TEXAS INSTRUMENTS INC
Form 10-K
February 23, 2017

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
for the fiscal year ended December 31, 2016

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
for the transition period from to

Commission File Number 1-3761

TEXAS INSTRUMENTS INCORPORATED

(Exact name of Registrant as specified in its charter)

Delaware	75-0289970
(State of Incorporation)	(I.R.S. Employer Identification No.)
12500 TI Boulevard, Dallas, Texas	75243
(Address of Principal Executive Offices)	(Zip Code)

Registrant's Telephone Number, Including Area Code: 214-479-3773

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 $1.00	The NASDAQ Global Select Market

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the Registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the Registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes No

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

Indicate by check mark whether the Registrant has submitted electronically and posted on its corporate website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the Registrant was required to submit and post such files). Yes 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 the Registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

Indicate by check mark whether the Registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer," and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer Accelerated filer Non-accelerated filer Smaller reporting company

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

The aggregate market value of voting stock held by non-affiliates of the Registrant was approximately $62,805,040,210 as of June 30, 2016.

999,639,733 (Number of shares of common stock outstanding as of February 21, 2017)

Part III hereof incorporates information by reference to the Registrant's proxy statement for the 2017 annual meeting of stockholders.

PART I

ITEM 1. Business.

We design and make semiconductors that we sell to electronics designers and manufacturers all over the world. We began operations in 1930. We are incorporated in Delaware, headquartered in Dallas, Texas, and have design, manufacturing or sales operations in more than 30 countries. We have two reportable segments: Analog and Embedded Processing. We report the results of our remaining business activities in Other. In 2016, we generated $13.37 billion of revenue.

We focus our resources on Analog and Embedded Processing because we believe that these segments' long product life cycles, intrinsic diversity and need for less capital-intensive manufacturing provide a combination of stability, profitability and strong cash generation. This business model is the foundation of our capital management strategy, which is based on our belief that free cash flow growth is important for maximizing shareholder value over the long term. We also believe that free cash flow will be valued only if it is productively invested in the business or returned to shareholders. Free cash flow is cash flow from operations less capital expenditures.

Product information

Semiconductors are electronic components that serve as the building blocks inside modern electronic systems and equipment. Semiconductors, generally known as "chips," combine multiple transistors to form a complete electronic circuit. We have tens of thousands of products that are used to accomplish many different things, such as converting and amplifying signals, interfacing with other devices, managing and distributing power, processing data, canceling noise and improving signal resolution. This broad portfolio includes products that are integral to almost all electronic equipment.

Our segments represent groups of similar products that are combined on the basis of similar design and development requirements, product characteristics, manufacturing processes and distribution channels. Our segments also reflect how management allocates resources and measures results. Additional information regarding each segment follows.

Analog

Analog generated $8.54 billion of revenue in 2016. Analog semiconductors change real-world signals, such as sound, temperature, pressure or images, by conditioning them, amplifying them and often converting them to a stream of digital data that can be processed by other semiconductors, such as embedded processors. Analog semiconductors also are used to manage power in all electronic equipment by converting, distributing, storing, discharging, isolating and measuring electrical energy, whether the equipment is plugged into a wall or running off a battery. Our Analog products are used in many markets, particularly personal electronics and industrial.

Sales of our Analog products generated about 64 percent of our revenue in 2016. According to external sources, the market for analog semiconductors was about $48 billion in 2016. Our Analog segment's revenue in 2016 was about 18 percent of this fragmented market, the leading position. We believe we are well positioned to increase our market share over time.

In 2016, our Analog segment included the following major product lines: High Volume Analog & Logic (HVAL), Power Management (Power), High Performance Analog (HPA) and Silicon Valley Analog (SVA).

HVAL

HVAL included high-volume integrated products that support applications like automotive safety systems, touchscreen controllers, low-voltage motor drivers and integrated motor controllers.

Power

Power included products that help customers manage power in electronic systems. Our broad portfolio of Power products is designed to manage power requirements using battery management solutions, portable power components, power supply controls and point-of-load products.

HPA

HPA included products that we market to many different customers who use them in manufacturing a wide range of end products. HPA products included high-speed data converters, amplifiers, sensors, high-reliability products, interface products and precision products that are typically used in systems that require high performance. HPA products generally have long life cycles, often more than 10 years.

SVA

SVA included a broad portfolio of industrial, high-voltage power management, data converter, interface and operational amplifier products used in manufacturing a wide range of electronic systems. SVA products support applications like video and data interface products, high voltage power conversion, and mobile lighting and display systems. SVA products generally have long life cycles, often more than 10 years. SVA consisted primarily of products that we acquired through our purchase of National Semiconductor Corporation in 2011.

Embedded Processing

Embedded Processing generated $3.02 billion of revenue in 2016. Embedded Processing products are the “brains” of many types of electronic equipment. Embedded processors are designed to handle specific tasks and can be optimized for various combinations of performance, power and cost, depending on the application. Our devices vary from simple, low-cost microcontrollers used in electric toothbrushes to highly specialized, complex devices used in automotive applications such as infotainment systems and advanced driver assistance systems (ADAS). Our Embedded Processing products are used in many markets, particularly industrial, automotive and communications equipment.

An important characteristic of our Embedded Processing products is that our customers often invest their own research and development (R&D) to write software that operates on our products. This investment tends to increase the length of our customer relationships because many customers prefer to re-use software from one product generation to the next.

Sales of Embedded Processing products generated about 23 percent of our revenue in 2016. According to external sources, the market for embedded processors was about $18 billion in 2016. Our Embedded Processing segment’s revenue in 2016 was about 17 percent of this fragmented market, among the leaders. We believe we are well positioned to increase our market share over time.

In 2016, our Embedded Processing segment included the following major product lines: Processors, Microcontrollers and Connectivity.

Processors

Processors included digital signal processors (DSPs) and applications processors. DSPs perform mathematical computations almost instantaneously to process or improve digital data. Applications processors are designed for specific computing activity.

Microcontrollers

Microcontrollers included self-contained systems with a processor core, memory and peripherals that are designed to control a set of specific tasks for electronic equipment. Microcontrollers tend to have minimal requirements for memory and program length, with no operating system and low software complexity. Analog components that control or interface with sensors and other systems are often integrated into microcontrollers.

Connectivity

Connectivity included products that enable electronic equipment to connect and transfer data wirelessly, with the requirements for speed, data capability, distance, power and security varying depending on the application. Our Connectivity products support many wireless technologies to meet these requirements, including low-power wireless network standards like Sub-1GHz, Zigbee® and other technologies like Bluetooth® and WiFi.

Other

We report the results of our remaining business activities in Other, which included operating segments that do not meet the quantitative thresholds for individually reportable segments and cannot be aggregated with other operating segments. Other generated $1.81 billion of revenue in 2016 and included revenue from DLP® products (primarily used in projectors to create high-definition images), calculators, certain custom semiconductors known as application-specific integrated circuits (ASICs) and royalties received from agreements involving license rights to our patent portfolio.

In Other, we also included items that are not used in evaluating the results of or in allocating resources to our segments. Examples of these items include acquisition charges; restructuring charges; and certain corporate-level items, such as litigation expenses, environmental costs, insurance settlements, and gains and losses from other activities, including asset dispositions.

Financial information with respect to our segments and our operations outside the United States is contained in Note 1 to the financial statements, which is included in Item 8, “Financial Statements and Supplementary Data.” Risks attendant to our foreign operations are described in Item 1A, “Risk Factors.”

Markets for our products

The table below lists the major markets that used our products in 2016 and the estimated percentage of our 2016 revenue that the market represented. The chart also lists, in declining order of our revenue, the sectors within each market.

Market	Sector
Industrial	Factory automation and control
(33% of TI revenue)	Medical/healthcare/fitness
	Building automation
	Grid infrastructure
	Test and measurement
	Space/avionics/defense
	Motor drives
	Electronic point of sale
	Appliances
	Power delivery
	Display
	Industrial transportation
	Lighting
	Industrial other
Automotive	Infotainment and cluster
(18% of TI revenue)	Passive safety
	Advanced Driver Assistance Systems (ADAS)
	Hybrid/electric vehicle and powertrain
	Body electronics and lighting
Personal electronics	Mobile phones

(26% of TI revenue)	Personal and notebook computers Storage Portable electronics Tablets Home theater and entertainment Printers and other peripherals TV Wearables (non-medical) Gaming
Communications equipment (13% of TI revenue)	Wireless infrastructure Telecom infrastructure Enterprise switching Residential
Enterprise systems (6% of TI revenue)	Projectors Servers High-performance computing Multi-function printers Thin client
Other (calculators, royalties and other) (4% of TI revenue)	

Market characteristics

Competitive landscape

Despite recent consolidation, the analog and embedded processing markets remain highly fragmented. As a result, we face significant global competition from dozens of large and small companies, including both broad-based suppliers and niche suppliers. Our competitors also include emerging companies, particularly in Asia, that sell products into the same markets in which we operate.

We believe that competitive performance in the semiconductor market generally depends on several factors, including the breadth of a company's product line, the strength and depth of its channels to market, technological innovation, product development execution, technical support, customer service, quality, reliability, price and scale. The primary competitive factors for our Analog products include design proficiency, a diverse product portfolio to meet wide-ranging customer needs, manufacturing process technologies that provide differentiated levels of performance, applications and sales support, and manufacturing expertise and capacity. The primary competitive factors for our Embedded Processing products are the ability to design and cost-effectively manufacture products, system-level knowledge about targeted end markets, the installed base of software, software expertise, applications and sales support, and a product's performance, integration and power characteristics.

Product cycle

The global semiconductor market is characterized by constant, though generally incremental, advances in product designs and manufacturing processes. Semiconductor prices and manufacturing costs tend to decline over time as manufacturing processes and product life cycles mature.

Market cycle

The "semiconductor cycle" refers to the ebb and flow of supply and demand and the building and depleting of inventories. The semiconductor market historically has been characterized by periods of tight supply caused by strengthening demand and/or insufficient manufacturing capacity, followed by periods of surplus inventory caused by weakening demand and/or excess manufacturing capacity. These are typically referred to as upturns and downturns in the semiconductor cycle. The semiconductor cycle could be affected by the significant time and money required to build and maintain semiconductor manufacturing facilities.

We employ several strategies to dampen the effect of the semiconductor cycle on TI. We acquire our manufacturing facilities and equipment ahead of demand, which usually allows us to acquire this capacity at lower costs. We focus our resources on our Analog and Embedded Processing segments, which serve diverse markets and diverse customers. This diversity reduces our dependence on the performance of a single market or small group of customers. Additionally, we utilize consignment inventory programs with our customers and distributors that give us improved insight into customer demand.

Seasonality

Our revenue is subject to some seasonal variation. Historically, our sequential revenue growth rate tends to be weaker in the first and fourth quarters when compared to the second and third quarters.

Manufacturing

Semiconductor manufacturing begins with a sequence of photolithographic and chemical processing steps that fabricate a number of semiconductor devices on a thin silicon wafer. Each device on the wafer is packaged and tested. The entire process takes place in highly specialized facilities and requires an average of 12 weeks, with most products completing within 7 to 15 weeks.

The cost and lifespan of the equipment and processes we use to manufacture semiconductors vary by technology. Our Analog products and most of our Embedded Processing products can be manufactured using mature and stable, and therefore less expensive, equipment than is needed for manufacturing advanced logic products, such as some of our processor products.

We own and operate semiconductor manufacturing facilities in North America, Asia, Japan and Europe. These include both wafer fabrication and assembly/test facilities. Our facilities require substantial investment to construct and are largely fixed-cost assets once in operation. We own much of our manufacturing capacity; therefore, a significant portion of our operating cost is fixed and changes in factory loadings can cause short-term variations in profit margins. When factory loadings decrease, our fixed costs are spread over reduced output and, absent other circumstances, our profit margins decrease. Conversely, as factory loadings increase, our fixed costs are spread over increased output and, absent other circumstances, our profit margins increase. Our operating focus is more on maximizing long-term free cash flow than minimizing short-term variations in profit margins caused by factory loadings. To this end, we seek to maximize long-term free cash flow by keeping capital expenditures low through opportunistic purchases of facilities and equipment ahead of demand.

We expect to maintain sufficient internal manufacturing capacity to meet the vast majority of our production needs. To supplement our manufacturing capacity and maximize our responsiveness to customer demand and return on capital, we utilize the capacity of outside suppliers, commonly known as foundries, and subcontractors. In 2016, we sourced about 20 percent of our total wafers from external foundries and about 40 percent of our assembly/test services from subcontractors.

Customers

We estimate that we sell our products to about 100,000 customers. Our customer base is diverse, with more than one-third of our revenue deriving from customers outside our largest 100.

Sales and distribution

We market and sell our semiconductor products through direct sales and distributors, and online. We have sales or marketing offices in more than 30 countries and we continue to expand our online presence. About 60 percent of our sales are fulfilled through distribution channels. Our distributors maintain an inventory of our products and sell directly to a wide range of customers. They also sell products from our competitors.

Inventory

Our inventory practices differ by product, but we generally maintain inventory levels that are consistent with our expectations of customer demand. We carry proportionally more inventory of products with long life cycles and a broad customer base. Additionally, we sometimes maintain product inventory in unfinished wafer form, as well as higher finished-goods inventory of low-volume products, allowing greater flexibility in periods of high demand.

About 60 percent of TI revenue is fulfilled from consignment inventory programs that we have in place for our large customers and distributors. With these programs, we own inventory that is stored at our customers' and distributors' locations, and we recognize revenue when the product is pulled from consigned inventory. These consignment programs give us improved insight into demand, allowing us to better manage our factory loadings. About 65 percent of our distributor revenue is generated from sales of consigned inventory.

Backlog

We define backlog as of a particular date as purchase orders with a customer-requested delivery date within a specified length of time. Our backlog at any particular date may not be indicative of revenue for any future period. As customer requirements and industry conditions change, orders may be subject to cancellation or modification of terms such as pricing, quantity or delivery date. Customer order placement practices continually evolve based on customers' individual business needs and capabilities, as well as industry supply and capacity considerations. Further, our consignment programs do not result in backlog because the order occurs at the same time as delivery, i.e., when the customer pulls the product from consigned inventory. Our backlog of orders was $1.09 billion at December 31, 2016, and $0.95 billion at December 31, 2015.

Acquisitions, divestitures and investments

From time to time we consider acquisitions and divestitures that may strengthen our strategic position. We also make investments directly or indirectly in private companies. Investments are focused primarily on next-generation technologies and markets strategic to us.

Raw materials

We purchase materials, parts and supplies from a number of suppliers. In some cases we purchase such items from sole source suppliers. The materials, parts and supplies essential to our business are generally available at present, and we believe that such materials, parts and supplies will be available in the foreseeable future.

Intellectual property

We own many patents, and have many patent applications pending, in the United States and other countries in fields relating to our business. We have developed a strong, broad-based patent portfolio and continually add patents to that portfolio. We also have license agreements, which vary in duration, involving rights to our portfolio or those of other companies. We do not consider our business materially dependent upon any one patent or patent license.

We often participate in industry initiatives to set technical standards. Our competitors may participate in the same initiatives. Participation in these initiatives may require us to license certain of our patents to other companies on reasonable and non-discriminatory terms.

We own trademarks that are used in the conduct of our business. These trademarks are valuable assets, the most important of which are "Texas Instruments" and our corporate monogram.

Research and development

Our R&D expense was $1.37 billion in 2016, compared with $1.28 billion in 2015 and $1.36 billion in 2014. Our primary areas of R&D investment are Analog and Embedded Processing products.

We conduct most of our R&D internally. However, we also closely engage with a wide range of third parties, including software suppliers, universities and select industry consortia, and we collaborate with our foundry suppliers on semiconductor manufacturing technology.

Executive officers of the Registrant

The following is an alphabetical list of the names and ages of the executive officers of the company and the positions or offices with the company held by each person named:

Name	Age	Position
Niels Anderskouv*	47	Senior Vice President
Stephen A. Anderson	55	Senior Vice President
Ellen L. Barker*	54	Senior Vice President and Chief Information Officer
Brian T. Crutcher	44	Executive Vice President and Chief Operating Officer

R. Gregory Delagi	54	Senior Vice President
Haviv Ilan*	48	Senior Vice President
Rafael R. Lizardi**	44	Senior Vice President and Chief Financial Officer
Kevin P. March**	59	Senior Vice President, Principal Financial Officer and Chief Accounting Officer
Kevin J. Ritchie	60	Senior Vice President
Richard K. Templeton	58	Director; Chairman of the Board, President and Chief Executive Officer
Cynthia Hoff Trochu	53	Senior Vice President, Secretary and General Counsel
Julie M. Van Haren***	48	Senior Vice President
Teresa L. West***	56	Senior Vice President
Darla H. Whitaker	51	Senior Vice President
Bing Xie	49	Senior Vice President

*Effective January 19, 2017.

**Effective February 1, 2017, Mr. Lizardi succeeded Mr. March as chief financial officer. Mr. Lizardi will assume the responsibilities of chief accounting officer effective March 1, 2017, at which time Mr. March will cease to be principal financial officer. Mr. March will retire from the company later this year.

***Effective January 1, 2017, Ms. Van Haren succeeded Ms. West, who will retire from the company on February 28, 2017.

The term of office of these officers is from the date of their election until their successor shall have been elected and qualified. All have been employees of the company for more than five years. Messrs. Anderson, Crutcher, Delagi, March, Ritchie and Templeton and Mses. West and Whitaker have served as executive officers of the company for more than five years. Ms. Trochu and Mr. Xie became executive officers of the company in 2015.

Employees

At December 31, 2016, we had 29,865 employees.

Available information

Our internet address is www.ti.com. Information on our website is not a part of this report. We make available free of charge through our Investor Relations website our reports on Forms 10-K, 10-Q and 8-K, and amendments to those reports, as soon as reasonably practicable after they are filed with the SEC. Also available through the TI Investor Relations website are reports filed by our directors and executive officers on Forms 3, 4 and 5, and amendments to those reports.

Available on our website at www.ti.com/corporategovernance are: (i) our Corporate Governance Guidelines; (ii) charters for the Audit, Compensation, and Governance and Stockholder Relations Committees of our board of directors; (iii) our Code of Conduct; and (iv) our Code of Ethics for TI Chief Executive Officer and Senior Finance Officers. Stockholders may request copies of these documents free of charge by writing to Texas Instruments Incorporated, P.O. Box 660199, MS 8657, Dallas, Texas, 75266-0199, Attention: Investor Relations.

ITEM 1A. Risk Factors.

You should read the following risk factors in conjunction with the factors discussed elsewhere in this and other of our filings with the Securities and Exchange Commission (SEC) and in materials incorporated by reference into these filings. These risk factors are intended to highlight certain factors that may affect our financial condition and results of operations and are not meant to be an exhaustive discussion of risks that apply to TI, a company with broad international operations. Like other companies, we are susceptible to macroeconomic downturns in the United States or abroad that may affect the general economic climate and our performance and the performance of our customers. Similarly, the price of our securities is subject to volatility due to fluctuations in general market conditions, actual financial results that do not meet our and/or the investment community’s expectations, changes in our and/or the investment community’s expectations for our future results and other factors, many of which are beyond our control.

We face substantial competition that requires us to respond rapidly to product development and pricing pressures.

We face intense technological and pricing competition in the markets in which we operate. We expect this competition will continue to increase from large competitors and from small competitors serving niche markets, and also from emerging companies, particularly in Asia, that sell products into the same markets in which we operate. For example, we may face increased competition as a result of China actively promoting and reshaping its domestic semiconductor industry through policy changes and investment. These actions may restrict us from participating in the China market or may prevent us from competing effectively with Chinese companies. Certain of our competitors possess sufficient financial, technical and management resources to develop and market products that may compete favorably against our products, and consolidation among our competitors may allow them to compete more effectively. Additionally, traditional intellectual property licensors are increasingly providing functionality, designs and complete hardware or software solutions that compete with our products. The price and product development pressures that result from competition may lead to reduced profit margins and lost business opportunities in the event that we are unable to match the price declines or cost efficiencies, or meet the technological, product, support, software or manufacturing advancements of our competitors.

Rapid technological change in markets we serve requires us to develop new technologies and products.

Rapid technological change in markets we serve could contribute to shortened product life cycles and a decline in average selling prices of our products. Our results of operations depend in part upon our ability to successfully develop, manufacture and market innovative products. We make significant investments in research and development to develop new technologies and products to meet changing customer demands, and we might not realize a return on our investments because they are generally made before commercial viability can be assured. Further, projects that are commercially viable may not contribute significant revenue until at least a few years after they are completed.

Changes in expected demand for our products could have a material adverse effect on our results of operations.

Our customers include companies in a wide range of end markets and sectors within those markets. If demand in one or more sectors within our end markets declines or grows at a significantly slower pace than management expects, our results of operations may be adversely affected. The cyclical nature of the semiconductor market may lead to significant and often rapid increases and decreases in product demand. Additionally, the loss or significant curtailment of purchases by one or more of our large customers, including curtailments due to a change in the design or manufacturing sourcing policies or practices of these customers, or the timing of customer or distributor inventory adjustments, may adversely affect our results of operations and financial condition.

Our results of operations also might suffer because of a general decline in customer demand resulting from, for example: uncertainty regarding the stability of global credit and financial markets; natural events or domestic or international political, social, economic or other conditions; breaches of customer information technology systems that disrupt customer operations; or a customer's inability to access credit markets and other sources of needed liquidity.

Our ability to match inventory and production with the product mix needed to fill orders may affect our ability to meet a quarter's revenue forecast. In addition, when responding to customers' requests for shorter shipment lead times, we manufacture products based on forecasts of customers' demands. These forecasts are based on multiple assumptions. If we inaccurately forecast customer demand, we may hold inadequate, excess or obsolete inventory that would reduce our profit margins and adversely affect our results of operations and financial condition.

Our global operations subject us to risks associated with domestic or international political, social, economic or other conditions.

We have facilities in more than 30 countries. About 85 percent of our revenue comes from shipments to locations outside the United States; in particular, shipments of products into China typically represent a large portion of our revenue. We are exposed to political, social and economic conditions, security risks, terrorism or other hostile acts, health conditions, labor conditions, and possible disruptions in transportation, communications and information technology networks of the various countries in which we operate, including the United States. Additionally, certain countries where we operate have experienced, and other countries may experience, increasing protectionism that may impact global trade. This could result in an adverse effect on our operations and our financial results. In addition, our global operations expose us to periods when the U.S. dollar significantly fluctuates in relation to the non-U.S. currencies in which we transact business. The remeasurement of non-U.S. dollar transactions can have an adverse effect on our results of operations and financial condition.

Our results of operations could be affected by natural events in the locations in which we operate.

We have manufacturing, data and design facilities and other operations in locations subject to natural occurrences such as severe weather, geological events or health epidemics that could disrupt operations. A natural disaster that results in a prolonged disruption to our operations may adversely affect our results and financial condition.

Our operating results and our reputation could be adversely affected by breaches or disruptions of our information technology systems.

Breaches or disruptions of our information technology systems could be caused by computer viruses, system failures, unauthorized access, sabotage, vandalism or terrorism. These events could compromise our information technology networks; result in lost data or the unauthorized release of our, our customers' or our suppliers' confidential or proprietary information; cause a disruption to our manufacturing and other operations; result in the release of employee personal data; or cause us to incur increased information technology protection costs, any of which could adversely affect our operating results and our reputation.

We face supply chain and manufacturing risks.

We rely on third parties to supply us with goods and services in a cost-effective and timely manner. Our access to needed goods and services may be adversely affected by potential disputes with suppliers or disruptions in our suppliers' operations as a result of, for example: quality excursions; uncertainty regarding the stability of global credit and financial markets; domestic or international political, social, economic and other conditions; natural events in the locations in which our suppliers operate; or limited or delayed access to key raw materials, natural resources, and utilities. Additionally, a breach of our suppliers' information technology systems could result in a release of our confidential or proprietary information. If our suppliers are unable to access credit markets and other sources of needed liquidity, we may be unable to obtain needed supplies, collect accounts receivable or access needed technology.

In particular, our manufacturing processes and critical manufacturing equipment require that certain key raw materials, natural resources and utilities be available. Limited or delayed access to and high costs of these items could adversely affect our results of operations. Our products contain materials that are subject to conflict minerals reporting requirements. Our relationships with customers and suppliers may be adversely affected if we are unable to describe our products as conflict-free. Additionally, our costs may increase if one or more of our customers demand that we change the sourcing of materials we cannot identify as conflict-free.

Our inability to timely implement new manufacturing technologies or install manufacturing equipment could adversely affect our results of operations. We subcontract a portion of our wafer fabrication and assembly and testing of our products, and we depend on third parties to provide advanced logic manufacturing process technology development. We do not have long-term contracts with all of these suppliers, and the number of alternate suppliers is limited. Reliance on these suppliers involves risks, including possible shortages of capacity in periods of high demand, suppliers' inability to develop and deliver advanced logic manufacturing process technology in a timely, cost effective, and appropriate manner and the possibility of suppliers' imposition of increased costs on us.

Our operations could be affected by the complex laws, rules and regulations to which our business is subject.

We are subject to complex laws, rules and regulations affecting our domestic and international operations relating to, for example, the environment, safety and health; exports and imports; bribery and corruption; tax; data privacy and protection; labor and employment; competition; and intellectual property ownership and infringement. Compliance with these laws, rules and regulations may be onerous and expensive and could restrict our ability to manufacture or ship our products and operate our business. If we fail to comply or if we become subject to enforcement activity, we could be subject to fines, penalties or other legal liability. Furthermore, should these laws, rules and regulations be amended or expanded, or new ones enacted, we could incur materially greater compliance costs or restrictions on our ability to manufacture our products and operate our business.

Some of these complex laws, rules and regulations – for example, those related to environmental, safety and health requirements – may particularly affect us in the jurisdictions in which we manufacture products, especially if such laws and regulations: require the use of abatement equipment beyond what we currently employ; require the addition or elimination of a raw material or process to or from our current manufacturing processes; or impose costs, fees or reporting requirements on the direct or indirect use of energy, natural resources, or materials or gases used or emitted into the environment in connection with the manufacture of our products. A substitute for a prohibited raw material or process might not be available, or might not be available at reasonable cost.

Our results of operations and our reputation could be affected by warranty claims, product liability claims, product recalls or legal proceedings.

We could be subject to claims based on warranty, product liability, epidemic or delivery failures, or other grounds relating to our products, manufacturing, services, designs or communications that could lead to significant expenses as we defend such claims or pay damage awards or settlements. In the event of a claim, we may also incur costs if we decide to compensate the affected customer or end consumer. We maintain product liability insurance, but there is no guarantee that such insurance will be available or adequate to protect against all such claims. In addition, it is possible for one of our customers to recall a product containing a TI part, for example, with respect to products used in automotive applications or handheld electronics, which may cause us to incur costs and expenses relating to the recall. Any of these events could adversely affect our results of operations, financial condition and our reputation.

Our results of operations could be affected by changes in tax-related matters.

We have facilities in more than 30 countries and as a result are subject to taxation and audit by a number of taxing authorities. Tax rates vary among the jurisdictions in which we operate. If our tax rate increases, our results of operations could be adversely affected. A number of factors could cause our taxes to increase, including a change in the jurisdictions in which our profits are earned and taxed; a change in the mix of profits from those jurisdictions; changes in available tax credits; changes in applicable tax rates; changes in tariff regulations or surcharges; or adverse resolution of audits by taxing authorities.

In addition, we are subject to laws and regulations in various jurisdictions that determine how much profit has been earned and when it is subject to taxation in that jurisdiction. Changes in these laws and regulations could affect the locations where we are deemed to earn income, which could in turn affect our results of operations. We have deferred tax assets on our balance sheet. Changes in applicable tax laws and regulations or in our business performance could affect our ability to realize those deferred tax assets, which could also affect our results of operations. Each quarter we forecast our tax liability based on our forecast of our performance for the year. If that performance forecast changes, our forecasted tax liability will change.

We have not made a provision for U.S. income tax on the portion of our undistributed earnings of our non-U.S. subsidiaries that is considered permanently reinvested outside the United States. If in the future we repatriate any of these foreign earnings, we might incur incremental U.S. income tax, which could affect our results of operations.

Our results of operations and financial condition could be adversely affected if a customer or a distributor suffers a loss with respect to our inventory.

We have consignment inventory programs in place for some of our largest customers and distributors. If a customer or distributor were to experience a loss with respect to TI-consigned inventory, our results of operations and financial condition may be adversely affected if we do not recover the full value of the lost inventory from the customer, distributor or insurer, or if our recovery is delayed.

Our results of operations could be adversely affected by our distributors' promotion of competing product lines or our distributors' financial performance.

In 2016, about 60 percent of our revenue was generated from sales of our products through distributors. Our distributors carry competing product lines, and our sales could be affected if our distributors promote competing products over our products. Moreover, our results of operations could be affected if our distributors suffer financial difficulties that result in their inability to pay amounts owed to us. Disputes with or the loss of a significant number of distributors could be disruptive or harmful to our current business.

Our margins may vary over time.

Our profit margins may be adversely affected by a number of factors, including decreases in customer demand and shipment volume; obsolescence of our inventory; shifts in our product mix; and changes in tariffs. In addition, we operate in a highly competitive market environment that might adversely affect pricing for our products. Because we own much of our manufacturing capacity, a significant portion of our operating costs is fixed. In general, these fixed costs do not decline with reductions in customer demand or factory loadings, and can adversely affect profit margins as a result.

Our performance depends in part on our ability to enforce our intellectual property rights and to maintain freedom of operation.

Access to worldwide markets depends in part on the continued strength of our intellectual property portfolio. There can be no assurance that, as our business expands into new areas, we will be able to independently develop the technology, software or know-how necessary to conduct our business or that we can do so without infringing the intellectual property rights of others. To the extent that we have to rely on licensed technology from others, there can be no assurance that we will be able to obtain licenses at all or on terms we consider reasonable. We may, directly or indirectly, face infringement claims from third parties, including non-practicing entities that have acquired patents to pursue enforcement actions against other companies. These assertions, whether or not of any merit, could expose us to claims for damages and/or injunctions from third parties, as well as claims for indemnification by our customers in instances where we have a contractual or other legal obligation to indemnify them against damages resulting from infringement claims.

We actively enforce and protect our own intellectual property rights. However, our efforts cannot prevent all misappropriation or improper use of our protected technology, including, for example, third parties' use of our patented technology in their products without the right to do so or third parties' sale of counterfeit products bearing our trademark. Moreover, the laws of countries where we operate may not protect our intellectual property rights to the same extent as U.S. laws.

Our debt could affect our operations and financial condition.

From time to time, we issue debt securities with various interest rates and maturities. While we believe we will have the ability to service this debt, our ability to make principal and interest payments when due depends upon our future performance, which will be subject to general economic conditions, industry cycles, and business and other factors affecting our operations, including the other risk factors described under Item 1A, many of which are beyond our control. In addition, our obligation to make principal and interest payments could divert funds that otherwise would be invested in our operations or returned to shareholders, or could cause us to raise funds by, for example, issuing new debt or equity or selling assets.

Our results of operations and liquidity could be affected by changes in the financial markets.

We maintain bank accounts, one or more multi-year revolving credit agreements, and a portfolio of investments to support the financing needs of the company. Our ability to fund our operations, invest in our business, make strategic acquisitions, service our debt obligations and meet our cash return objectives depends upon continuous access to our bank and investment accounts, and may depend on access to our bank credit lines that support commercial paper borrowings and provide additional liquidity through short-term bank loans. If we are unable to access these accounts and credit lines (for example, due to instability in the financial markets), our results of operations and financial condition could be adversely affected and our ability to access the capital markets or redeem our investments could be restricted.

Increases in health care and pension benefit costs could affect our results of operations and financial condition.

Federal and state health care reform programs could increase our costs with regard to medical coverage of our employees, which could reduce profitability and affect our results of operations and financial condition. In addition, obligations related to our pension and other postretirement plans reflect assumptions that affect the planned funding and costs of these plans, including the actual return on plan assets, discount rates, plan participant population demographics and changes in pension regulations. Changes in these assumptions may affect plan funding, cash flow and results of operations, and our costs and funding obligations could increase significantly if our plans' actual experience differs from these assumptions.

Our continued success depends in part on our ability to retain and recruit a sufficient number of qualified employees in a competitive environment.

Our continued success depends in part on the retention and recruitment of skilled personnel, including engineering, management, marketing, technical and staff personnel. Skilled and experienced personnel in our industry are in high demand, and competition for their talents is intense. There can be no assurance that we will be able to successfully retain and recruit the key engineering, management and technical personnel that we require to execute our business strategy. Our ability to recruit internationally or deploy employees to various locations may be limited by immigration laws.

Our ability to successfully implement business and organizational changes could affect our business plans and results of operations.

From time to time, we undertake business and organizational changes, including acquisitions, divestitures and restructuring actions, to support or carry out our strategic objectives. Our failure to successfully implement these changes could adversely affect our business plans and operating results. For example, we may not realize the expected benefits of an acquisition if we are unable to timely and successfully integrate acquired operations, product lines and technology, and our pre-acquisition due diligence may not identify all possible issues and risks that might arise with respect to an acquisition. Further, we may not achieve or sustain the expected growth or cost savings benefits of business and organizational changes, and restructuring charges could differ materially in amount and timing from our expectations.

Material impairments of our goodwill or intangible assets could adversely affect our results of operations.

We have a significant amount of goodwill and intangible assets on our consolidated balance sheet. Charges associated with impairments of goodwill or intangible assets could adversely affect our financial condition and results of operations.

ITEM 1B. Unresolved Staff Comments.

Not applicable.

ITEM 2. Properties.

Our principal executive offices are located at 12500 TI Boulevard, Dallas, Texas. The following table indicates the general location of our principal manufacturing and design operations and the reportable segments that make major use of them. Except as otherwise indicated, we own these facilities.

	Analog	Embedded Processing
Dallas, Texas	X	X
Houston, Texas		X
Sherman, Texas	X	
Tucson, Arizona*	X	
Santa Clara, California	X	
South Portland, Maine	X	
Chengdu, China†	X	X
Shanghai, China*	X	X
Freising, Germany	X	X
Bangalore, India†	X	X
Aizu, Japan	X	X
Miho, Japan	X	X
Kuala Lumpur, Malaysia†	X	X
Melaka, Malaysia†	X	
Aguascalientes, Mexico*	X	
Baguio, Philippines†	X	X
Pampanga (Clark), Philippines†	X	X
Greenock, Scotland	X	
Taipei, Taiwan†	X	X

* Leased.

† Portions of the facilities are leased and owned. This may include land leases, particularly for our non-U.S. sites.

Our facilities in the United States contained approximately 13.1 million square feet at December 31, 2016, of which approximately 0.7 million square feet were leased. Our facilities outside the United States contained approximately 10.2 million square feet at December 31, 2016, of which approximately 1.5 million square feet were leased.

At the end of 2016, we occupied substantially all of the space in our facilities.

Leases covering our currently occupied leased facilities expire at varying dates, generally within the next five years. We believe our current properties are suitable and adequate for both their intended purpose and our current and foreseeable future needs.

ITEM 3. Legal Proceedings.

We are involved in various inquiries and proceedings that arise in the ordinary course of our business. We believe that the amount of our liability, if any, will not have a material adverse effect upon our financial condition, results of operations or liquidity.

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.

The information concerning the number of stockholders of record at December 31, 2016, is contained in Item 6, "Summary of Selected Financial Data."

Common stock prices and dividends

TI common stock is listed on The NASDAQ Global Select Market. The table below shows the high and low closing prices of TI common stock as reported by Bloomberg L.P. and the dividends paid per common share in each quarter during the past two years.

		Quarter			
		1st	2nd	3rd	4th
Stock prices:					
2016	High	$58.37	$63.30	$71.42	$74.87
	Low	48.03	56.43	61.06	67.60
2015	High	59.94	58.73	52.08	58.98
	Low	51.78	51.51	43.52	48.44
Dividends paid:					
2016		$0.38	$0.38	$0.38	$0.50
2015		0.34	0.34	0.34	0.38

Issuer purchases of equity securities

The following table contains information regarding our purchases of our common stock during the fourth quarter of 2016.

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs [1]	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs [1]
October 1, 2016 through October 31, 2016	2,919,230	$ 69.92	2,919,230	$6.07 billion
November 1, 2016 through November 30, 2016	2,857,964	71.23	2,857,964	5.87 billion
December 1, 2016 through December 31, 2016	943,139	71.36	943,139	5.80 billion
Total	6,720,333 [2]	$ 70.68	6,720,333 [2]	$5.80 billion [3]

(1) All purchases during the quarter were made under the authorization from our board of directors to purchase up to $7.5 billion of additional shares of TI common stock announced September 17, 2015.
(2) All purchases during the quarter were open-market purchases.
(3) As of December 31, 2016, this amount consisted of the remaining portion of the $7.5 billion authorized in September 2015. No expiration date has been specified for this authorization.

ITEM 6. Selected Financial Data.

	For Years Ended December 31,				
(Millions of dollars, except share and per-share amounts)	2016	2015	2014	2013	2012
Cash flow data:					
Cash flows from operating activities (a)	$4,614	$4,397	$4,054	$3,514	$3,483
Capital expenditures	531	551	385	412	495
Free cash flow (a) (b)	4,083	3,846	3,669	3,102	2,988
Dividends paid	1,646	1,444	1,323	1,175	819
Stock repurchases	2,132	2,741	2,831	2,868	1,800
Income statement data:					
Revenue by segment:					
Analog	8,536	8,339	8,104	7,194	6,998
Embedded Processing	3,023	2,787	2,740	2,450	2,257
Other	1,811	1,874	2,201	2,561	3,570
Revenue	13,370	13,000	13,045	12,205	12,825
Gross profit	8,240	7,560	7,427	6,364	6,368
Operating expenses (R&D and SG&A)	3,137	3,028	3,201	3,380	3,681
Acquisition charges	319	329	330	341	450
Restructuring charges/other	(15)	(71)	(51)	(189)	264
Operating profit	4,799	4,274	3,947	2,832	1,973
Net income (c)	$3,595	$2,986	$2,821	$2,162	$1,759

As a result of accounting rule ASC 260, which requires a portion of Net income to be allocated to unvested restricted stock units (RSUs) on which we pay dividend equivalents, diluted earnings per share (EPS) is calculated using the following:

Net income (c)	$3,595	$2,986	$2,821	$2,162	$1,759
Income allocated to RSUs	(44)	(42)	(43)	(36)	(31)
Income allocated to common shares for diluted EPS (c)	$3,551	$2,944	$2,778	$2,126	$1,728
Average diluted shares outstanding, in millions (c)	1,021	1,043	1,080	1,113	1,146
Diluted EPS (c)	$3.48	$2.82	$2.57	$1.91	$1.51
Cash dividends declared per common share	$1.64	$1.40	$1.24	$1.07	$0.72

(a) Prior periods reclassified to conform to the 2016 presentation, having adopted ASU 2016-09. See Note 2.
(b) Free cash flow is a non-GAAP measure derived by subtracting Capital expenditures from Cash flows from operating activities.
(c) 2016 amounts reflect the adoption of ASU 2016-09. See Note 2.

(Millions of dollars, except Other data items)	December 31, 2016	2015	2014	2013	2012
Balance sheet data:					
Cash, cash equivalents and short-term investments	$3,490	$3,218	$3,541	$3,829	$3,965
Total assets	16,431	16,230	17,372	18,554	19,565
Current portion of long-term debt and commercial paper borrowings	631	1,000	1,001	1,000	1,500
Long-term debt	2,978	3,120	3,630	4,145	4,175
Other data - Number of:					
Employees	29,865	29,977	31,003	32,209	34,151
Stockholders of record	14,910	15,563	16,361	17,213	18,128

See Notes to the financial statements and Management's discussion and analysis of financial condition and results of operations.

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

We design, make and sell semiconductors to electronics designers and manufacturers all over the world. Our business model is carefully constructed around the following attributes:

- Industry's broadest portfolio of differentiated analog and embedded processing semiconductors. Our customers need multiple chips for their systems. The breadth of our portfolio means we can solve more of these needs than can our competitors, which gives us access to more customers and the opportunity to generate more revenue per system. We invest more than $1 billion each year to develop new products for our portfolio.
- A strong foundation of manufacturing technology and low-cost production. We invest in manufacturing technologies that differentiate the features of our semiconductors, and we do most of our own production in-house, as opposed to outsourcing it. This ability to directly control our manufacturing helps ensure a consistent supply of products for our customers. We produce billions of semiconductors each year on a mixture of 150-, 200- and 300-millimeter wafers, and we are able to keep costs low for manufacturing facilities and equipment because our Analog and much of our Embedded Processing semiconductors can be made using mature assets that we acquire ahead of demand when their prices are most attractive. In 2016, we increased factory loadings by about 15 percent for our Analog semiconductors on 300-millimeter wafers, which have a 40 percent cost advantage per unpackaged chip over 200-millimeter wafers. The majority of our Analog growth will be produced on 300-millimeter wafers, which will be meaningful to the growth of our cash flow over the long term.
- Industry's largest market channels. Our global sales force is larger than those of our competitors. The breadth of our portfolio attracts an increasing number of visits to our website, where customers often begin their initial product searches and design-in journey. Our web presence, together with our global sales force, provides us unique access to about 100,000 customers.
- Diversity and longevity in our products and in the markets we serve. Together, the attributes above result in diverse and long-lived positions that deliver high terminal value to our shareholders. Because of the breadth of our portfolio, we are not dependent on any single product, and because of the breadth of our markets we are not dependent on any single application or customer. Some of our products generate revenue for decades, which strengthens the return on our investments.

The combined effect of these attributes is that over time we have grown free cash flow and gained market share in Analog and Embedded Processing. These attributes put us in a unique class of companies with the ability to grow, generate cash, and return that cash to shareholders.

Management's discussion and analysis of financial condition and results of operations (MD&A) should be read in conjunction with the financial statements and the related notes that appear elsewhere in this document. In the following discussion of our results of operations:

- All dollar amounts in the tables are stated in millions of U.S. dollars.
- When we discuss our results:
  - Unless otherwise noted, changes in our revenue are attributable to changes in customer demand, which are evidenced by fluctuations in shipment volumes.
  - New products tend not to have a significant impact on our revenue in any given period because we sell such a large number of products.
  - From time to time, our revenue and gross profit are affected by changes in demand for higher-priced or lower-priced products, which we refer to as changes in the "mix" of products shipped.
  - Because we own much of our manufacturing capacity, a significant portion of our operating cost is fixed. When factory loadings decrease, our fixed costs are spread over reduced output and, absent other circumstances, our profit margins decrease. Conversely, as factory loadings increase, our fixed costs are spread over increased output and,

absent other circumstances, our profit margins increase. Increases and decreases in factory loadings tend to correspond to increases and decreases in demand.

- o Over time, we have been allocating resources from areas like manufacturing support and SG&A into R&D activities. As a result, R&D expense will continue increasing in 2017.

- o Our effective tax rate (Provision for income taxes as a percentage of Income before income taxes) benefits from lower tax rates (compared to the U.S. statutory income tax rate) applicable to our operations in many of the jurisdictions in which we operate and from U.S. tax benefits. These lower non-U.S. tax rates are generally statutory in nature, without expiration and available to companies that operate in those taxing jurisdictions.
- Our segments represent groups of similar products that are combined on the basis of similar design and development requirements, product characteristics, manufacturing processes and distribution channels, and how management allocates resources and measures results. See Note 1 to the financial statements for more information regarding our segments.
- In the fourth quarter of 2016, we adopted ASU 2016-09 related to stock compensation. We applied the new standard prospectively as of the beginning of 2016 for the Consolidated Statements of Income and on a full retrospective basis for all periods in the Consolidated Statements of Cash Flows. See Note 2 to the financial statements for more details.

Results of operations

We continued to perform well in 2016, reflecting our focus on Analog and Embedded Processing. These products serve highly diverse markets with thousands of applications, and we believe have dependable long-term growth opportunities. In 2016, Analog and Embedded Processing represented 86 percent of revenue. Gross margin of 61.6 percent for the year reflects the quality of our product portfolio, as well as the efficiency of our manufacturing strategy.

Our focus on Analog and Embedded Processing allows us to generate strong cash flow from operations. In 2016, cash flows from operations were $4.61 billion, up from $4.40 billion in 2015. Free cash flow in 2016 was 30.5 percent of revenue, up from 29.6 percent a year ago and consistent with our targeted range of 20-30 percent of revenue. During the year, we returned $3.78 billion of cash to investors through a combination of stock repurchases and dividends. Our dividends represented 40 percent of free cash flow, underscoring their sustainability. Free cash flow is a non-GAAP financial measure. For a reconciliation to GAAP and an explanation of the reason for providing this non-GAAP measure, see the Non-GAAP financial information section after the Liquidity and capital resources section.

Details of financial results – 2016 compared with 2015

Revenue of $13.37 billion was up $370 million, or 3 percent, from 2015, due to higher revenue from Embedded Processing and Analog.

Gross profit was $8.24 billion, an increase of $680 million, or 9 percent, due to lower manufacturing costs and, to a lesser extent, higher revenue. Gross profit margin was 61.6 percent compared with 58.2 percent.

Operating expenses were $1.37 billion for R&D and $1.77 billion for SG&A. R&D expense increased $90 million, or 7 percent, due to a combination of our ongoing allocation of resources into R&D activities and higher compensation-related costs. SG&A expense increased $19 million, primarily due to higher compensation-related costs.

Acquisition charges associated with our 2011 acquisition of National Semiconductor were $319 million compared with $329 million. These non-cash charges resulted from the amortization of intangible assets. See Note 13 to the financial statements.

Restructuring charges/other was a net credit of $15 million, which included a gain on the sale of intellectual property of $40 million that was partially offset by $25 million related to restructuring charges. This compared with a net credit of $71 million in 2015, which included gains on sales of assets of $83 million that were partially offset by $12 million related to restructuring charges and other credits. These amounts are included in Other for segment reporting purposes. See Note 3 to the financial statements.

Operating profit was $4.80 billion, or 35.9 percent of revenue, compared with $4.27 billion, or 32.9 percent of revenue.

OI&E for 2016 was $211 million compared with $32 million. The increase is due to income of $188 million from settlements related to intellectual property infringement.

Our income tax provision was $1.34 billion compared with $1.23 billion. The increase was primarily due to higher income before income taxes, partially offset by a tax benefit for stock compensation. Our effective tax rates were 27 percent in 2016 and 29 percent in 2015. See Note 6 to the financial statements for a reconciliation of the U.S. statutory income tax rate to the effective tax rate.

Net income was $3.60 billion, an increase of $609 million, or 20 percent. EPS was $3.48 compared with $2.82. EPS benefited $0.13 in 2016 due to the application of the new accounting standard related to stock compensation.

Segment results – 2016 compared with 2015

Analog (included High Volume Analog & Logic (HVAL), Power Management (Power), High Performance Analog (HPA) and Silicon Valley Analog (SVA) product lines)

	2016	2015	Change
Revenue	$8,536	$8,339	2 %
Operating profit	3,380	3,048	11 %
Operating profit % of revenue	39.6 %	36.6 %	

Analog revenue increased primarily due to SVA and HPA. Power also grew, but to a lesser extent, while HVAL declined due to the mix of products shipped. Operating profit increased due to higher gross profit, which benefited from lower manufacturing costs.

Embedded Processing (included Processors, Microcontrollers and Connectivity product lines)

	2016	2015	Change
Revenue	$3,023	$2,787	8 %
Operating profit	801	596	34 %
Operating profit % of revenue	26.5 %	21.4 %	

Embedded Processing revenue increased due to, in declining order, Processors, Microcontrollers and Connectivity. Processors revenue increased due to the mix of products shipped. Operating profit increased primarily due to higher revenue and associated gross profit.

Other (included DLP products, calculators, custom ASICs and royalties)

	2016	2015	Change
Revenue	$1,811	$1,874	(3)%
Operating profit*	618	630	(2)%
Operating profit % of revenue	34.1 %	33.6 %	

* Includes Acquisition charges and Restructuring charges/other

Other revenue decreased due to, in declining order, lower royalties, custom ASIC products and calculators. This decrease was partially offset by growth in DLP products. Operating profit decreased $12 million.

Prior results of operations

In 2015, Analog revenue grew 3 percent, and Embedded Processing revenue grew 2 percent. Analog and Embedded Processing represented 86 percent of revenue in 2015, up from 83 percent in 2014. Gross margin was 58.2 percent for 2015.

In 2015, cash flows from operations were $4.40 billion, up from $4.05 billion in 2014. Free cash flow in 2015, was 29.6 percent of revenue, up from 28.1 percent in 2014. During 2015, we returned $4.19 billion of cash to investors through a combination of stock repurchases and dividends.

Details of financial results – 2015 compared with 2014

Revenue of $13.00 billion was about even with 2014, as higher revenue from Analog and Embedded Processing was offset by lower revenue from Other. Our 2015 revenue was negatively affected by about $150 million from changes in foreign currency exchange rates.

Gross profit was $7.56 billion, an increase of $133 million, or 2 percent, due to lower manufacturing costs. Gross profit margin was 58.2 percent of revenue compared with 56.9 percent.

Operating expenses were $1.28 billion for R&D and $1.75 billion for SG&A. R&D expense decreased $78 million, or 6 percent, and SG&A decreased $95 million, or 5 percent. Both comparisons reflect savings from ongoing efforts across the company to align costs with growth opportunities, including the completed restructuring actions in Embedded Processing and Japan. These decreases were partially offset by higher compensation-related costs.

Acquisition charges were related to our 2011 acquisition of National Semiconductor and were $329 million, about even with 2014. These non-cash charges were primarily from the amortization of intangible assets.

Restructuring charges/other was a net credit of $71 million, which included gains on sales of assets of $83 million that were partially offset by $12 million related to restructuring charges and other credits. This compared with a net credit of $51 million in 2014, reflecting gains on sales of assets of $75 million that were partially offset by restructuring charges and other expenses of $24 million. These amounts are included in Other for segment reporting purposes.

Operating profit was $4.27 billion, or 32.9 percent of revenue, compared with $3.95 billion, or 30.3 percent of revenue, in 2014.

The income tax provision was $1.23 billion compared with $1.05 billion. The increase in the total tax provision was due to higher income before income taxes and, to a lesser extent, a lower benefit from non-U.S. effective tax rates. Our effective tax rate was 29 percent in 2015 and 27 percent in 2014.

Net income was $2.99 billion, an increase of $165 million, or 6 percent, from 2014. EPS was $2.82 compared with $2.57 in 2014.

Segment results – 2015 compared with 2014

Analog

	2015	2014	Change
Revenue	$8,339	$8,104	3 %
Operating profit	3,048	2,786	9 %
Operating profit % of revenue	36.6 %	34.4 %	

Analog revenue increased primarily due to HVAL. Power and SVA also grew, but to a lesser extent. HPA declined due to the mix of products shipped. Operating profit increased due to higher revenue and associated gross profit and, to a lesser extent, lower manufacturing costs.

Embedded Processing

	2015	2014	Change
Revenue	$2,787	$2,740	2 %
Operating profit	596	384	55 %
Operating profit % of revenue	21.4 %	14.0 %	

Embedded Processing revenue increased due about equally to Connectivity and Microcontrollers, which together offset a decline in Processors. Operating profit increased primarily due to lower operating expenses.

Other

	2015	2014	Change
Revenue	$1,874	$2,201	(15)%
Operating profit*	630	777	(19)%
Operating profit % of revenue	33.6 %	35.3 %	

*Includes Acquisition charges and Restructuring charges/other

Other revenue declined primarily due to custom ASICs. Revenue from DLP products also declined, but to a lesser extent. Operating profit declined primarily due to lower revenue and associated gross profit.

Financial condition

At the end of 2016, total cash (Cash and cash equivalents plus Short-term investments) was $3.49 billion, an increase of $272 million from the end of 2015.

Accounts receivable were $1.27 billion at the end of 2016. This was an increase of $102 million compared with the end of 2015. Days sales outstanding were 33 at the end of both 2016 and 2015.

Inventory was $1.79 billion at the end of 2016. This was an increase of $99 million from the end of 2015. Days of inventory at the end of 2016 were 126 compared with 115 at the end of 2015.

Liquidity and capital resources

Our primary source of liquidity is cash flow from operations. Additional sources of liquidity are Cash and cash equivalents, Short-term investments and a variable rate, revolving credit facility. Cash flows from operating activities for 2016 was $4.61 billion, an increase of $217 million from 2015 primarily due to an increase in Net income.

Our revolving credit facility is with a consortium of investment-grade banks and allows us to borrow up to $2 billion until March 2021. This credit facility also serves as support for the issuance of commercial paper. As of December 31, 2016, our credit facility was undrawn, and we had no commercial paper outstanding.

In 2016, investing activities used $650 million compared with $302 million in 2015. For 2016, Capital expenditures were $531 million compared with $551 million in 2015. Capital expenditures in both periods were primarily for semiconductor manufacturing equipment. In 2016, we had purchases of short-term investments, net of proceeds, that used cash of $113 million. In comparison, in 2015 we had proceeds from short-term investments, net of purchases, that provided cash of $125 million. In 2015, we received $110 million from asset sales, compared with none in 2016.

In 2016, financing activities used $3.81 billion compared with $4.29 billion in 2015. In 2016, we received proceeds of $499 million from the issuance of fixed-rate, long-term debt (net of original issuance discount) and repaid $1.00 billion of maturing debt. In 2015, we received proceeds of $498 million from the issuance of fixed-rate, long-term debt (net of original issuance discount) and repaid $1.00 billion of maturing debt. Dividends paid in 2016 were $1.65 billion compared with $1.44 billion in 2015, reflecting increases in the dividend rate, partially offset by fewer shares outstanding. During 2016, the quarterly dividend increased to $0.50 from $0.38 per share, resulting in an annualized dividend payment of $2.00 per share. During 2015, we increased our quarterly dividend to $0.38 from $0.34 per share. In 2016, we used $2.13 billion to repurchase 35.5 million shares of our common stock. This compared with $2.74 billion used in 2015 to repurchase 51.4 million shares. Employee exercises of stock options are also reflected in Cash flows from financing activities. In 2016, these exercises provided cash proceeds of $472 million compared with $396 million in 2015.

We had $1.15 billion of Cash and cash equivalents and $2.34 billion of Short-term investments as of December 31, 2016, with our U.S. entities owning about 80 percent of these amounts combined at the end of 2016. We believe we have the necessary financial resources and operating plans to fund our working capital needs, capital expenditures, dividend and debt-related payments, and other business requirements for at least the next 12 months.

Non-GAAP financial information

This MD&A includes references to free cash flow and ratios based on that measure. These are financial measures that were not prepared in accordance with generally accepted accounting principles in the United States (GAAP). Free cash flow was calculated by subtracting Capital expenditures from the most directly comparable GAAP measure, Cash flows from operating activities (also referred to as cash flow from operations). We believe that free cash flow and the associated ratios provide insight into our liquidity, our cash-generating capability and the amount of cash potentially available to return to shareholders, as well as insight into our financial performance. These non-GAAP measures are supplemental to the comparable GAAP measures. Reconciliation to the most directly comparable GAAP-based measures is provided in the table below.

	For Years Ended December 31,		
	2016	2015	2014
Cash flow from operations (GAAP)	$4,614	$4,397	$4,054
Capital expenditures	(531)	(551)	(385)
Free cash flow (non-GAAP)	$4,083	$3,846	$3,669
Revenue	$13,370	$13,000	$13,045
Cash flow from operations as a percent of revenue (GAAP)	34.5 %	33.8 %	31.1 %
Free cash flow as a percent of revenue (non-GAAP)	30.5 %	29.6 %	28.1 %

Long-term contractual obligations

	Payments Due by Period				
Contractual Obligations	2017	2018/2019	2020/2021	Thereafter	Total
Long-term debt (a)	$692	$ 1,350	$ 806	$ 1,021	$3,869
Purchase commitments (b)	132	173	26	5	336
Operating leases (c)	67	75	41	57	240
Deferred compensation plans (d)	18	38	37	99	192
Total (e)	$909	$ 1,636	$ 910	$ 1,182	$4,637

(a) Includes the related interest payments and amounts classified as the current portion of long-term debt, specifically obligations that will mature within 12 months.
(b) Includes payments for software licenses and contractual arrangements with suppliers where there is a fixed, non-cancellable payment schedule or minimum payments due with a reduced delivery schedule. Excluded from the table are cancellable arrangements. However, depending on when certain purchase arrangements may be cancelled, an additional $3 million of cancellation penalties may be required to be paid, which are not reflected in the table.
(c) Includes minimum payments for leased facilities and equipment and purchases of industrial gases under contracts accounted for as operating leases.
(d) Includes an estimate of payments for certain liabilities that existed at December 31, 2016.
(e) Excluded from the table are $243 million of uncertain tax liabilities under ASC 740, as well as any planned future funding contributions to retirement benefit plans. Amounts associated with uncertain tax liabilities have been excluded because of the difficulty in making reasonably reliable estimates of the timing of cash settlements with the respective taxing authorities. Regarding future funding of retirement benefit plans, we plan to contribute about $100 million in 2017, but funding projections beyond 2017 are not practical to estimate due to the rules affecting tax-deductible contributions and the impact from the plans' asset performance, interest rates and potential U.S. and non-U.S. legislation.

Critical accounting policies

In preparing our consolidated financial statements in conformity with accounting principles generally accepted in the United States, we use statistical analyses, estimates and projections that affect the reported amounts and related disclosures and may vary from actual results. We consider the following accounting policies to be those that are most important to the portrayal of our financial condition and that require the most subjective judgment. If actual results differ significantly from management’s estimates and projections, there could be a significant effect on our financial statements.

Revenue recognition

We recognize revenue from sales of our products, including sales to our distributors, when title and risk of loss pass, which usually occurs upon shipment or delivery to the customer or distributor, depending upon the terms of the sales order; when persuasive evidence of an arrangement exists; when sales amounts are fixed or determinable; and when collectability is reasonably assured. For sales to distributors, payment is due on our standard commercial terms and is not contingent upon resale of the products.

Revenue from sales of our products that are subject to inventory consignment agreements, including consignment arrangements with distributors, is recognized in accordance with the principles discussed above. Delivery occurs when the customer or distributor pulls product from consignment inventory that we store at designated locations.

We recognize revenue net of allowances, which are management's estimates of future credits to be granted to customers or distributors under programs common in the semiconductor industry. These allowances, which are not material, generally include volume-based incentives, product returns due to quality issues, incentives designed to maximize growth opportunities and special pricing arrangements. Allowances are based on analysis of historical data, current economic conditions and contractual terms and are recorded when revenue is recognized. We believe we can reasonably and reliably estimate allowances for credits to distributors in a timely manner.

In addition, we record allowances for accounts receivable that we estimate may not be collected. We monitor collectability of accounts receivable primarily through review of the accounts receivable aging. When collection is at risk, we assess the impact on amounts recorded for bad debts and, if necessary, will record a charge in the period such determination is made.

We recognize in revenue shipping fees, if any, received from customers. We include shipping and handling costs in cost of revenue. The majority of our customers pay these fees directly to third parties.

Income taxes

In determining Net income for financial statement purposes, we must make certain estimates and judgments in the calculation of tax provisions and the resultant tax liabilities, and in the recoverability of deferred tax assets that arise from temporary differences between the tax and financial statement recognition of revenue and expense.

In the ordinary course of global business, there may be many transactions and calculations where the ultimate tax outcome is uncertain. The calculation of tax liabilities involves dealing with uncertainties in the application of complex tax laws. We recognize potential liabilities for anticipated tax audit issues in the U.S. and other tax jurisdictions based on an estimate of the ultimate resolution of whether, and the extent to which, additional taxes will be due. Although we believe the estimates are reasonable, no assurance can be given that the final outcome of these matters will not be different than what is reflected in the historical income tax provisions and accruals.

As part of our financial process, we must assess the likelihood that our deferred tax assets can be recovered. If recovery is not likely, the provision for taxes must be increased by recording a reserve in the form of a valuation allowance for the deferred tax assets that are estimated not to be ultimately recoverable. In this process, certain relevant criteria are evaluated, including the existence of deferred tax liabilities that can be used to absorb deferred tax assets, the taxable income in prior years that can be used to absorb net operating losses and credit carrybacks, and taxable income in future years. Our judgment regarding future recoverability of our deferred tax assets based on these criteria may change due to various factors, including changes in U.S. or international tax laws and changes in market conditions and their impact on our assessment of taxable income in future periods. These changes, if any, may require material adjustments to the deferred tax assets and an accompanying reduction or increase in Net income in the period when such determinations are made. Also, our plans for the permanent reinvestment or eventual repatriation of the accumulated earnings of certain of our non-U.S. operations could change. Such changes could have a material effect on tax expense in future years.

In addition to the factors described above, the estimated annual tax rate, which excludes discrete items, reflected in forward-looking statements is based on then-current tax law. Significant changes in tax law enacted during the year could affect these estimates. Retroactive changes in tax law enacted subsequent to the end of a reporting period are reflected in the period of enactment.

Inventory valuation allowances

Inventory is valued net of allowances for unsalable or obsolete raw materials, work-in-process and finished goods. Statistical allowances are determined quarterly for raw materials and work-in-process based on historical disposals of inventory for salability and obsolescence reasons. For finished goods, quarterly statistical allowances are determined by comparing inventory levels of individual parts to historical shipments, current backlog and estimated future sales in order to identify inventory judged unlikely to be sold. A specific allowance for each material type will be carried if there is a significant event not captured by the statistical allowance. Examples are an end-of-life part or demand with imminent risk of cancellation. Allowances are also calculated quarterly for instances where inventoried costs for individual products are in excess of market prices for those products. Actual future write-offs of inventory for salability and obsolescence reasons may differ from estimates and calculations used to determine valuation allowances due to changes in customer demand, customer negotiations, technology shifts and other factors.

Changes in accounting standards

See Note 2 to the financial statements for information on new accounting standards.

Off-balance sheet arrangements

As of December 31, 2016, we had no significant off-balance sheet arrangements as defined in Item 303(a)(4)(ii) of SEC Regulation S-K.

Commitments and contingencies

See Note 12 to the financial statements for a discussion of our commitments and contingencies.

ITEM 7A. Quantitative and Qualitative Disclosures About Market Risk.
Foreign exchange risk

The U.S. dollar is the functional currency for financial reporting. Our non-U.S. entities own assets or liabilities denominated in U.S. dollars or other currencies. Exchange rate fluctuations can have a significant impact on taxable income in those jurisdictions, and consequently on our effective tax rate.

Our balance sheet also reflects amounts remeasured from non-U.S. dollar currencies. Because most of the aggregate non-U.S. dollar balance sheet exposure is hedged by forward currency exchange contracts, based on year-end 2016 balances and currency exchange rates, a hypothetical 10 percent plus or minus fluctuation in non-U.S. currency exchange rates relative to the U.S. dollar would result in a pre-tax currency exchange gain or loss of about $1 million.

We use these forward currency exchange contracts to reduce the earnings impact exchange rate fluctuations may have on our non-U.S. dollar net balance sheet exposures. For example, at year-end 2016, we had forward currency exchange contracts outstanding with a notional value of $494 million to hedge net balance sheet exposures (including $158 million to sell Japanese yen and $123 million to sell euros). Similar hedging activities existed at year-end 2015.

Interest rate risk

We have the following potential exposure to changes in interest rates: (1) the effect of changes in interest rates on the fair value of our investments in cash equivalents and short-term investments, which could produce a gain or a loss; and (2) the effect of changes in interest rates on the fair value of our debt.

As of December 31, 2016, a hypothetical 100 basis point increase in interest rates would decrease the fair value of our investments in cash equivalents and short-term investments by $7 million and decrease the fair value of our long-term debt by $104 million. Because interest rates on our long-term debt are fixed, changes in interest rates would not affect the cash flows associated with long-term debt.

Equity risk

Long-term investments at year-end 2016 include the following:

- Investments in mutual funds – includes mutual funds that were selected to generate returns that offset changes in certain liabilities related to deferred compensation arrangements. The mutual funds hold a variety of debt and equity investments.
- Investments in venture capital funds – includes investments in limited partnerships (accounted for under either the equity or cost method).
- Equity investments – includes non-marketable (non-publicly traded) equity securities.

Investments in mutual funds are stated at fair value. Changes in prices of the mutual fund investments are expected to offset related changes in deferred compensation liabilities such that a 10 percent increase or decrease in the investments' fair values would not materially affect operating results. Non-marketable equity securities and some venture capital funds are stated at cost. Impairments deemed to be other-than-temporary are expensed in Net income. Investments in the remaining venture capital funds are stated using the equity method. See Note 8 to the financial statements for details of equity and other long-term investments.

ITEM 8. Financial Statements and Supplementary Data.
List of Financial Statements (Item 15(a))

Income for each of the three years in the period ended December 31, 2016
Comprehensive income for each of the three years in the period ended December 31, 2016
Balance sheets at December 31, 2016 and 2015
Cash flows for each of the three years in the period ended December 31, 2016
Stockholders' equity for each of the three years in the period ended December 31, 2016

Schedules have been omitted because the required information is not present or not present in amounts sufficient to require submission of the schedule, or because the information required is included in the consolidated financial statements or the notes thereto.

Consolidated Statements of Income	For Years Ended December 31,		
(Millions of dollars, except share and per-share amounts)	2016	2015	2014
Revenue	$ 13,370	$ 13,000	$ 13,045
Cost of revenue (COR)	5,130	5,440	5,618
Gross profit	8,240	7,560	7,427
Research and development (R&D)	1,370	1,280	1,358
Selling, general and administrative (SG&A)	1,767	1,748	1,843
Acquisition charges	319	329	330
Restructuring charges/other	(15)	(71)	(51)
Operating profit	4,799	4,274	3,947
Other income (expense), net (OI&E)	211	32	21
Interest and debt expense	80	90	94
Income before income taxes	4,930	4,216	3,874
Provision for income taxes	1,335	1,230	1,053
Net income	$ 3,595	$ 2,986	$ 2,821
Earnings per common share (EPS):			
Basic	$ 3.54	$ 2.86	$ 2.61
Diluted	$ 3.48	$ 2.82	$ 2.57
Average shares outstanding (millions):			
Basic	1,003	1,030	1,065
Diluted	1,021	1,043	1,080
Cash dividends declared per common share	$ 1.64	$ 1.40	$ 1.24

As a result of accounting rule ASC 260, which requires a portion of Net income to be allocated to unvested restricted stock units (RSUs) on which we pay dividend equivalents, diluted EPS is calculated using the following:

Net income	$ 3,595	$ 2,986	$ 2,821
Income allocated to RSUs	(44)	(42)	(43)
Income allocated to common stock for diluted EPS	$ 3,551	$ 2,944	$ 2,778

See accompanying notes.

Consolidated Statements of Comprehensive Income (Millions of dollars)	For Years Ended December 31, 2016	 2015	 2014
Net income	$ 3,595	$ 2,986	$ 2,821
Other comprehensive income (loss)			
Net actuarial gains (losses) of defined benefit plans:			
Adjustment, net of tax benefit (expense) of $6, $36 and $25	(43)	(74)	(46)
Recognized within Net income, net of tax benefit (expense) of ($25), ($25) and ($21)	51	53	42
Prior service (cost) credit of defined benefit plans:			
Adjustment, net of tax benefit (expense) of $0, ($11) and $0	—	20	(1)
Recognized within Net income, net of tax benefit (expense) of $2, $0 and $0	(3)	—	—
Derivative instruments:			
Recognized within Net income, net of tax benefit (expense) of $0, ($1) and ($1)	1	1	1
Other comprehensive income (loss), net of taxes	6	—	(4)
Total comprehensive income	$ 3,601	$ 2,986	$ 2,817

See accompanying notes.

Consolidated Balance Sheets	December 31,	
(Millions of dollars, except share amounts)	2016	2015
Assets		
Current assets:		
Cash and cash equivalents	$ 1,154	$ 1,000
Short-term investments	2,336	2,218
Accounts receivable, net of allowances of ($17) and ($7)	1,267	1,165
Raw materials	102	109
Work in process	954	846
Finished goods	734	736
Inventories	1,790	1,691
Prepaid expenses and other current assets	910	1,000
Total current assets	7,457	7,074
Property, plant and equipment at cost	4,923	5,465
Accumulated depreciation	(2,411)	(2,869)
Property, plant and equipment, net	2,512	2,596
Long-term investments	235	221
Goodwill, net	4,362	4,362
Acquisition-related intangibles, net	1,264	1,583
Deferred income taxes	374	201
Capitalized software licenses, net	52	46
Overfunded retirement plans	96	85
Other assets	79	62
Total assets	$ 16,431	$ 16,230
Liabilities and stockholders' equity		
Current liabilities:		
Current portion of long-term debt	$ 631	$ 1,000
Accounts payable	396	386
Accrued compensation	710	664
Income taxes payable	83	95
Accrued expenses and other liabilities	444	410
Total current liabilities	2,264	2,555
Long-term debt	2,978	3,120
Underfunded retirement plans	129	196
Deferred income taxes	33	37
Deferred credits and other liabilities	554	376
Total liabilities	5,958	6,284
Stockholders' equity:		
Preferred stock, $25 par value. Authorized – 10,000,000 shares		
Participating cumulative preferred. None issued.	—	—
Common stock, $1 par value. Authorized – 2,400,000,000 shares		
Shares issued – 1,740,815,939	1,741	1,741
Paid-in capital	1,674	1,629
Retained earnings	33,107	31,176
Treasury common stock at cost		
Shares: 2016 – 744,831,978; 2015 – 729,547,527	(25,523)	(24,068)

Accumulated other comprehensive income (loss), net of taxes (AOCI)	(526)	(532)
Total stockholders' equity	10,473	9,946
Total liabilities and stockholders' equity	$ 16,431	$ 16,230