infrastructure may be vulnerable to cyber-attacks by hackers or malware, or breached due to associate error, malfeasance or other disruptions. As the techniques used to obtain unauthorized access, disable or degrade service, or sabotage infrastructure and systems change frequently and may be difficult to detect for long periods of time, we may be unable to anticipate these techniques or implement adequate preventive measures. If our systems for protecting against cybersecurity risks prove insufficient, we could be adversely affected by, among other things: loss of or damage to intellectual property, proprietary or confidential information, or customer, supplier, or employee data; interruption of our business operations; and increased costs required to prevent, respond to, or mitigate cybersecurity attacks. In addition, any such breach could compromise our networks and the information stored there could be accessed, publicly disclosed or stolen. These risks could harm our reputation and brand, and our relationships with customers,

suppliers, employees and other third parties, and may result in claims or proceeding against us. In certain circumstances, we may rely on third party vendors to process, store and transmit data for our business whose operations are subject to similar risks. These risks could have a material adverse effect on our business, financial condition and results of operations. While we maintain cyber-liability insurance, our insurance may not be sufficient to cover us against all losses that could potentially result from a breach of our systems or loss of sensitive data.

The failure of our information technology systems to perform as anticipated could disrupt our business and affect our financial condition.

The efficient operation of our business is dependent on our information technology ("IT") systems. Accordingly, we rely upon the capacity, reliability and security of our IT hardware and software infrastructure and our ability to expand and update this infrastructure in response to our changing needs. Despite our implementation of security measures, our systems are vulnerable to damages from computer viruses, natural disasters, incursions by intruders or hackers, failures in hardware or software, power fluctuations, cyber terrorists and other similar disruptions. The failure of our IT systems to perform as anticipated for any reason or any significant breach of security could disrupt our business and result in numerous consequences, including reduced effectiveness and efficiency of operations, inappropriate disclosure of confidential information, increased overhead costs and loss of important information, which could have a material effect on our business and results of operations. In addition, we may be required to incur significant costs to protect against damage caused by these disruptions or security breaches in the future.

Our international sales and operations are subject to a variety of market and financial risks and costs that could affect our profitability and operating results.

Our sales outside the U.S., which accounted for 43% of sales for 2018, and our operations in Europe, Asia, Mexico and South America are and will continue to be subject to a number of risks and potential costs, including:

- changes in foreign economic conditions and/or regulatory requirements;
- changes in foreign currency exchange rates;
- local product preferences and product requirements;
- outstanding accounts receivables that take longer to collect than is typical in the U.S.;
- difficulties in enforcing agreements through foreign legal systems;
- less protection of intellectual property in some countries outside of the U.S.;
- trade protection measures and import and export licensing requirements;
- work force instability;
- political and economic instability; and
- complex tax and cash management issues.

We earn revenue and incur expenses related to our foreign sales and operations that are denominated in a foreign currency. Additionally, to the extent that monetary assets and liabilities, including short-term and long-term intercompany loans, are recorded in a currency other than the functional currency of our foreign subsidiaries, these amounts are remeasured each period, with the resulting gain or loss being recorded in Other (Income) Loss, Net. We may buy hedges in certain currencies to reduce or offset our exposure to currency exchange fluctuations; however, these transactions may not be adequate or effective to protect us from the exposure for which they are purchased. Historically, foreign currency fluctuations have not had a material effect on our net financial results. However, fluctuations in foreign currency exchange rates could have a significant impact, positive or negative, on our financial results in the future.

Economic and credit market uncertainty could interrupt our access to capital markets, borrowings, or financial transactions to hedge certain risks, which could adversely affect our financial condition.

To date, we have been able to access debt and equity financing that has allowed us to complete acquisitions, make investments in growth opportunities and fund working capital requirements. In addition, we enter into financial transactions to hedge certain risks, including foreign exchange and interest rate risk. Our continued access to capital markets, the stability of our lenders under our Senior Secured Credit Facility and their willingness to support our needs, and the stability of the parties to our financial transactions that hedge risks are essential for us to meet our current and long-term obligations, fund operations, and fund our strategic initiatives. An interruption in our access to external financing or financial transactions to hedge risk could affect our business prospects and financial condition.

Risks Related To Our Industries

Our business is subject to environmental regulations that could be costly to comply with.

Federal, state and local regulations impose various environmental controls on the manufacturing, transportation, storage, use and disposal of batteries and hazardous chemicals and other materials used in, and hazardous waste produced by the manufacturing of our products. Conditions relating to our historical operations may require expenditures for clean-up in the future and changes in environmental laws and regulations may impose costly compliance requirements on us or otherwise subject us to future liabilities. Additional or modified regulations relating to the manufacture, transportation, storage, use and disposal of materials used to manufacture our products or restricting disposal or transportation of batteries may be imposed that may result in higher costs or lower operating results. In addition, we cannot predict the effect that additional or modified environmental regulations may have on us or our customers.

Our international operations expose us to legal and regulatory risks, which could have a material effect on our business.

Our profitability and international operations are, and will continue to be, subject to risks relating to changes in foreign legal and regulatory requirements. In addition, our international operations are governed by various U.S. laws and regulations, including the Foreign Corrupt Practices Act ("FCPA") and other similar laws that prohibit us and our business partners from making improper payments or offers of payment to foreign governments and their officials and political parties for the purpose of obtaining or retaining business. Any alleged or actual violations of these regulations may subject us to government scrutiny, severe criminal or civil sanctions and other liabilities and could negatively affect our business, reputation, operating results, and financial condition.

Consolidation in the healthcare industry could result in greater competition and reduce our revenues and harm our business.

Many healthcare industry companies are consolidating to create new companies with greater market power. As the healthcare industry consolidates, competition to provide products and services to industry participants will become more intense. These industry participants may try to use their market power to negotiate price concessions or reductions for our products or may undertake additional vertical integration and/or supplier diversification initiatives. If we are forced to reduce our prices, our revenues would decrease and our operating results would suffer.

The healthcare industry is highly regulated and subject to various political, economic and regulatory changes that could increase our compliance costs and force us to modify how we develop and price our products.

The healthcare industry is highly regulated and is influenced by changing political, economic and regulatory factors. Several of our product lines are subject to international, federal, state and local health and safety, packaging and product content regulations. In addition, medical devices are subject to regulation by the FDA and similar governmental agencies. These regulations cover a wide variety of product activities from design and development to labeling, manufacturing, promotion, sales and distribution. Compliance with these regulations may be time consuming, burdensome and expensive and could negatively affect our ability to sell products. This may result in higher than anticipated costs or lower than anticipated revenues.

Furthermore, healthcare industry regulations are complex, change frequently and have tended to become more stringent over time. Federal and state legislatures have periodically considered and implemented programs to reform or amend the U.S. healthcare system at both the federal and state levels. In addition, these regulations may contain proposals to increase governmental involvement in healthcare, lower reimbursement rates or otherwise change the environment in which healthcare industry participants operate. We may be required to incur significant expenses to comply with these regulations or remedy past violations of these regulations. Our failure to comply with applicable government regulations could also result in cessation of portions or all of our operations, impositions of fines and restrictions on our ability to carry on or expand our operations. In addition, because many of our products are sold into regulated industries, we must comply with additional regulations in marketing our products.

In response to perceived increases in healthcare costs in recent years, there have been and continue to be proposals by the Presidential administrations, members of Congress, state governments, regulators and third-party payors to control these costs and, more generally, to reform the U.S. healthcare system, including by repealing or replacing the Patient Protection and Affordable Care Act. Health care reform imposed a Medical Device Excise Tax ("the MDET") on

medical device manufacturers through the end of 2015. The Consolidated Appropriations Act, 2016, enacted in December 2015, included a two-year moratorium on MDET such that medical device sales in 2016 and 2017 were exempt from the MDET. New legislation was passed in January 2018 such that implementation of the MDET was suspended until January 1, 2020. Although the MDET was suspended, if this suspension is not continued or made permanent thereafter, the MDET will be automatically reinstated starting on January 1, 2020 and would result in a significant increase in the tax burden on our industry, which could have a material negative impact on our financial condition, results of operations and our cash flows. Other elements of health care reform such as comparative effectiveness research, an independent payment advisory board, payment system reforms including shared savings pilots and other provisions could meaningfully change the way healthcare is developed and delivered, and may materially adversely impact numerous aspects of our business, results of operations and financial condition.

Our business is indirectly subject to healthcare industry cost containment measures that could result in reduced sales of our products.

Several of our customers rely on third party payors, such as government programs and private health insurance plans, to reimburse some or all of the cost of the procedures in which our products are used. The continuing efforts of governments, insurance companies and other payors of healthcare costs to contain or reduce those costs could lead to patients being unable to obtain approval for payment from these third party payors for procedures in which our products are used. If that occurred, sales of medical devices may decline significantly and our customers may reduce or eliminate purchases of our products, or demand further price reductions. The cost containment measures that healthcare payors are instituting, both in the U.S. and internationally, could reduce our revenues and harm our operating results.

Our energy market revenues are dependent on conditions in the oil and natural gas industry, which historically have been volatile.

Sales of our products into the energy market depends upon the condition of the oil and gas industry. Currently, oil and natural gas prices have been subject to significant fluctuation and the oil and gas exploration and production industry has historically been cyclical, and it is likely that oil and natural gas prices will continue to fluctuate in the future. The current and anticipated prices of oil and natural gas influence the oil and gas exploration and production business and are affected by a variety of political and economic factors, including worldwide demand for oil and natural gas, worldwide and domestic supplies of oil and natural gas, the ability of the Organization of Petroleum Exporting Countries ("OPEC") to set and maintain production levels and pricing, the level of production of non-OPEC countries, the price and availability of alternative fuels, political stability in oil producing regions and the policies of the various governments regarding exploration and development of their oil and natural gas reserves. A change in the oil and gas exploration and production industry or a reduction in the exploration and production expenditures of oil and gas companies could cause our energy market revenues to decline.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

Our principal executive office and headquarters is located in Plano, Texas, in a leased facility. As of December 28, 2018, we operated 18 facilities in the U.S., three in Europe, three in Mexico, one in South America, and two in Southeast Asia. Of these facilities, 19 were leased and 8 were owned. We occupy approximately 1.7 million square feet of manufacturing and RD&E space worldwide. We believe the facilities we operate and their equipment are effectively utilized, well maintained, generally are in good condition, and will be able to accommodate our capacity needs to meet current levels of demand. We continuously review our anticipated requirements for facilities and, on the basis of that review, may from time to time acquire additional facilities or dispose of existing facilities.

ITEM 3. LEGAL PROCEEDINGS

In April 2013, the Company commenced an action against AVX Corporation and AVX Filters Corporation (collectively "AVX") alleging that AVX had infringed the Company's patents by manufacturing and selling filtered feedthrough assemblies used in implantable pacemakers and cardioverter defibrillators that incorporate the Company's patented technology. Two juries in the United States District Court for the District of Delaware have returned verdicts finding that AVX infringed three of the Company's patents and awarded the Company $37.5 million in damages. In March 2018, the U.S. District Court for the District of Delaware vacated the original damage award and ordered a retrial on damages. In the January 2019 retrial on damages, the jury awarded the Company $22.2 million in damages. The finding is subject to post-trial proceedings.

In January 2015, LRM was notified by the New Jersey Department of Environmental Protection ("NJDEP") of NJDEP's intent to revoke a no further action determination made by NJDEP in favor of LRM in 2002 pertaining to a property on which a subsidiary of LRM operated a manufacturing facility in South Plainfield, New Jersey beginning in 1971. LRM sold the property in 2004 and vacated the facility in 2007. In response to NJDEP's notice, LRM further investigated the matter and submitted a technical report to NJDEP in August of 2015 that concluded that NJDEP's notice of intent to revoke was unwarranted. After reviewing the technical report, NJDEP issued a draft response in May 2016, stating that NJDEP would not revoke the no further action determination at that time but would require some additional site investigation to support the Company's conclusion. The Company is cooperating with NJDEP and has begun the requested additional investigation. The Company does not expect that this environmental matter will have a material effect on its consolidated results of operations, financial position or cash flows.

We are party to various other legal actions arising in the normal course of business. A description of pending legal actions against the Company is set forth in Note 13 "Commitments and Contingencies" of the Notes to Consolidated Financial Statements contained in Item 8 of this report. Other than as discussed in Note 13, we do not believe that the ultimate resolution of any pending legal actions will have a material effect on our consolidated results of operations, financial position or cash flows. However, litigation is subject to inherent uncertainties and there can be no assurance that any pending legal action, which we currently believe to be immaterial, does not become material in the future.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Market Information for Common Stock. The Company's common stock trades on the New York Stock Exchange ("NYSE") under the symbol "ITGR."

Stockholders. According to the records of our transfer agent, there were approximately 100 holders of record of our common stock on February 15, 2019. Because many of these shares are held by brokers and other institutions on behalf of stockholders, we are unable to estimate the total number of stockholders represented by these record holders.

Dividends. We have not paid cash dividends and do not anticipate paying any cash dividends in the foreseeable future.

PERFORMANCE GRAPH

The following graph compares, for the five year period ended December 28, 2018, the cumulative total stockholder return for Integer Holdings Corporation, the S&P SmallCap 600 Index, and the Hemscott Peer Group Index. The Hemscott Peer Group Index includes approximately 110 comparable companies included in the Hemscott Industry Group 520 Medical Instruments & Supplies and 521 Medical Appliances & Equipment. The graph assumes that $100 was invested on January 3, 2014 and assumes reinvestment of dividends. No adjustments have been made for the value provided to shareholders for spin-offs, including the spin-off of Nuvectra by the Company in March 2016. The stock price performance shown on the following graph is not necessarily indicative of future price performance.

Company/Index	01/03/14	01/02/15	01/01/16	12/30/16	12/29/17	12/28/18
Integer Holdings Corporation	$ 100.00	$ 111.10	$ 119.86	$ 79.12	$ 121.70	$ 204.26
S&P Smallcap 600	100.00	105.76	103.67	131.20	148.56	135.96
Hemscott Peer Group Index	100.00	120.38	128.36	136.03	178.54	199.50

ITEM 6. SELECTED FINANCIAL DATA

Five-Year Summary Financial Data
(in thousands, except per share amounts)
This data should be read along with Item 7 “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and Item 8 “Financial Statements and Supplementary Data” appearing elsewhere in this report. Operating results for the 2014 though 2017 fiscal years were retrospectively revised from previously reported amounts to reclassify the operations for the AS&O Product Line as discontinued operations.

	2018[1][2]	2017[1][2][3]	2016[1][2]	2015[1][2]	2014[1][2]
Summary of Operations for the Fiscal Year:					
Sales	$1,215,012	$1,136,080	$1,075,502	$638,995	$547,937
Income (loss) from continuing operations	47,033	87,087	24,878	(3,176)	46,980
Income (loss) from discontinued operations	120,931	(20,408)	(18,917)	(4,418)	5,778
Net income (loss)	167,964	66,679	5,961	(7,594)	55,458
Basic earnings (loss) per share:					
Income (loss) from continuing operations	$1.46	$2.77	$0.81	$(0.12)	$2.00
Income (loss) from discontinued operations	3.76	(0.65)	(0.61)	(0.17)	0.23
Basic earnings (loss) per share	5.23	2.12	0.19	(0.29)	2.23
Diluted earnings (loss) per share:					
Income (loss) from continuing operations	$1.44	$2.72	$0.80	$(0.12)	$1.91
Income (loss) from discontinued operations	3.71	(0.64)	(0.61)	(0.17)	0.22
Diluted earnings (loss) per share	5.15	2.08	0.19	(0.29)	2.14
Financial Position at Year End:					
Working capital	$251,680	$322,906	$332,087	$360,764	$242,022
Total assets	2,326,681	2,848,345	2,832,543	2,982,136	955,122
Long-term obligations	1,101,618	1,745,961	1,922,084	1,917,671	233,099

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(1) From 2014 to 2018, we recorded material charges in Other Operating Expenses (“OOE”), primarily related to our cost savings and consolidation initiatives and our acquisitions. Additional information is set forth in Note 11 “Other Operating Expenses” of the Notes to Consolidated Financial Statements contained in Item 8 of this report.

(2) In 2015 and 2014, we acquired LRM and Centro de Construcción de Cardioestimuladores del Uruguay, respectively. In 2016, we spun-off a portion of our former QiG segment, which is now an independent, publicly traded company known as Nuvectra. This data includes the results of operations of these acquired companies subsequent to their acquisition and does not include the result of operations of Nuvectra subsequent to the Spin-off.

(3) In the fourth quarter of 2017, we recognized a net benefit of $39.4 million as a result of the Tax Reform Act.

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

The following discussion and analysis of our financial condition and results of operations should be read together with our selected financial data and our consolidated financial statements and the related notes appearing elsewhere in this report.

This discussion and analysis contains forward-looking statements that involve risks, uncertainties and assumptions. Our actual results may differ materially from those anticipated in these forward-looking statements as a result of many factors, including but not limited to those under the heading "Risk Factors" in Item 1A of this report.

Our Business

- Our business
- Discontinued operations and divestiture
- Use of non-GAAP financial information
- Strategic overview
- Financial overview

Our Financial Results

- Fiscal 2018 compared with fiscal 2017
- Fiscal 2017 compared with fiscal 2016
- Liquidity and capital resources
- Off-balance sheet arrangements
- Contractual obligations
- Impact of recently issued accounting standards

Critical Accounting Estimates

- Inventories
- Valuation of goodwill, intangible and other long-lived assets
- Income taxes

We utilize a fifty-two or fifty-three week fiscal year ending on the Friday nearest December 31. Fiscal years 2018, 2017 and 2016 each consisted of fifty-two weeks and ended on December 28, 2018, December 29, 2017 and December 30, 2016, respectively.

The results of operations of the AS&O Product Line have been classified as discontinued operations for all periods presented. Prior period amounts have been reclassified to conform to the continuing operations reporting presentation. All results and information presented exclude the AS&O Product Line unless otherwise noted.

Our Business

Integer Holdings Corporation is one of the largest medical device outsource ("MDO") manufacturers in the world serving the cardiac, neuromodulation, orthopedics, vascular and advanced surgical markets. We also develop batteries for high-end niche applications in the non-medical energy, military, and environmental markets. Our vision is to enhance the lives of patients worldwide by being our customers' partner of choice for innovative technologies and services.

We organize our business into two reportable segments, Medical and Non-Medical, and derive our revenues from four principle product lines. The Medical segment includes the Cardio & Vascular, Cardiac & Neuromodulation and Advanced Surgical, Orthopedics & Portable Medical product lines and the Non-Medical segment is comprised of the Electrochem product line. For more information on our segments, please refer to Note 17 "Segment and Geographic Information" of the Notes to Consolidated Financial Statements contained in Item 8 of this report.

MANAGEMENT'S DISCUSSION AND ANALYSIS

Discontinued Operations and Divestiture

On July 2, 2018, we completed the sale of the AS&O Product Line for net cash proceeds of approximately $581 million, resulting in a pre-tax gain of approximately $195 million. In connection with the sale, the parties executed a transition services agreement whereby we will provide certain corporate services (including accounting, payroll, and information technology services) to Viant for a period of up to one year from the date of the closing to facilitate an orderly transfer of business operations. Viant will pay us for these services, with such payments varying in amount and length of time as specified in the transition services agreement. In addition, the parties executed long-term supply agreements under which the parties have agreed to supply the other with certain products at prices specified in the agreements for a term of three years.

Refer to Note 2 "Discontinued Operations and Divestitures" of the Notes to Consolidated Financial Statements contained in Item 8 of this report for additional information about the divestiture of the AS&O Product Line.

Strategic Overview

During 2017 we undertook a thorough strategic review of our customers, competitors and markets. As a result of this review, during the fourth quarter of 2017, we began to take steps to better align our resources in order to invest to grow, protect, preserve and to enhance the profitability of our portfolio of products. In addition to our portfolio strategy, we have launched the execution of six key operational strategic imperatives designed to drive excellence in everything we do: (1) Sales Force Excellence, (2) Market Focused Innovation, (3) Manufacturing Process Excellence, (4) Business Process Excellence, (5) Performance Excellence, and (6) Leadership Capability.

- Sales Force Excellence: We're changing the organization structure to match product line growth strategies and customer needs. This change is about getting more out of the capability we already have, and will increase individual accountability and clarity of ownership.
- Market Focused Innovation: We're ensuring we get the most return on our Research & Development (R&D) investments. Integer is currently focusing on getting a clearer picture of how we spend our money and ensuring we're spending it in the right places so we can increase investments to drive future growth.
- Manufacturing Process Excellence: The goal is to deliver world-class operational performance in the areas of safety, quality, delivery and overall efficiency. We want to transition our manufacturing into a competitive advantage through a single, enterprise-wide manufacturing structure known as the Integer Production System (IPS). This system will provide standardized systems and processes by leveraging best practices and applying them across all our global sites.
- Business Process Excellence: Integer is taking a systematic approach to driving excellence in everything we do by standardizing, optimizing and ultimately sustaining all of our processes.
- Performance Excellence: We're raising the bar on associate performance to maximize our impact. This includes aligning key roles with critical capabilities, positioning the best talent against the biggest work, and putting tools and processes in place to provide higher financial rewards for top performers, so you can see increased results in pay for increased results in your performance.
- Leadership Capability: We have a robust plan to make leadership a competitive advantage for Integer. And since the success rate is higher with internal hires, we're focusing on finding and developing leaders from within the company to build critical capabilities for future success.

We believe Integer is well-positioned within the medical technology and MDO manufacturing market and that there is a robust pipeline of opportunities to pursue. We have expanded our medical device capabilities and are excited about opportunities to partner with customers to drive innovation. We believe we have the scale and global presence, supported by world-class manufacturing and quality capabilities, to capture these opportunities. We are confident in our capabilities as one of the largest MDO manufacturers, with a long history of successfully integrating companies, driving down costs and growing revenues over the long-term. Ultimately, our strategic vision is to drive shareholder value by enhancing the lives of patients worldwide by being our customers' partner of choice for innovative technologies and services.

MANAGEMENT'S DISCUSSION AND ANALYSIS

Financial Overview

Fiscal 2018 Compared with Fiscal 2017

Income from continuing operations for 2018 was $47.0 million or $1.44 per diluted share compared to $87.1 million or $2.72 per diluted share for 2017. These variances are primarily the result of the following:

- Sales from continuing operations for 2018 increased 7% primarily driven by market growth and new business wins. During 2018, price concessions given to our larger OEM customers in return for long-term volume commitments lowered sales by approximately $15 million in comparison to 2017. In comparison to the prior year, foreign currency exchange rates increased sales by $1.9 million for 2018.
- Gross profit for 2018 increased $8.7 million primarily due to the increase in sales from continuing operations discussed above, partially offset by higher incentive compensation ($5.1 million) costs.
- Operating expenses for 2018 were lower by $21.3 million compared to 2017, due to a decrease in other operating expenses ($20.4 million) attributable to the completion of spending on integration activities partially offset by higher incentive compensation ($6.0 million).
- Interest expense for 2018 increased by $35.3 million primarily due to extinguishment of debt charges related to the repayment of indebtedness in connection with the divestiture of the AS&O Product Line. Debt extinguishment expenses included in interest expense for 2018 were higher by $39.2 million compared to 2017.
- Net gains on equity investments, which are unpredictable in nature, increased income by $5.6 million in 2018 compared to losses of $1.6 million during 2017.
- Other loss, net for 2018 was $0.8 million compared to $10.9 million during 2017, primarily due to the non-recurrence of a non-cash foreign currency charge in the prior year on inter-company loans.
- We recorded an income tax provision of $14.1 million for 2018, compared to a benefit of $37.8 million for 2017. The 2017 amount included a tax benefit of $39.4 million related to the Tax Reform Act that was recorded in the fourth quarter of 2017. Refer to Note 12 "Income Taxes" of the Notes to Consolidated Financial Statements contained in Item 1 of this report and the "Provision for Income Taxes" section of this Item for additional information.

Fiscal 2017 Compared with Fiscal 2016

Income from continuing operations for 2017 was $87.1 million or $2.72 per diluted share compared to $24.9 million or $0.80 per diluted share for 2016. These variances are primarily the result of the following:

- Sales from continuing operations for 2017 increased 6% primarily driven by market growth, new business wins, and lower comparables versus 2016 in our Cardio & Vascular and Non-Medical product lines. These increases were partially offset by price concessions given to our larger OEM customers in return for long-term volume commitments.
- Gross profit for 2017 increased $16.3 million primarily due to the increase in sales discussed above, as well as production efficiencies.
- Operating expenses for 2017 were lower by $16.4 million primarily due to the results of Nuvectra not being included after the Spin-off ($4.7 million), and lower other operating expenses attributable to reduced spending on integration and consolidation initiatives.
- Interest expense for 2017 declined $4.4 million primarily due to the amendment of our Term Loan B Facility in 2017, which lowered the interest rate paid on that debt by 100 basis points, as well as scheduled and accelerated debt repayments during 2017. These reductions were partially offset by the accelerated write-off of deferred fees and original issue discount of $3.5 million due to the accelerated pay down of debt during 2017, as well as the increase in LIBOR during 2017.
- Net gains on equity investments, which are unpredictable in nature, were by $1.6 million and $0.8 million during 2017 and 2016, respectively.
- Other (income) loss, net for 2017 was a loss of $10.9 million in 2017 versus a gain of $4.4 million in 2016, due to higher foreign currency exchange rate losses driven by the remeasurement of intercompany loans as a result of the weakening of the U.S. dollar relative to the Euro during 2017, which are primarily non-cash in nature.
- We recorded an income tax benefit of $37.8 million in 2017 compared to an income tax provision of $3.3 million in 2016. As a result of the Tax Reform Act, we recognized a $39.4 million net income tax benefit in the fourth quarter of 2017, primarily related to the revaluation of our net deferred tax liabilities, but partially offset by a one-time

mandatory tax on the repatriation of undistributed foreign subsidiary earnings and profits.

MANAGEMENT'S DISCUSSION AND ANALYSIS

Use of Non-GAAP Financial Information

We prepare our consolidated financial statements in accordance with generally accepted accounting principles in the United States of America ("GAAP"). Additionally, we consistently report and discuss in our earnings releases and investor presentations adjusted pre-tax income, adjusted income, adjusted earnings per diluted share ("EPS"), earnings before interest, taxes, depreciation, and amortization ("EBITDA") and adjusted EBITDA, all from continuing operations.

Adjusted pre-tax income, adjusted income and adjusted diluted EPS from continuing operations consist of GAAP amounts adjusted for the following to the extent occurring during the period: (i) acquisition and integration related charges and expenses, (ii) amortization of intangible assets, (iii) facility consolidation, optimization, manufacturing transfer and system integration charges, (iv) asset write-down and disposition charges, (v) charges in connection with corporate realignments or a reduction in force, (vi) certain litigation expenses, charges and gains, (vii) unusual or infrequently occurring items, (viii) gain/loss on equity investments, (ix) extinguishment of debt charges, (x) the net impact of long-term supply agreements ("LSAs") between the Company and Viant, (xi) the income tax (benefit) related to these adjustments (not for adjusted pre-tax income) and (xii) certain tax items that are outside the normal provision for the period (not for adjusted pre-tax income). Adjusted diluted EPS is calculated by dividing adjusted income from continuing operations by diluted weighted average shares outstanding.

Adjusted EBITDA from continuing operations consists of GAAP income from continuing operations plus (i) the same adjustments as listed above except for items (ix) and (xii), (ii) GAAP stock-based compensation, interest expense, and depreciation, and (iii) GAAP provision (benefit) for income taxes.

We believe that the presentation of adjusted income, adjusted diluted earnings per share, EBITDA, and adjusted EBITDA, all from continuing operations, provides important supplemental information to management and investors seeking to understand the financial and business trends relating to our financial condition and results of operations, including compliance with our bank covenant calculations.

A reconciliation of GAAP net income and diluted EPS to GAAP income from continuing operations and GAAP diluted EPS from continuing operations for 2018, 2017 and 2016 is as follows (in thousands, except per share amounts):

	2018			2017			2016		
	Pre-Tax	Net of Tax	Per Diluted Share	Pre-Tax	Net of Tax	Per Diluted Share	Pre-Tax	Net of Tax	Per Diluted Share
As reported (GAAP)	$249,429	$167,964	$ 5.15	$21,827	$66,679	$2.08	$1,185	$5,961	$0.19
Less: Income (loss) from discontinued operations	188,313	120,931	3.71	(27,432)	(20,408)	(0.64)	(26,980)	(18,917)	(0.61)
Income from continuing operations	$61,116	$47,033	$ 1.44	$49,259	$87,087	$2.72	$28,165	$24,878	$0.80

MANAGEMENT'S DISCUSSION AND ANALYSIS

A reconciliation of GAAP income from continuing operations and diluted EPS to adjusted amounts for 2018, 2017 and 2016 is as follows (in thousands, except per share amounts):

	2018			2017			2016		
	Pre-Tax	Net of Tax	Per Diluted Share	Pre-Tax	Net of Tax	Per Diluted Share	Pre-Tax	Net of Tax	Per Diluted Share
As reported (GAAP)	$61,116	$47,033	1.44	$49,259	$87,087	$2.72	$28,165	$24,878	0.80
Adjustments:									
Amortization (excluding OOE)[a]	40,946	32,338	0.99	40,568	28,322	0.88	35,470	25,080	0.80
IP related litigation (SG&A)[a][b]	2,820	2,228	0.07	4,375	2,844	0.09	3,040	1,976	0.06
Other operating expenses[c]	16,065	12,495	0.38	36,438	25,789	0.80	60,413	44,850	1.44
(Gain) loss on equity investments, net[a]	(5,623)	(4,442)	(0.14)	1,565	1,017	0.03	833	541	0.02
Loss on extinguishment of debt[a][d]	42,674	33,712	1.03	3,524	2,291	0.07	—	—	—
LSA and other non-recurring adjustments[a][e]	(5,322)	(4,204)	(0.13)	(12,972)	(8,431)	(0.26)	(10,858)	(7,058)	(0.23)
Tax adjustments[f]	—	5,231	0.16	—	(39,806)	(1.24)	—	(154)	—
Nuvectra results[a][g]	—	—	—	—	—	—	4,037	2,624	0.08
Adjusted income from continuing operations (Non-GAAP)	$152,676	$124,391	$3.80	$122,757	$99,113	$3.09	$121,100	$92,737	$2.97
Diluted weighted average shares for adjusted EPS[h]		32,768			32,056			31,222	

(a) The difference between pre-tax and income (loss) amounts is the estimated tax impact related to the respective adjustment. Income (loss) amounts are computed using a 21% U.S. tax rate (35% U.S. tax rate for 2016 and 2017), and the statutory tax rates in Mexico, Netherlands, Uruguay, Ireland and Switzerland, as adjusted for the existence of net operating losses ("NOLs"). Amortization of intangibles and OOE expense have also been adjusted to reflect the estimated impact relating to our disallowed deduction of the GILTI tax, as described in footnote (f) below. Expenses that are not deductible for tax purposes (i.e. permanent tax differences) are added back at 100%.

(b) In 2013, we filed suit against AVX Corporation alleging they were infringing our intellectual property. Given the complexity and significant costs incurred pursuing this litigation, we are excluding these litigation expenses from adjusted amounts. This matter proceeded to trial during the first quarter of 2016 and again in the third quarter of 2017 that resulted in a jury awarding damages in the amount of $37.5 million. In March 2018, the court vacated that damage award and ordered a new trial on damages. In the January 2019 retrial on damages, the jury awarded damages in the amount of $22.2 million. That finding is subject to post-trial proceedings. To date, no gains have been recognized in connection with this litigation.

(c) Represents expenses related to various initiatives which were undertaken to improve our operational efficiencies and profitability, integrate acquisitions and increase manufacturing capacity to accommodate growth. Refer to Note 11 "Other Operating Expenses" of the Notes to Consolidated Financial Statements contained in Item 8 of this report for further details on these initiatives.

(d)

Represents debt extinguishment charges in connection with pre-payments made on our Term B Loan Facility, which are included in interest expense. In addition, 2018 includes a “make-whole” premium of $31.3 million, paid as a result of redeeming our 9.125% senior notes due on November 1, 2023 (the “Senior Notes”) in July 2018.

(e) LSA and other non-recurring adjustments primarily reflect the net impact on prior periods of the LSAs entered into as of the closing of the divestiture of the AS&O Product Lines. These LSAs govern the sale of products supplied by Viant to us for further resale to customers and by us to Viant for further resale to customers.

(f) Tax adjustments for 2018 primarily includes the estimated impact relating to our disallowed deduction of the GILTI tax, as mandated by the Tax Reform Act. This disallowed deduction of the GILTI tax (approximately 50% of the total GILTI tax) is due to our utilization of U.S. NOLs, and will be eliminated once our U.S. NOLs are fully utilized, which is expected to be in 2019. This adjustment makes our Adjusted Diluted EPS from continuing operations more comparable with other global companies that are not subject to this disallowed GILTI tax deduction and more comparable to our results following the full utilization of our U.S. NOLs. Tax adjustments for 2017 includes the net tax benefit resulting from the Tax Reform Act and include a discrete tax charge in connection with the enactment of regulations under §987 of the Internal Revenue Code, which resulted in an adjustment to our deferred tax assets.

(g) Represents the results of Nuvectra prior to its Spin-off on March 14, 2016.

(h) The diluted weighted average shares for adjusted EPS for 2018 and 2016 include potentially dilutive shares not included in the computation of diluted weighted average common shares for GAAP diluted EPS purposes because their effect would have been anti-dilutive.

Adjusted diluted EPS from continuing operations, which excludes the impact of amortization of intangible assets, losses on extinguishment of debt and various other operating expenses, among others, was $3.80 per share for 2018 compared to $3.09 per share in 2017. These results reflect the benefit of our increased sales and the completion of spending on integration activities, partially offset by higher incentive compensation expense in 2018 compared to 2017.

For 2017, adjusted diluted EPS increased 4% to $3.09 per share in comparison to 2016 primarily due to our increased gross profit and lower interest expense partially offset by higher incentive compensation ($8.8 million (SG&A, RD&E)) and higher foreign currency exchange losses ($15.2 million).

A reconciliation of GAAP income from continuing operations to EBITDA from continuing operations and adjusted EBITDA from continuing operations for 2018, 2017 and 2016 is as follows (dollars in thousands):

	2018	2017	2016
Income from continuing operations (GAAP)	$47,033	$87,087	$24,878
Interest expense	99,310	63,972	68,331
Provision (benefit) for income taxes	14,083	(37,828)	3,287
Depreciation	40,078	38,077	37,398
Amortization (excluding OOE)	40,946	40,568	35,470
EBITDA (Non-GAAP)	241,450	191,876	169,364
IP related litigation	2,820	4,375	3,040
Stock-based compensation expense (excluding OOE)	10,051	11,283	6,631
Strategic reorganization and alignment	10,624	5,891	—
Manufacturing alignment to support growth	3,089	—	—
Consolidation and optimization expenses	844	12,803	25,510
Acquisition and integration expenses	—	10,870	28,112
Asset dispositions, severance and other	1,508	6,874	6,791
(Gain) loss on equity investments, net	(5,623)	2,965	1,495
LSA and other non-recurring adjustments	(5,322)	(12,972)	(10,858)
Nuvectra results prior to Spin-off	—	—	3,665
Adjusted EBITDA from continuing operations (Non-GAAP)	$259,441	$233,965	$233,750

The changes in adjusted EBITDA for 2018 versus 2017 and 2016 are primarily the result of the same factors that drove the changes in adjusted diluted EPS as discussed above.

MANAGEMENT'S DISCUSSION AND ANALYSIS

Our Financial Results

The following table presents selected financial information derived from our Consolidated Financial Statements, contained in Item 8 of this report, for the periods presented (dollars in thousands, except per share amounts):

				Change 2018 vs. 2017		Change 2017 vs. 2016	
	2018	2017	2016	$	%	$	%
Medical Sales:							
Cardio & Vascular	$585,464	$530,831	$484,891	$54,633	10 %	$45,940	9 %
Cardiac & Neuromodulation	443,347	428,275	439,375	15,072	4 %	(11,100)	(3)%
Advanced Surgical, Orthopedics & Portable Medical	133,225	120,006	109,557	13,219	11 %	10,449	10 %
Total Medical Sales	1,162,036	1,079,112	1,033,823	82,924	8 %	45,289	4 %
Non-Medical	52,976	56,968	41,679	(3,992)	(7)%	15,289	37 %
Total sales	1,215,012	1,136,080	1,075,502	78,932	7 %	60,578	6 %
Cost of sales	852,347	782,070	737,823	70,277	9 %	44,247	6 %
Gross profit	362,665	354,010	337,679	8,655	2 %	16,331	5 %
Gross profit as a % of sales	29.8 %	31.2 %	31.4 %				
Selling, general and administrative expenses ("SG&A")	142,441	143,073	136,444	(632)	— %	6,629	5 %
SG&A as a % of sales	11.7 %	12.6 %	12.7 %				
Research, development and engineering costs ("RD&E")	48,604	48,850	47,899	(246)	(1)%	951	2 %
RD&E as a % of sales	4.0 %	4.3 %	4.5 %				
Other operating expenses	16,065	36,438	60,413	(20,373)	(56)%	(23,975)	(40)%
Operating income	155,555	125,649	92,923	29,906	24 %	32,726	35 %
Operating margin	12.8 %	11.1 %	8.6 %				
Interest expense	99,310	63,972	68,331	35,338	55 %	(4,359)	(6)%
(Gain) loss on equity investments, net	(5,623)	1,565	833	(7,188)	NM	732	88 %
Other (income) loss, net	752	10,853	(4,406)	(10,101)	NM	15,259	NM
Income from continuing operations before taxes	61,116	49,259	28,165	11,857	24 %	21,094	75 %
Provision (benefit) for income taxes	14,083	(37,828)	3,287	51,911	NM	(41,115)	NM
Effective tax rate	23.0 %	(76.8)%	11.7 %				
Income from continuing operations	$47,033	$87,087	$24,878	$(40,054)	(46)%	$62,209	NM
Income (loss) from continuing operations as a % of sales	3.9 %	7.7 %	2.3 %				
Diluted earnings per share from continuing operations	$1.44	$2.72	$0.80	$(1.28)	NM	$1.92	NM

NM - Calculated change not meaningful.

MANAGEMENT'S DISCUSSION AND ANALYSIS

Fiscal 2018 Compared with Fiscal 2017

Sales

Sales by product line for 2018 and 2017 were as follows (dollars in thousands):

			Change	
	2018	2017	$	%
Medical Sales:				
Cardio & Vascular	$585,464	$530,831	$54,633	10.3 %
Cardiac & Neuromodulation	443,347	428,275	15,072	3.5 %
Advanced Surgical, Orthopedics & Portable Medical	133,225	120,006	13,219	11.0 %
Total Medical Sales	1,162,036	1,079,112	82,924	7.7 %
Non-Medical	52,976	56,968	(3,992)	(7.0)%
Total sales	$1,215,012	$1,136,080	$78,932	6.9 %

Total 2018 sales increased 6.9% to $1.2 billion in comparison to 2017. The most significant drivers of this increase were as follows:

Cardio & Vascular sales for 2018 increased $54.6 million or 10% in comparison to 2017. This increase was primarily due to continued strong demand in the electrophysiology market stemming from customer share gains, new product launches, and timing from customer inventory replenishment. During 2018, price concessions to our larger OEM customers reduced Cardio & Vascular sales by approximately $8 million in comparison to 2017. During 2018, foreign currency exchange rate fluctuations increased our Cardio & Vascular sales in comparison to 2017 by approximately $1.9 million primarily due to U.S. dollar fluctuations relative to the Euro.

Cardiac & Neuromodulation sales for 2018 increased $15.1 million or 4% in comparison to 2017. The increases in Cardiac & Neuromodulation sales were driven by increased components market penetration and a lower 2017 due to customer inventory adjustments. Neuromodulation remained strong, with growth driven by spinal cord stimulation market demand and increased components market penetration. During 2018, price concessions to our larger OEM customers reduced Cardiac & Neuromodulation sales by approximately $8 million in comparison to 2017. Foreign currency exchange rate fluctuations did not have a material impact on Cardiac & Neuromodulation sales during 2018 in comparison to 2017.

In addition to Portable Medical sales, Advanced Surgical, Orthopedic & Portable Medical includes sales to the acquirer of our AS&O Product Lines, Viant, under the LSA for the sale of products by the Company to Viant. Advanced Surgical, Orthopedics & Portable Medical sales for 2018 increased $13.2 million or 11% in comparison to 2017. The sales increase was driven by above market demand. Neither price concessions nor foreign currency exchange rate fluctuations had a material impact on AS&O sales during 2018 in comparison to 2017.

Non-Medical sales for 2018 decreased $4.0 million or 7% in comparison to 2017. The decline in Non-Medical sales was primarily due to North American drilling activity leveling off, which has led to customer inventory adjustments. 2018 sales were also impacted by a planned phase out of certain rechargeable battery pack products. We expect sales growth in 2019 from new customers and products, and renewed military market government funding. Foreign currency exchange rates and price fluctuations did not have a material impact on Non-Medical sales during 2018 in comparison to 2017.

MANAGEMENT'S DISCUSSION AND ANALYSIS

Gross Profit

Changes to gross profit as a percentage of sales ("Gross Margin") from the prior year were due to the following:

	% Change 2018 vs. 2017
Price[a]	(1.3)%
Mix[b]	(0.2)%
Incentive compensation[c]	(0.4)%
Production efficiencies and volume[d]	0.5 %
Total percentage point change to gross profit as a percentage of sales	(1.4)%

(a) Our Gross Margin for 2018 was negatively impacted by price concessions given to our larger OEM customers in return for long-term volume commitments.

(b) Our Gross Margin for 2018 was negatively impacted by a higher mix of sales of lower margin products.

(c) Amount represents the impact to our Gross Margin attributable to our cash and stock incentive programs, including performance-based compensation, which is accrued based upon actual results achieved.

(d) Represents various increases and decreases to our Gross Margin. Overall, our Gross Margin for 2018 was positively impacted by production efficiencies and synergies gained as a result of our integration and consolidation initiatives as well as higher volume in comparison to 2017.

Over the long-term, we expect our Gross Margin to improve as we execute our manufacturing excellence strategic imperative and continue to deliver supply chain savings. However, we also expect our Gross Margin to continue to be negatively impacted by pricing pressures from our customers. It is imperative to drive manufacturing efficiencies and supply chain savings to offset these pricing pressures.

SG&A Expenses

Changes to SG&A expenses were primarily due to the following (in thousands):

	$ Change 2018 vs. 2017
Legal expenses[a]	$(1,293)
Intangible asset amortization[b]	1,818
Incentive compensation programs[c]	5,174
Transition services agreement[d]	(3,419)
Other[e]	(2,912)
Net decrease in SG&A Expenses	$(632)

(a) Amount represents the change in legal costs compared to the prior year period, including legal expenses incurred related to our on-going patent infringement case. Refer to Note 13 "Commitments and Contingencies" of the Notes to the Consolidated Financial Statements contained in Item 8 of this report for information related to this patent infringement litigation.

(b) Amount represents the increase in intangible asset amortization (i.e. customer list), which is amortized based upon the forecasted cash flows at the time of acquisition for the respective asset.

(c) Amount represents the impact to our SG&A attributable to our cash and stock incentive programs, including performance-based compensation, which is accrued based upon actual results achieved.

(d) Represents the amount included in SG&A Expenses, which was charged to Viant for transition services provided during the second half of 2018. We executed a transition services agreement in conjunction with the sale of the AS&O Product Line, whereby we will provide certain corporate services (including accounting, payroll, and information technology services) to Viant for a period of up to one year from the date of the closing to facilitate an

orderly transfer of business operations.

(e) Represents various increases and decreases to our SG&A, resulting in a net decrease in SG&A expense from 2017 to 2018.

MANAGEMENT'S DISCUSSION AND ANALYSIS

RD&E Expenses

Changes to RD&E expenses for 2018 and 2017 were as follows (in thousands):

	$ Change 2018 vs. 2017
Intangible asset amortization[(a)]	$ (391)
Incentive compensation programs[(b)]	836
Other[(c)]	(691)
Net decrease in RD&E	$ (246)

(a) Amount represents the decrease in intangible asset amortization, which is amortized based upon the forecasted cash flows at the time of acquisition for the respective asset.

(b) Amount represents the impact to our RD&E attributable to our cash and stock incentive programs, including performance-based compensation, which is accrued based upon actual results achieved.

(c) Represents the net impact of various increases and decreases to our RD&E, resulting in a net decrease in RD&E expense from 2017 to 2018.

Other Operating Expenses

OOE was comprised of the following for 2018 and 2017 (in thousands):

	2018	2017	Change
Strategic reorganization and alignment[(a)]	$10,624	$5,891	$4,733
Manufacturing alignment to support growth[(b)]	3,089	—	3,089
Consolidation and optimization costs[(c)]	844	12,803	(11,959)
Acquisition and integration expenses[(d)]	—	10,870	(10,870)
Asset dispositions, severance and other[(e)]	1,508	6,874	(5,366)
Other operating expenses	$16,065	$36,438	$(20,373)

(a) As a result of the strategic review of our customers, competitors and markets we undertook during the fourth quarter of 2017, we began to take steps to better align our resources in order to invest to grow, protect, preserve and to enhance the profitability of our portfolio of products. This will include focusing our investment in RD&E and manufacturing, improving our business processes and redirecting investments away from projects where the market does not justify the investment. The expenses incurred during 2018 primarily included severance costs and fees for professional services.

(b) In 2017, we began several initiatives designed to reduce costs, improve operating efficiencies and increase manufacturing capacity to accommodate growth. The plan involves the relocation of certain manufacturing operations and expansion of certain of our facilities.

(c) During 2018 and 2017, we incurred costs primarily related to the closure of our Clarence, NY facility and the transfer of our Beaverton, OR portable medical and Plymouth, MN vascular manufacturing operations to Tijuana, Mexico.

(d) Reflects acquisition and integration costs related to the acquisition of LRM, which occurred in October 2015. This initiative was substantially complete as of December 29, 2017.

(e) Amounts for 2017 primarily include expenses related to our CEO and CFO transitions.

Refer to Note 11 "Other Operating Expenses" of the Notes to Consolidated Financial Statements contained in Item 8 of this report for additional information regarding these initiatives.

MANAGEMENT'S DISCUSSION AND ANALYSIS

Interest Expense

Interest expense increased $35.3 million to $99.3 million in 2018 from $64.0 million in 2017. The weighted average interest rates paid on the average principal amount of debt outstanding during 2018 and 2017 was 4.88% and 4.66%, respectively. The weighted average interest rates paid in 2018 reflect an increase in LIBOR during 2017 and 2018, partially offset by a cumulative 125 basis point and 75 basis point reduction to the applicable interest rate margins of our Term Loan B and Term Loan A facilities. The Term Loan B facility margin decrease resulted from amendments of our Senior Secured Credit Facilities in March 2017 and again in November 2017, and the step down in the third quarter of 2018 resulting from the upgrade of our corporate family credit rating, while the Term Loan A facility margin decrease resulted from contractual reductions due to our lower leverage ratio. Cash interest expense decreased $3.4 million for 2018 when compared to 2017. Debt related charges included in interest expense (i.e. deferred fee and discount amortization) increased $38.7 million during 2018 when compared to 2017, primarily attributable to higher accelerated write-offs (losses from extinguishment of debt) of deferred fees and original issue discount related to prepayments of portions of our Term Loan B facility and Senior Notes and a "make-whole" premium of $31.3 million paid as a result of redeeming our Senior Notes in July 2018. We recognized losses from extinguishment of debt during 2018 and 2017 of $42.7 million and $3.5 million, respectively. We repaid a net $700.5 million of debt during 2018. See Note 8 "Debt" of the Notes to Consolidated Financial Statements contained in Item 8 of this report for additional information pertaining to our debt.

(Gain) Loss on Equity Investments, Net

During 2018 we realized net gains of $5.6 million on our equity investments compared to net losses of $1.6 million for 2017. We recognized income of $5.6 million and $3.7 million in 2018 and 2017, respectively, related to our share of equity method investee gains. In addition, during 2017, we recognized impairment charges of $5.3 million on our equity investments previously accounted for under the cost method. As of December 28, 2018 and December 29, 2017, we held $22.8 million and $20.8 million, respectively, of equity investments. See Note 16 "Fair Value Measurements" of the Notes to Consolidated Financial Statements contained in Item 8 of this report for further details regarding these investments.

Other Loss, Net

Other Loss, Net was a $0.8 million and $10.9 million during 2018 and 2017, respectively. The impact of foreign currency exchange rates on transactions denominated in foreign currencies included in Other Loss, Net for 2018 and 2017 were losses of $1.6 million and $10.9 million, respectively. The losses in 2017 were primarily driven by the impact of the weakening U.S. dollar relative to the Euro on our intercompany loans and are primarily non-cash in nature. We continually monitor our foreign currency exposures and seek to take steps to mitigate these risks. However, fluctuations in foreign currency exchange rates could have a significant impact, positive or negative, on our financial results in the future.

Provision for Income Taxes

During 2018 and 2017, our provision (benefit) for income taxes from continuing operations was $14.1 million and ($37.8) million, respectively. The stand-alone U.S. component of the effective tax rate for 2018 reflected a $7.0 million provision on $4.3 million of pre-tax book losses (-162.8%) versus a $47.0 million benefit on $0.3 million of pre-tax book income for 2017. The stand-alone International component of the effective tax rate for 2018 reflected tax expense of $7.1 million on $65.4 million of pre-tax book income (10.9%) versus a tax expense of $9.2 million on $49.0 million of pre-tax book income (18.7%) for 2017. The benefit for income taxes for 2018 differs from the U.S. statutory rate due to the following (dollars in thousands):

	U.S.		International		Combined	
	$	%	$	%	$	%
Income (loss) before provision (benefit) for income taxes	$(4,273)		$65,389		$61,116	
Provision (benefit) at statutory rate	$(897)	21.0 %	$13,731	21.0 %	$12,834	21.0 %
Federal tax credits	(1,700)	39.8	—	—	(1,700)	(2.8)
Foreign rate differential	—	—	(6,040)	(9.2)	(6,040)	(9.9)

Uncertain tax positions	147	(3.4)	—	—	147	0.2
State taxes, net of federal benefit	975	(22.8)	—	—	975	1.6
U.S. tax on foreign earnings	10,473	(245.1)	—	—	10,473	17.1
Valuation allowance	—	—	(567)	(0.9)	(567)	(0.9)
Other	(2,039)	47.7	—	—	(2,039)	(3.3)
Provision (benefit) for income taxes	$6,959	(162.8)%	$7,124	10.9 %	$14,083	23.0 %

MANAGEMENT'S DISCUSSION AND ANALYSIS

On December 22, 2017, the Tax Reform Act was signed into law. This legislation significantly changes U.S. tax law by, among other things, lowering corporate income tax rates, implementing a territorial tax system and imposing a repatriation tax on deemed repatriated earnings of foreign subsidiaries. The Tax Reform Act permanently reduces the U.S. corporate income tax rate from a maximum of 35% to a flat 21% rate, effective January 1, 2018.

The Tax Reform Act provided for a one-time deemed mandatory repatriation of post-1986 undistributed foreign subsidiary earnings and profits ("E&P") through the year ended December 29, 2017. We had an estimated $147.5 million of undistributed foreign E&P subject to the deemed mandatory repatriation and recognized a provisional $14.7 million of income tax expense for the year ended December 29, 2017. Additionally, we recorded $2.3 million in deferred taxes associated with foreign withholding taxes in accordance with the change in our permanent reinvestment assertion related to the undistributed earnings subject to the deemed mandatory repatriation provisions. We have sufficient U.S. NOLs to offset cash tax liabilities associated with these repatriation taxes. Based on additional regulatory guidance issued, and additional analysis conducted, it was determined that the one-time transition tax amounted to $18.9 million as of December 29, 2017, representing an increase of $4.2 million over the $14.7 million provisional amount previously recorded. The final computations were reported in our 2017 income tax return filings. Sufficient NOLs were available to offset cash tax liabilities associated with the total repatriation taxes.

Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to reverse. As a result of the reduction in the U.S. corporate income tax rate from 35% to 21% under the Tax Reform Act, we revalued our ending net deferred tax liabilities at December 29, 2017 and recognized a provisional $56.5 million tax benefit for the year ended December 29, 2017. In part, due to the utilization of additional NOLs to offset the additional repatriation tax, The Company adjusted its revaluation of the ending net deferred tax liabilities as of December 29, 2017, resulting in a recognized tax benefit of $60.7 million, representing an increase of $4.2 million to the originally recorded $56.5 million tax benefit recorded in the Company's Consolidated Statement of Operations for the year ended December 29, 2017.

While the Tax Reform Act provides for a territorial tax system, beginning in 2018, it also includes a new U.S. tax on foreign earnings: the global intangible low-taxed income ("GILTI") provision.

The GILTI provisions require us to include foreign subsidiary earnings in excess of a deemed return on the foreign subsidiary's tangible assets in our U.S. income tax return. The Company has adopted the approach of recording the consequences of the new GILTI provision of the Tax Reform Act as a period cost when incurred.

The Company's effective tax rate for 2018 differs from the U.S. federal statutory tax rate of 21% due principally to the estimated impact of the GILTI tax, as well as the impact of the Company's earnings realized in foreign jurisdictions with statutory rates that are different than the federal statutory rate. The GILTI provisions require the Company to include foreign subsidiary earnings in excess of a deemed return on the foreign subsidiary's tangible assets in its U.S. income tax return. There is a statutory deduction of 50% of the GILTI inclusion, however the deduction is subject to limitations based on U.S. taxable income. The Company currently has NOLs to offset forecasted U.S. taxable income and as such, is temporarily subject to the deduction limitation which correspondingly imposes an incremental impact on U.S. income tax. The primary jurisdictions in which we operate and the statutory tax rate for each respective jurisdiction include Switzerland (22%), Mexico (30%), Uruguay (25%), and Ireland (12.5%). In addition, we currently have a tax holiday in Malaysia through April 2023 if certain conditions are met.

In addition to the impact of the Tax Reform Act described above, there is a prospective potential for volatility of our effective tax rate due to several factors, including changes in the mix of pre-tax income and the jurisdictions to which it relates, business acquisitions, settlements with taxing authorities, changes in tax rates, and foreign currency exchange rate fluctuations. In addition, we continue to explore tax planning opportunities that may have a material impact on our effective tax rate.

We believe it is reasonably possible that a reduction of approximately $0.9 million of the balance of unrecognized tax benefits may occur within the next twelve months as a result of the lapse of the statute of limitations and/or audit settlements. As of December 28, 2018, approximately $5.3 million of unrecognized tax benefits would favorably impact the effective tax rate (net of federal impact on state issues), if recognized.

MANAGEMENT'S DISCUSSION AND ANALYSIS

Fiscal 2017 Compared with Fiscal 2016

Sales

Sales by product lines for 2017 and 2016 were as follows (dollars in thousands):

			Change	
	2017	2016	$	%
Medical Sales:				
Cardio & Vascular	$530,831	$484,891	$45,940	9.5 %
Cardiac & Neuromodulation	428,275	439,375	(11,100)	(2.5)%
Advanced Surgical, Orthopedics & Portable Medical	120,006	109,557	10,449	9.5 %
Total Medical Sales	1,079,112	1,033,823	45,289	4.4 %
Non-Medical	56,968	41,679	15,289	36.7 %
Total sales	$1,136,080	$1,075,502	$60,578	5.6 %

Total 2017 sales increased 5.6% to $1.1 billion in comparison to 2016. The most significant drivers of this increase were as follows:

Cardio & Vascular sales for 2017 increased $45.9 million in comparison to 2016. This increase was primarily attributable to market growth and new business wins, especially for guidewires, as well as lower comparables in 2016 due to the disruption of supply caused by our consolidation initiatives, which occurred throughout 2016.

Cardiac & Neuromodulation sales for 2017 decreased $11.1 million or 2.5% in comparison to 2017. Approximately $1.2 million of this decrease was a result of the Spin-off in the first quarter of 2016. Additionally, during 2017, price concessions to our larger OEM customers reduced Cardiac & Neuromodulation sales by approximately $9 million in comparison to 2016. Finally, this decrease is also the result of market declines, as well as customer inventory management and in-sourcing initiatives. Partially offsetting these decreases was growth in our neuromodulation products, which was not enough to offset the declines in our cardiac rhythm management products. Foreign currency exchange rate fluctuations did not have a material impact on Cardiac & Neuromodulation sales during 2017 in comparison to 2016.

Advanced Surgical, Orthopedics & Portable Medical sales for 2017 increased $10.4 million or 9.5% in comparison to 2016, primarily due to the timing of customer inventory builds, new product ramps, and lower comparables due to the disruption of supply caused by our consolidation initiatives which occurred during 2016.

Non-Medical sales for 2017 increased $15.3 million or 36.7% in comparison to 2016. This increase was primarily driven by the recovery in the energy markets, as well as new business wins and market share gains. During the downturn in the energy markets, we were able to advance our competitive position with key strategic customers resulting in multi-year supply agreements. Additionally, we actively pursued new customer and market opportunities, developed new product solutions and invested in research and development to advance our technology. These efforts benefitted 2017 sales as we were able to increase our market share as the markets recovered. Foreign currency exchange rates and price fluctuations did not have a material impact on Non-Medical sales during 2017 in comparison to 2016.

MANAGEMENT'S DISCUSSION AND ANALYSIS

Gross Profit

Changes to Gross Margin were primarily due to the following:

	% Change 2017 vs. 2016
Price[a]	(1.4)%
Mix[b]	(0.3)%
Incentive compensation[c]	(0.6)%
Production efficiencies and volume[d]	2.1 %
Total percentage point change to gross profit as a percentage of sales	(0.2)%

(a) Our Gross Margin for 2017 was negatively impacted by price concessions given to our larger OEM customers in return for long-term volume commitments.

(b) Our Gross Margin for 2017 was negatively impacted by a higher mix of sales of lower margin products.

(c) Amount represent the impact to our Gross Margin attributable to our cash and stock incentive programs, including performance-based compensation, which is accrued based upon actual results achieved.

(d) Represents various increases and decreases to our Gross Margin. Overall, our Gross Margin for 2017 was positively impacted by production efficiencies and synergies gained as a result of our integration and consolidation initiatives as well as higher volumes in comparison to 2016.

SG&A Expenses

Changes to SG&A expenses were primarily due to the following (in thousands):

	$ Change 2017 vs. 2016
Nuvectra SG&A[a]	$ (1,913)
Legal expenses[b]	(401)
Intangible asset amortization[c]	5,250
Incentive compensation programs[d]	6,187
Other[e]	(2,494)
Net increase in SG&A Expenses	$ 6,629

(a) Amount represents the impact to our SG&A related to the overhead costs divested as a result of the Spin-off of Nuvectra in March 2016.

(b) Amount represents the change in legal costs compared to the prior year period. This variance is primarily due to the timing of legal expenses incurred related to our IP infringement case.

(c) Amount represents the increase in intangible asset amortization (i.e. customer list), which is amortized based upon the forecasted cash flows at the time of acquisition for the respective asset.

(d) Amount represents the impact to our SG&A attributable to our cash and stock incentive programs, including performance-based compensation, which is accrued based upon actual results achieved.

(e) Represents various increases and decreases to our SG&A, resulting in a net increase in SG&A expense from 2016 to 2017.

MANAGEMENT'S DISCUSSION AND ANALYSIS

RD&E Expenses

Changes to RD&E expenses for 2017 and 2016 were as follows (in thousands):

	$ Change 2017 vs. 2016
Nuvectra RD&E[(a)]	$(2,830)
Incentive compensation programs[(b)]	2,623
Intangible asset amortization[(c)]	33
Other[(d)]	1,125
Net increase in RD&E	$951

(a) Represents the impact to our RD&E related to the divested costs as a result of the Spin-off in March 2016.

(b) Represents the impact to our RD&E attributable to our cash and stock incentive programs. Performance-based compensation is accrued based upon actual results achieved.

(c) Amount represents the decrease in intangible asset amortization, which is amortized based upon the forecasted cash flows at the time of acquisition for the respective asset.

(d) Represents various increases and decreases to our RD&E, resulting in a net increase in RD&E expense from 2016 to 2017.

Other Operating Expenses

OOE was comprised of the following for 2017 and 2016 (in thousands):

	2017	2016	Change
Consolidation and optimization initiatives[(a)]	$12,803	$25,510	$(12,707)
Acquisition and integration expenses[(b)]	10,870	$28,112	(17,242)
Asset dispositions, severance and other[(c)]	6,874	6,791	83
Strategic reorganization and alignment[(d)]	5,891	—	5,891
Other operating expenses - continuing operations	$36,438	$60,413	$(23,975)

(a) Refer to Note 11 "Other Operating Expenses" of the Notes to Consolidated Financial Statements contained in Item 8 of this report for additional information regarding these initiatives.

(b) During 2017 and 2016, we incurred costs related to the acquisition of LRM, consisting primarily of professional, consulting, severance, retention, relocation, and travel costs. In addition, 2016 included change-in-control payments to former LRM executives.

(c) During 2017 and 2016, we recorded losses in connection with various asset disposals and/or write-downs. The 2017 amount also includes approximately $5.3 million in expense related to our leadership transitions. Additionally, during 2016 we incurred legal and professional costs in connection with the Spin-off of $4.4 million.

(d) During the fourth quarter of 2017, we incurred charges related to the initial steps of this initiative, which included lease termination charges and accelerated amortization of certain intangible assets.

Interest Expense

Interest expense decreased $4.4 million to $64.0 million in 2017 from $68.3 million in 2016. The decrease was due to lower weighted average rates combined with a lower principal amount of debt outstanding due to debt repayments during 2017. The weighted average interest rates paid on average borrowings outstanding in 2017 were lower when compared to 2016 primarily due to the amendment of our Senior Secured Credit Facilities in March 2017 and again in November 2017, which resulted in a cumulative 100 basis point reduction to the applicable interest rate margins of our Term Loan B facility, partially offset by an increase in LIBOR during 2017. Included in interest expense for 2017 are losses from extinguishment of debt of $3.5 million, primarily attributable to the accelerated write-off of deferred fees and discounts due to prepayments of a portion of our Term Loan B Facility during 2017.

MANAGEMENT'S DISCUSSION AND ANALYSIS

(Gain) Loss on Equity Investments, Net

During 2017 and 2016, we realized net losses on our cost and equity method investments of $1.6 million and $0.8 million, respectively. We recognized income of $3.7 million and $0.1 million in 2017 and 2016, respectively, related to our share of equity method investee gains. We also recorded a $0.7 million gain from the sale of a cost method investment during 2016. During 2017 and 2016, we recognized impairment charges of $5.3 million and $1.6 million, respectively, on our equity investments previously accounted for under the cost method. As of December 29, 2017 and December 30, 2016, we held $20.8 million and $22.8 million of equity investments, respectively.

Other (Income) Loss, Net

Other (Income) Loss, Net was a $10.9 million loss during 2017 compared to income of $4.4 million during 2016. The impact of foreign currency exchange rates on transactions denominated in foreign currencies included in Other (Income) Loss, Net for 2017 was a loss of $10.9 million, compared to a gain of $4.3 million in 2016. The losses in 2017 were primarily driven by the impact of the weakening U.S. dollar relative to the Euro on our intercompany loans and are primarily non-cash in nature.

Provision (Benefit) for Income Taxes

During 2017 and 2016, our provision (benefit) for income taxes from continuing operations was ($37.8) million and $3.3 million, respectively. The stand-alone U.S. component of the effective tax rate for 2017 reflected a ($47.0) million benefit on $0.3 million of pre-tax book losses versus a ($2.2) million benefit on $12.5 million of pre-tax book losses for 2016. The stand-alone international component of the effective tax rate for 2017 reflected tax expense of $9.2 million on $49.0 million of pre-tax book income (18.7%) versus a tax expense of $5.5 million on $40.7 million of pre-tax book income (13.5%) for 2016.

The (benefit) provision for income taxes for 2017 differs from the U.S. statutory rate due to the following (dollars in thousands):

	U.S.		International		Combined	
	$	%	$	%	$	%
Income (loss) before provision (benefit) for income taxes	$306		$48,953		$49,259	
Provision (benefit) at statutory rate	$107	35.0%	$17,133	35.0 %	$17,240	35.0 %
Federal tax credits	(1,628)	NM	(46)	(0.1)	(1,674)	(3.4)
Foreign rate differential	109	35.6	(11,572)	(23.6)	(11,463)	(23.3)
Uncertain tax positions	34	11.1	—	—	34	0.1
State taxes, net of federal benefit	(543)	NM	—	—	(543)	(1.1)
Valuation allowance	546	NM	484	1.0	1,030	2.1
Other	(3,387)	NM	329	0.7	(3,058)	(6.2)
Tax expense (benefit) before U.S. Tax Reform items	(4,762)	NM	6,328	13.0	1,566	3.2
U.S. Tax Reform items:						
Change in tax rates	(56,408)	NM	(45)	(0.1)	(56,453)	(114.6)
Toll charge on unremitted earnings	14,719	NM	—	—	14,719	29.9
Change in unremitted earnings assertion	(545)	NM	2,885	5.9	2,340	4.8
Tax expense related to U.S. Tax Reform items	(42,234)	NM	2,840	5.8	(39,394)	(79.9)
Provision (benefit) for income taxes	$(46,996)	NM	$9,168	18.7 %	$(37,828)	(76.8)%

NM Calculated change not meaningful.

The difference between our effective tax rate and the U.S. federal statutory income tax rate for 2017 is primarily attributable to the components of the Tax Reform Act as well as our overall lower effective tax rate in the foreign jurisdictions in which we operate and where our foreign earnings are derived. The lower tax rate jurisdictions in which we operate and the respective statutory tax rate for each respective jurisdiction include Switzerland (22%), Mexico (30%), Uruguay (25%), and Ireland (12.5%). In addition, we currently have a tax holiday in Malaysia through April 2023, if certain conditions are met. While we are not currently aware of any material trends in these jurisdictions that

are likely to impact our current or future tax expense, our future effective tax rates could be adversely affected by earnings being lower than anticipated in countries where we have lower effective tax rates and higher than anticipated in countries where we have higher effective tax rates, or by changes in tax laws or regulations. We regularly assess any significant exposure associated with increases in tax rates in international jurisdictions and adjustments are made as events occur that warrant adjustment to our tax provisions.

MANAGEMENT'S DISCUSSION AND ANALYSIS

Liquidity and Capital Resources

(dollars in thousands)	December 28, 2018	December 29, 2017
Cash and cash equivalents	$ 25,569	$ 37,341
Working capital from continuing operations[(1)]	251,680	263,863
Current ratio from continuing operations[(1)]	2.53	2.64

(1) Excludes assets held for sale at December 29, 2017.

Cash and cash equivalents at December 28, 2018 decreased by $11.8 million from December 29, 2017 as excess cash on hand was used to pay down our debt. Working capital from continuing operations decreased by $12.2 million from December 29, 2017, primarily due to the reduced cash balances.

At December 28, 2018, $12.9 million of our cash and cash equivalents were held by foreign subsidiaries. We intend to limit our distributions from foreign subsidiaries to previously taxed income or current period earnings. If distributions are made utilizing current period earnings, we will record foreign withholding taxes in the period of the distribution.

Summary of Cash Flow

The following cash flow summary information includes cash flows related to discontinued operations (in thousands):

	2018	2017
Cash provided by (used in):		
Operating activities	$167,299	$149,357
Investing activities	536,670	(47,936)
Financing activities	(725,080)	(111,669)
Effect of foreign currency exchange rates on cash and cash equivalents	2,584	2,228
Net change in cash and cash equivalents	$(18,527)	$(8,020)

Operating Activities - During 2018, we generated $167.3 million in cash from operations compared to $149.4 million in 2017. This increase was primarily due to a $31.3 million increase in cash income (i.e. income from continuing operations plus adjustments to reconcile income from continuing operations to net cash provided by operating activities) partially offset by an $13.3 million decrease in cash flow provided by working capital. The cash flow from working capital change during the period was primarily due to lower accrued interest as a result of our lower debt levels.

Investing Activities – The $584.6 million increase in cash flows from investing activities was primarily attributable to net cash proceeds from the sale of the AS&O Product Line of approximately $581 million. Our current expectation is that capital spending for continuing operations for 2019 will be in the range of $50 million to $55 million. We anticipate that cash on hand, cash flows from operations and available borrowing capacity under our Revolving Credit Facility will be sufficient to fund these capital expenditures. Property, plant, and equipment purchases related to our AS&O Product Line were approximately $17 million per year.

Financing Activities – Net cash used in financing activities during 2018 was $725.1 million compared to $111.7 million in 2017. Financing activities during 2018 included net payments of $700.5 million related to paying down our debt obligations compared to $128.6 million in 2017. In addition, we paid debt issuance costs totaling $32.0 million during 2018 compared to $2.4 million in 2017. The 2018 amount includes a "make-whole" premium of $31.3 million paid as a result of redeeming our Senior Notes, as described below.

In connection with the completion of the sale of our AS&O Product Line, during the third quarter of 2018 we repaid $548 million of our debt, which included $360 million of our 9.125% Senior Notes, $114 million of our Term Loan B Facility and $74 million outstanding on our Revolving Credit Facility.

Capital Structure - As of December 28, 2018, our capital structure consists of $926 million of debt, net of deferred fees and discounts, under our Senior Secured Credit Facilities and approximately 33 million shares of common stock outstanding. We have access to $188 million of borrowing capacity under our Revolving Credit Facility. We are also authorized to issue up to 100 million shares of common stock and 100 million shares of preferred stock. As of December 28, 2018, our debt service obligations for 2019, consisting of principal and interest on our outstanding debt,

are estimated to be approximately $86 million.

MANAGEMENT'S DISCUSSION AND ANALYSIS

Based on current expectations, we believe that our projected cash flows provided by operations, available cash and cash equivalents and potential borrowings under our revolving credit facility are sufficient to meet our working capital, debt service and capital expenditure requirements for the next twelve months. If our future financing needs increase, we may need to arrange additional debt or equity financing. Accordingly, we evaluate and consider from time to time various financing alternatives to supplement our existing financial resources. However, we cannot be assured that we will be able to enter into any such arrangements on acceptable terms or at all.

Credit Facilities - As of December 28, 2018, we had senior secured credit facilities (the "Senior Secured Credit Facilities") that consist of (i) a $200 million revolving credit facility (the "Revolving Credit Facility"), which had $5 million of borrowings and letters of credit totaling $7 million drawn against it as of December 28, 2018, (ii) a $305 million term loan A facility (the "TLA Facility"), and (iii) an $632 million term loan B facility (the "TLB Facility"). The Revolving Credit Facility will mature on October 27, 2020, the TLA Facility will mature on October 27, 2021 and the TLB Facility will mature on October 27, 2022. The Senior Secured Credit Facilities include a mandatory prepayment provision customary for credit facilities of its nature.

The Revolving Credit Facility and the TLA Facility contain covenants requiring (A) a maximum total net leverage ratio of 5.50:1.0, subject to step downs beginning in the first quarter of 2019 and (B) a minimum interest coverage ratio of adjusted EBITDA (as defined in the Senior Secured Credit Facilities) to interest expense of not less than 2.75:1.0, subject to step ups beginning in the first quarter of 2019. As of December 28, 2018, the Company was in compliance with these financial covenants. The TLB Facility does not contain any financial maintenance covenants. As of December 28, 2018, our total net leverage ratio, calculated in accordance with our credit agreement, was approximately 3.3 to 1.0. For the twelve month period ended December 28, 2018, our ratio of adjusted EBITDA to interest expense, calculated in accordance with our credit agreement, was approximately 5.4 to 1.0.

Failure to comply with these financial covenants would result in an event of default as defined under the Revolving Credit Facility and TLA Facility unless waived by the lenders. An event of default may result in the acceleration of our indebtedness. As a result, management believes that compliance with these covenants is material to us. As of December 28, 2018, we were in full compliance with the financial covenants described above. However, a significant increase in the LIBOR interest rate or a decline in our operating performance, and in particular our sales or adjusted EBITDA, could result in our inability to meet these financial covenants and lead to an event of default if a waiver or amendment could not be obtained from our lenders. As of December 28, 2018, our adjusted EBITDA would have to decline by approximately $109 million, or approximately 39%, in order for us to not be in compliance with our financial covenants. The Revolving Credit Facility is supported by a consortium of thirteen lenders with no lender controlling more than 27% of the facility.

Upon completion of the redemption in full of the Senior Notes in July 2018, the indenture governing the Senior Notes was satisfied and discharged. Refer to Note 8 "Debt" of the Notes to Consolidated Financial Statements contained in Item 8 of this report for further description of our outstanding debt.

Off-Balance Sheet Arrangements

We have no off-balance sheet arrangements within the meaning of Item 303(a)(4) of Regulation S-K.

MANAGEMENT'S DISCUSSION AND ANALYSIS

Contractual Obligations

Presented below is a summary of contractual obligations and other minimum commitments as of December 28, 2018. Refer to Note 13 "Commitments and Contingencies" of the Notes to Consolidated Financial Statements contained in Item 8 of this report for additional information regarding self-insurance liabilities, which are not reflected in the table below.

	Payments due by period				
	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years
Principal amount of debt outstanding	$941,973	$37,500	$272,187	$632,286	$—
Interest on debt[a]	165,754	48,421	89,252	28,081	—
Operating lease obligations[b]	48,170	8,562	14,638	10,381	14,589
Foreign currency contracts[b]	55,665	55,665	—	—	—
Defined benefit plan obligations[c]	1,592	104	245	279	964
Other[d]	94,436	74,893	19,543	—	—
Total	$1,307,590	$225,145	$395,865	$671,027	$15,553

(a) Interest payments in the table above reflect the contractual interest payments on our outstanding debt based upon the balance outstanding and applicable interest rates at December 28, 2018, and exclude the impact of the debt discount amortization and impact of interest rate swap agreements. Refer to Note 8 "Debt" of the Notes to Consolidated Financial Statements contained in Item 8 of this report for additional information regarding long-term debt.

(b) Refer to Note 13 "Commitments and Contingencies" of the Notes to Consolidated Financial Statements contained in Item 8 of this report for additional information about our operating lease obligations and foreign currency contracts.

(c) Refer to Note 9 "Benefit Plans" of the Notes to Consolidated Financial Statements contained in Item 8 of this report for additional information about our defined benefit plan obligations.

(d) Amounts include inventory purchase commitments, which are legally binding and specify minimum purchase quantities. These commitments do not include open purchase orders.

This table does not reflect $5.4 million of unrecognized tax benefits, as we are uncertain if or when such amounts may be settled. Refer to Note 12 "Income Taxes" of the Notes to Consolidated Financial Statements in Item 8 of this report for additional information about these unrecognized tax benefits.

Impact of Recently Issued Accounting Standards

In the normal course of business, we evaluate all new accounting pronouncements issued by the FASB, SEC, or other authoritative accounting bodies to determine the potential impact they may have on our Consolidated Financial Statements. Refer to Note 1 "Summary of Significant Accounting Policies" of the Notes to Consolidated Financial Statements contained in Item 8 of this report for additional information about these recently issued accounting standards and their potential impact on our financial condition or results of operations.

CRITICAL ACCOUNTING ESTIMATES

Management's discussion and analysis of financial condition and results of operations are based upon our consolidated financial statements which have been prepared in accordance with GAAP. We make estimates and assumptions in the preparation of our consolidated financial statements that affect the reported amounts of assets and liabilities, revenue and expenses and related disclosures of contingent assets and liabilities. We base our estimates and judgments upon historical experience and other factors that are believed to be reasonable under the circumstances. Changes in estimates or assumptions could result in a material adjustment to the consolidated financial statements.

We have identified several critical accounting estimates. An accounting estimate is considered critical if both: (a) the nature of the estimates or assumptions is material due to the levels of subjectivity and judgment involved, and (b) the impact of changes in the estimates and assumptions would have a material effect on the consolidated financial

statements. This listing is not a comprehensive list of all of our accounting policies. For further information regarding the application of these and other accounting policies, see Note 1 “Summary of Significant Accounting Policies” of the Notes to Consolidated Financial Statements contained in Item 8 of this report.

MANAGEMENT'S DISCUSSION AND ANALYSIS

Inventories

Inventories are measured on a first-in, first-out basis at the lower of cost or net realizable value. Net realizable value is the estimated selling prices in the ordinary course of business, less reasonably predictable costs of completion, disposal, and transportation. Inventory costing requires complex calculations that include assumptions for overhead absorption, scrap, sample calculations, manufacturing yield estimates, costs to sell, and the determination of which costs may be capitalized. The valuation of inventory requires us to estimate obsolete or excess inventory, as well as inventory that is not of saleable quality.

Historically, our inventory adjustment has been adequate to cover our losses. However, variations in methods or assumptions could have a material impact on our results. If our demand forecast for specific products is greater than actual demand and we fail to reduce manufacturing output accordingly, we could be required to record additional inventory write-down or expense a greater amount of overhead costs, which would negatively impact our net income.

Valuation of Goodwill, Intangible and Other Long-Lived Assets

We make assumptions in establishing the carrying value, fair value and, if applicable, the estimated lives of our goodwill, intangible and other long-lived assets. Goodwill and intangible assets determined to have an indefinite useful life are not amortized. Instead, these assets are evaluated for impairment on an annual basis on the last day of our fiscal year and whenever events or business conditions change that could indicate that the asset is impaired. Long-lived assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset (asset group) may not be recoverable.

Evaluation of goodwill for impairment

We test each reporting unit's goodwill for impairment on the last day of our fiscal year and between annual tests if an event occurs or circumstances change that would more-likely-than-not reduce the fair value of a reporting unit below its carrying value. In conducting this annual impairment testing, we may first perform a qualitative assessment of whether it is more-likely-than-not that a reporting unit's fair value is less than its carrying value. If not, no further goodwill impairment testing is required. If it is more-likely-than-not that a reporting unit's fair value is less than its carrying value, or if we elect not to perform a qualitative assessment of a reporting unit, a quantitative analysis is performed, in which the fair value of the reporting unit is compared to its carrying value. If the carrying value of a reporting unit exceeds its fair value, an impairment loss is recognized equal to the excess, limited to the amount of goodwill allocated to that reporting unit.

We performed a qualitative assessment of our reporting units as of December 28, 2018. As part of this analysis, we evaluated factors including, but not limited to, our market capitalization and stock price performance, macro-economic conditions, market and industry conditions, cost factors, the competitive environment, and the operational stability and overall financial performance of the reporting units. The assessment indicated that it was more likely than not that the fair value of each of the reporting units exceeded its respective carrying value. We do not believe that any of our reporting units are at risk for impairment. However, changes to the factors considered above could affect the estimated fair value of one or more of our reporting units and could result in a goodwill impairment charge in a future period. We may be unaware of one or more significant factors that, if we had been aware of, would cause our conclusion to change, which could result in a goodwill impairment charge in a future period.

Evaluation of indefinite-lived intangible assets for impairment

Our indefinite-lived intangible assets include the Greatbatch Medical and Lake Region Medical tradenames. Similar to goodwill, we perform an annual impairment review of our indefinite-lived intangible assets on the last day of our fiscal year, unless events occur that trigger the need for an interim impairment review. We have the option to first assess qualitative factors in determining whether it is more-likely-than-not that an indefinite-lived intangible asset is impaired. If we elect not to use this option, or we determine that it is more-likely-than-not that the asset is impaired, we perform a quantitative assessment that requires us to estimate the fair value of each indefinite-lived intangible asset and compare that amount to its carrying value. Fair value is estimated using the relief-from-royalty method. Significant assumptions inherent in this methodology include estimates of royalty rates and discount rates. The discount rate applied is based on the risk inherent in the respective intangible assets and royalty rates are based on the

rates at which comparable tradenames are being licensed in the marketplace. Impairment, if any, is based on the excess of the carrying value over the fair value of these assets.

MANAGEMENT'S DISCUSSION AND ANALYSIS

We performed a quantitative assessment to test our other indefinite-lived intangible assets for impairment as of December 28, 2018. For the Greatbatch Medical tradename, the excess of the estimated fair value over carrying value (expressed as a percentage of carrying value) was in excess of its carrying value of $20 million by approximately 350% at December 28, 2018. The Lake Region Medical tradename had an excess of the estimated fair value over carrying value of approximately 70% and a carrying value of $70 million at December 28, 2018. We do not believe that any of our indefinite-lived intangible assets are at risk for impairment. However, a significant increase in the discount rate, decrease in the terminal growth rate, increase in tax rates, decrease in the royalty rate or substantial reductions in our end markets and volume assumptions could have a negative impact on the estimated fair values of either of our tradenames and require us to recognize impairments of these other indefinite-lived intangible assets in a future period.

Evaluation of long-lived assets for impairment

Our long-lived assets consist primarily of property, plant and equipment and definite-lived intangible assets, including purchased technology and patents, and customer lists. Property, plant and equipment and definite-lived intangible assets are carried at cost. The cost of property, plant and equipment is charged to depreciation expense over the estimated life of the operating assets, primarily on a straight-line basis. Definite-lived intangible assets are amortized over the expected life of the asset. We assess long-lived assets and definite-lived intangible assets for impairment when events occur or circumstances change that would indicate that the carrying value of the asset may not be recoverable.

Factors that we consider in deciding when to perform an impairment review include, but are not limited to: a significant decrease in the market price of the asset (asset group); a significant change in the extent or manner in which the asset (asset group) is being used or in its physical condition; a significant change in legal factors or business climate that could affect the value of a long-lived asset (asset group), including an action or assessment by a regulator; an accumulation of costs significantly in excess of the amount originally expected for the acquisition or construction of a long-lived asset (asset group); a current-period operating or cash flow loss combined with a history of operating or cash flow losses or a projection or forecast that demonstrates continuing losses associated with the use of a long-lived asset (asset group); and a current expectation that it is more likely than not that a long-lived asset (asset group) will be sold or otherwise disposed of significantly before the end of its previously estimated useful life.

When impairment indicators exist, we determine if the carrying value of the long-lived asset(s) or definite-lived intangible asset(s) exceeds the related undiscounted future cash flows. In cases where the carrying value exceeds the undiscounted future cash flows, the carrying value is written down to fair value. Fair value is generally determined using a discounted cash flow analysis. When it is determined that the useful life of an asset (asset group) is shorter than the originally estimated life, and there are sufficient cash flows to support the carrying value of the asset (asset group), we accelerate the rate of depreciation/amortization in order to fully depreciate/amortize the asset over its shorter useful life.

Estimation of the cash flows and useful lives of long-lived assets and definite-lived intangible assets requires significant management judgment. Events could occur that would materially affect our estimates and assumptions. Unforeseen changes, such as the loss of one or more significant customers, technology obsolescence, or significant manufacturing disruption, amongst other factors, could substantially alter the assumptions regarding the ability to realize the return of our investment in long-lived assets, definite-lived intangible assets or their estimated useful lives. Also, as we make manufacturing process conversions and other facility consolidation decisions, we must make subjective judgments regarding the remaining cash flows and useful lives of our assets, primarily manufacturing equipment and buildings. Significant changes in these estimates and assumptions could change the amount of future depreciation or amortization expense or could create future impairments of these long-lived assets (asset groups) or definite-lived intangible assets.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

MARKET RISK

In the normal course of business, we are exposed to market risk primarily due to changes in foreign currency exchange rates and interest rates. Changes in these rates could result in fluctuations in our earnings and cash flows. We regularly assess these risks and have established policies and business practices to help protect against the adverse effects of these and other potential exposures. However, fluctuations in foreign currency exchange rates and interest rates could have a significant impact, positive or negative, on our financial results in the future.

Foreign Currency Exchange Rate Risk

We have foreign operations in Ireland, Switzerland, Mexico, Uruguay, and Malaysia which expose us to foreign currency exchange rate fluctuations due to transactions denominated in Euros, Swiss francs, Mexican pesos, Uruguayan pesos, and Malaysian ringgits, respectively. We continuously evaluate our foreign currency risk, and we use operational hedges, as well as forward currency exchange rate contracts, to manage the impact of currency exchange rate fluctuations on earnings and cash flows. We do not enter into currency exchange rate derivative instruments for speculative purposes. A hypothetical 10% change in the value of the U.S. dollar in relation to our most significant foreign currency exposures would have had an impact of approximately $5 million on our 2018 annual sales. This amount is not indicative of the hypothetical net earnings impact due to the partially offsetting impacts on cost of sales and operating expenses in those currencies. We estimate that foreign currency exchange rate fluctuations during 2018 increased sales in comparison to 2017 by approximately $2 million.

We had currency derivative instruments outstanding in the notional amount of $55.7 million as of December 28, 2018 and $65.4 million as of December 29, 2017. As of December 28, 2018 and December 29, 2017, we recorded a $0.7 million and $0.9 million liability, respectively, to recognize the fair value of these derivative instruments on our Consolidated Balance Sheets. The amounts recorded during 2018 related to our forward contracts were a decrease in Sales of $0.8 million and a decrease in Cost of Sales of $0.9 million. Refer to Note 13 “Commitments and Contingencies” to the Consolidated Financial Statements contained in Item 8 of this report for additional information regarding our outstanding forward contracts.

To the extent that our monetary assets and liabilities, including short-term and long-term intercompany loans, are recorded in a currency other than the functional currency of the subsidiary, these amounts are remeasured each period at the period-end exchange rate, with the resulting gain or loss being recorded in Other (Income) Loss, Net, in the Consolidated Statements of Operations. Net foreign currency transaction gains and losses included in Other (Income) Loss, Net, amounted to a loss of $1.6 million for 2018 and a loss of $10.9 million for 2017 and primarily related to the remeasurement of intercompany loans and fluctuations of the U.S. dollar relative to the Euro. During 2017 and 2018, we took steps to eliminate the majority of these intercompany balances. As such, we expect foreign currency exchange rate gains (losses) to be significantly less than the 2017 and 2018 amounts.

We translate all assets and liabilities of our foreign operations where the U.S. dollar is not the functional currency at the period-end exchange rate and translate sales and expenses at the average exchange rates in effect during the period. The net effect of these translation adjustments is recorded in the Consolidated Financial Statements as Comprehensive Income (Loss). The translation adjustment for 2018 was a $19.9 million loss and primarily related to the strengthening of the U.S. dollar relative to the Euro. Translation adjustments are not adjusted for income taxes as they relate to permanent investments in our foreign subsidiaries. A hypothetical 10% change in the value of the U.S. dollar in relation to our most significant foreign currency net assets would have had an impact of approximately $39 million on our foreign net assets as of December 28, 2018.

Interest Rate Risk

We regularly monitor interest rate risk attributable to our outstanding debt obligations. From time to time, we enter into interest rate swap agreements in order to hedge against potential changes in cash flows on our outstanding variable rate debt.

During 2016, we entered into a three year $200 million interest rate swap to hedge against potential changes in cash flows on our outstanding variable rate debt, which is indexed to the one-month LIBOR rate. The variable rate received on the interest rate swap and the variable rate paid on the variable rate debt will have the same rate of interest, excluding the credit spread, and will reset and pay interest on the same day. The swap is being accounted for as a cash flow hedge. As of December 28, 2018, this swap had a positive fair value of $4.2 million. The amount recorded during 2018 related to this interest rate swap was a reduction of $1.7 million to Interest Expense.

As of December 28, 2018, we had $942 million in principal amount of debt outstanding. Interest rates on our Revolving Credit Facility, TLA Facility and TLB Facility, reset, at our option, based upon the prime rate or LIBOR rate, thus subjecting us to interest rate risk. Our TLB Facility has a 1.00% LIBOR floor, thus is only variable when LIBOR interest rates are above 1.00%. Refer to Note 8 “Debt” of the Notes to Consolidated Financial Statements in Item 8 of this report for additional information about our outstanding debt. A hypothetical one percentage point (100

basis points) change in the LIBOR rate on the $742 million of unhedged variable rate debt outstanding at December 28, 2018 would increase/decrease our interest expense by approximately $7 million.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

INTEGER HOLDINGS CORPORATION
Index to Consolidated Financial Statements

MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

The Company's certifying officers are responsible for establishing and maintaining adequate internal control over financial reporting. The Company's internal control over financial reporting is designed and maintained under the supervision of its certifying officers to provide reasonable assurance regarding the reliability of financial reporting and the preparation of the Company's consolidated financial statements for external reporting purposes in accordance with accounting principles generally accepted in the United States of America.

As of December 28, 2018, management conducted an assessment of the effectiveness of the Company's internal control over financial reporting based on the framework established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this assessment, management has determined that the Company's internal control over financial reporting as of December 28, 2018 is effective.

The effectiveness of internal control over financial reporting as of December 28, 2018 has been audited by Deloitte & Touche LLP, the Company's independent registered public accounting firm.

Dated: February 22, 2019

/s/ Joseph W. Dziedzic	/s/ Jason K. Garland
Joseph W. Dziedzic	Jason K. Garland
President & Chief Executive Officer	Executive Vice President & Chief Financial Officer

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the stockholders and the Board of Directors of Integer Holdings Corporation

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of Integer Holdings Corporation and subsidiaries (the "Company") as of December 28, 2018, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 28, 2018, based on criteria established in Internal Control - Integrated Framework (2013) issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements and financial statement schedule as of and for the year ended December 28, 2018 of the Company and our report dated February 22, 2019 expressed an unqualified opinion on those consolidated financial statements and financial statement schedule.

Basis for Opinion

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

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

Definition and Limitations of Internal Control over Financial Reporting

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

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

/s/ Deloitte & Touche LLP

Williamsville, New York

February 22, 2019

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the stockholders and the Board of Directors of Integer Holdings Corporation

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Integer Holdings Corporation and subsidiaries (the "Company") as of December 28, 2018 and December 29, 2017, the related consolidated statements of operations, comprehensive income (loss), cash flows, and stockholders' equity for the years ended December 28, 2018, December 29, 2017, and December 30, 2016, and the related notes and the schedule listed in the Index at Item 15 (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 28, 2018 and December 29, 2017, and the results of its operations and its cash flows for the years ended December 28, 2018, December 29, 2017, and December 30, 2016, in conformity with accounting principles generally accepted in the United States of America.

We have also 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 28, 2018, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 22, 2019 expressed an unqualified opinion on the Company's internal control over financial reporting.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's 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 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 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 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 financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Deloitte & Touche LLP

Williamsville, New York

February 22, 2019

We have served as the Company's auditor since 1985.

INTEGER HOLDINGS CORPORATION
CONSOLIDATED BALANCE SHEETS

(in thousands except share and per share data)	December 28, 2018	December 29, 2017
ASSETS		
Current assets:		
Cash and cash equivalents	$ 25,569	$ 37,341
Accounts receivable, net of allowance for doubtful accounts of $0.6 million and $0.5 million, respectively	185,501	194,845
Inventories	190,076	176,738
Prepaid expenses and other current assets	15,104	16,239
Current assets of discontinued operations held for sale	—	106,746
Total current assets	416,250	531,909
Property, plant and equipment, net	231,269	235,180
Goodwill	832,338	839,870
Other intangible assets, net	812,338	862,873
Deferred income taxes	3,937	3,451
Other assets	30,549	30,428
Noncurrent assets of discontinued operations held for sale	—	344,634
Total assets	$ 2,326,681	$ 2,848,345
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Current portion of long-term debt	$ 37,500	$ 30,469
Accounts payable	57,187	64,551
Income taxes payable	9,393	5,904
Accrued expenses	60,490	60,376
Current liabilities of discontinued operations held for sale	—	47,703
Total current liabilities	164,570	209,003
Long-term debt	888,007	1,578,696
Deferred income taxes	203,910	140,964
Other long-term liabilities	9,701	11,335
Noncurrent liabilities of discontinued operations held for sale	—	14,966
Total liabilities	1,266,188	1,954,964
Commitments and contingencies (Note 13)		
Stockholders' equity:		
Preferred stock, $0.001 par value, authorized 100,000,000 shares; no shares issued or outstanding	—	—
Common stock, $0.001 par value; 100,000,000 shares authorized; 32,624,494 and 31,977,953 shares issued, respectively; 32,473,167 and 31,871,427 shares outstanding, respectively	33	32
Additional paid-in capital	691,083	669,756
Treasury stock, at cost, 151,327 and 106,526 shares, respectively	(8,125)	(4,654)
Retained earnings	344,498	176,068
Accumulated other comprehensive income	33,004	52,179
Total stockholders' equity	1,060,493	893,381
Total liabilities and stockholders' equity	$ 2,326,681	$ 2,848,345

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

INTEGER HOLDINGS CORPORATION
CONSOLIDATED STATEMENTS OF OPERATIONS

(in thousands except per share data)	Fiscal Year Ended December 28, 2018	December 29, 2017	December 30, 2016
Sales	$1,215,012	$1,136,080	$1,075,502
Cost of sales	852,347	782,070	737,823
Gross profit	362,665	354,010	337,679
Operating expenses:			
Selling, general and administrative expenses	142,441	143,073	136,444
Research, development and engineering costs	48,604	48,850	47,899
Other operating expenses	16,065	36,438	60,413
Total operating expenses	207,110	228,361	244,756
Operating income	155,555	125,649	92,923
Interest expense	99,310	63,972	68,331
(Gain) loss on equity investments, net	(5,623)	1,565	833
Other (income) loss, net	752	10,853	(4,406)
Income from continuing operations before taxes	61,116	49,259	28,165
Provision (benefit) for income taxes	14,083	(37,828)	3,287
Income from continuing operations	$47,033	$87,087	$24,878
Discontinued operations:			
Income (loss) from discontinued operations before taxes	188,313	(27,432)	(26,980)
Provision (benefit) for income taxes	67,382	(7,024)	(8,063)
Income (loss) from discontinued operations	$120,931	$(20,408)	$(18,917)
Net income	$167,964	$66,679	$5,961
Basic earnings (loss) per share:			
Income from continuing operations	$1.46	$2.77	$0.81
Income (loss) from discontinued operations	3.76	(0.65)	(0.61)
Basic earnings per share	5.23	2.12	0.19
Diluted earnings (loss) per share:			
Income from continuing operations	$1.44	$2.72	$0.80
Income (loss) from discontinued operations	$3.71	$(0.64)	$(0.61)
Diluted earnings per share	5.15	2.08	0.19
Weighted average shares outstanding:			
Basic	32,136	31,402	30,778
Diluted	32,596	32,056	30,973

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

INTEGER HOLDINGS CORPORATION
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

(in thousands except per share data)	Fiscal Year Ended December 28, 2018	December 29, 2017	December 30, 2016
Comprehensive Income (Loss)			
Net income	$167,964	$66,679	$5,961
Other comprehensive income (loss):			
Foreign currency translation gain (loss)	(19,925)	65,860	(19,269)
Net change in cash flow hedges, net of tax	16	2,243	2,478
Defined benefit plan liability adjustment, net of tax	302	76	(579)
Other comprehensive income (loss), net	(19,607)	68,179	(17,370)
Comprehensive income (loss)	$148,357	$134,858	$(11,409)

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

INTEGER HOLDINGS CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS

(in thousands)	Fiscal Year Ended December 28, 2018	December 29, 2017	December 30, 2016
Cash flows from operating activities:			
Net income	$167,964	$ 66,679	$ 5,961
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	88,988	102,796	90,524
Debt related charges included in interest expense	49,110	10,911	7,278
Stock-based compensation	10,470	14,680	8,408
Non-cash (gain) loss on equity investments	(5,623)	2,965	1,495
Other non-cash losses			