

*exploring*

# NEW HORI ZONS



# *EXPLORING NEW HORIZONS*

2017 ANNUAL REPORT

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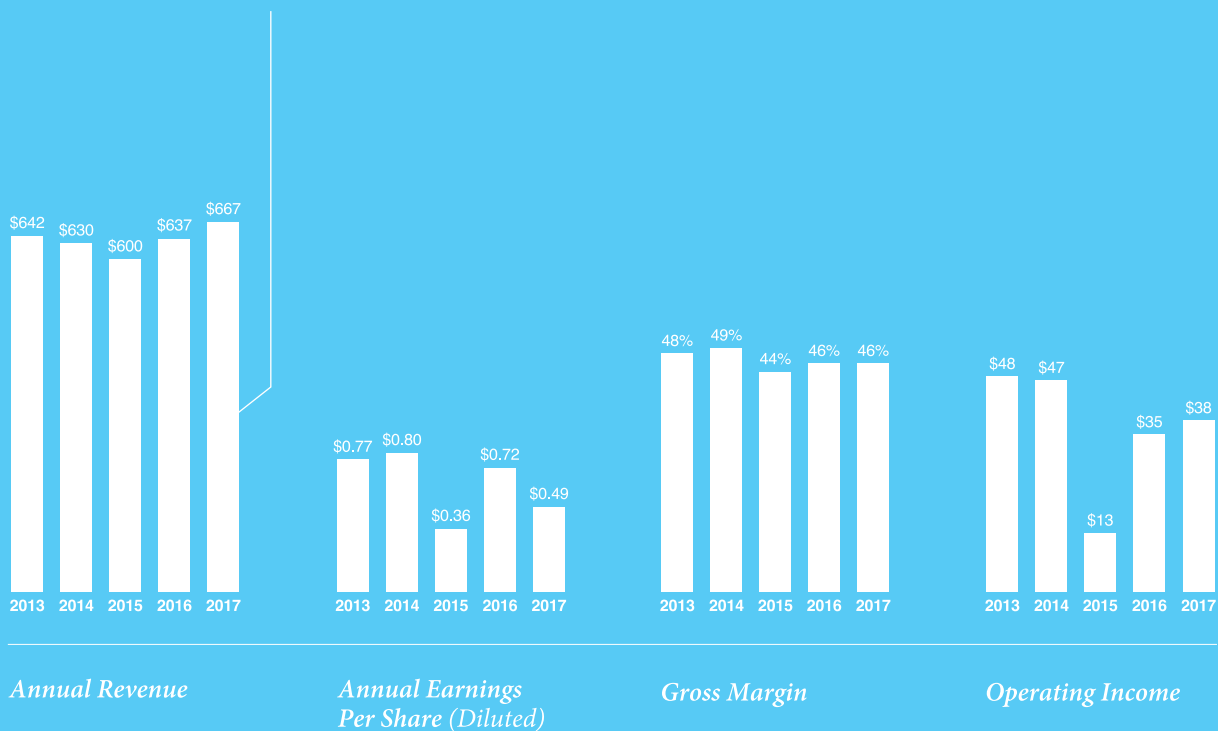


# FINANCIAL HIGHLIGHTS

COMPANY FINANCIAL SUMMARY  
(DOLLARS IN MILLIONS, EXCEPT PER SHARE AMOUNTS)

# \$667M

## ANNUAL REVENUE FY2017



## Consolidated Statements of Income Data

(IN THOUSANDS, EXCEPT PER SHARE AMOUNTS)

	2017	2016
Total sales	\$666,900	\$636,781
Income before provision for income taxes	\$44,687	\$46,895
Net income	\$23,840	\$35,229
Earnings per common share (Diluted)	\$0.49	\$0.72

## Consolidated Balance Sheet Data

(IN THOUSANDS)



<sup>1</sup> Net of \$66 million in stock repurchases and \$18 million in dividend payments during 2015

<sup>2</sup> Net of \$26 million in stock repurchases and \$18 million in dividend payments during 2016

<sup>3</sup> Net of \$17 million in stock repurchases and \$17 million in dividend payments during 2017

# *LETTER TO SHAREHOLDERS*

2017 ANNUAL REPORT

**ADURAN<sup>®</sup>**

# Exploring New Horizons

Today, we can't imagine life without the Internet or not having Internet access anywhere, anytime we want it. What once seemed like a fantasy has changed life as we know it and there's no turning back. Internet users' bandwidth availability increased by 50 percent per year from 1983 to 2018 and shows no signs of stopping. In fact, it will likely grow faster. The mainstreaming of content-rich technologies like 4K TV and virtual and augmented reality will increase the demand for bandwidth even further. Over-the-top TV streaming services require a minimum download speed of 1.5Mbps for standard definition (SD) programs. That jumps to 13Mbps for 4K Ultra HD TV. Add virtual or augmented reality and the requirement spikes to a range from 600Mbps to several gigabits per second for a fully immersive experience.

ADTRAN remains focused on being the world's most extensive access solution provider with clear industry-leading solutions for fiber, copper and 5G wireless access. With the industry's most comprehensive access virtualization products, we believe we are well positioned to capitalize on the broadband expansion underway as carriers, including cable operators, around the world upgrade their infrastructure to meet never-ending customer demand. We continue to explore new horizons, enabling operators of all types and sizes to provide the access you need to make your fantasies a reality.

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The access you  
need to make your  
fantasies a reality

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2017

# The Year in Review

After two solid years coming out of recession, we entered 2017 with continued optimism as communication service providers (CSPs) of all types continued their quest to deliver increased broadband speeds to their customer base. ADTRAN posted three record quarters in 2017. Unfortunately, merger and acquisition activity at one of our Tier 1 North American CSPs resulted in our fourth quarter and full year falling short of expectations. Despite this, we achieved the second highest revenue in company history at \$667 million, up approximately five percent over 2016. We are proud of the company's performance and the progress we made in both product and market development activities during the past year.

We made great progress in software development, achieved significant technical milestones with both copper and fiber solutions, and saw promising expansion in adjacent markets, specifically cable and wireless. We experienced solid growth in our Tier 1 CSP business in the United States (U.S.) and grew our regional CSP accounts nine percent over the previous year.

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Great progress in  
software development

Globally, we accelerated our growth in both Tier 1 and regional CSP accounts outside the U.S. resulting in a 17 percent year-over-year increase in international revenue. The insistence for high-speed broadband services around the world continues to strengthen the demand for our solutions.

We continue to see tremendous enthusiasm for our Mosaic Cloud Platform, the industry's first, most open and complete SD-Access solution. With deployments in over 15 global accounts with a variety of use cases and 13 global awards, the Mosaic Cloud Platform extended its position as the world's most awarded solution for providing modular, component-based network architectures that are open, disaggregated, programmable and scalable. We also announced the Mosaic Open Network Alliance to foster the widespread development and industry adoption of Software Defined Networking (SDN) and Network Functions Virtualization (NFV) solutions based on open standards. Within the first six months, eight companies representing a variety of leading technologies joined the alliance. We look forward to welcoming additional members moving forward.

We reached several solutions milestones in 2017. Our Fiber-to-the-Premises (FTTP) solutions had a record revenue year resulting from broadband deployments by regional CSPs. We celebrated the shipment of our 10 millionth vectoring port in January 2017 and added 4.5 million more ports by the end of the year, due in part to our success with North America's largest vectoring deployment that has now provided services to over 1.7 million households.

# Focusing on the Future

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## innovative products and technologies

From a company perspective, our main areas of focus are broadband, our Mosaic SD-Access solutions, subscriber solutions and experience, and services integration. We will continue to expand the horizons in these areas as we explore new markets and expand into new opportunities.



### **Broadband**

The knowledge, collaboration, and technologies that have resulted from high-speed connectivity are seemingly limitless. For most of us, it is a challenge to remember life before cell phones, streaming services, and social media – all made possible by broadband.

The primary means for CSPs to address the need for bandwidth is technology innovation. Over the last decade, wireline carriers have had a difficult time keeping up with cable and wireless operators. New technologies like Gfast, vectoring, 10G PON, and SD-Access provide a window of opportunity, enabling them to get the most bandwidth from existing infrastructure while exploring the new horizons of SDN and NFV that will soon make disaggregated networks a reality.

We announced several innovative products and technologies in 2017 that enable our customers to expand the range and reach of gigabit services. Our Gfast Gigabit-to-the-Basement solutions, selected for deployment by a Tier 1 CSP, offer a key competitive advantage by delivering gigabit services 10 times farther and up to five times faster than competitive offerings. Our SDX solutions, including 100G Aggregation/Top of Rack switches, 10G Carrier Ethernet Access Switches, virtual Optical Line Terminals (OLTs), and multiple Optical Network Terminals (ONTs), take SDN functionality to product implementation in broadband access networks. These solutions leverage the Mosaic architecture and enable CSPs to accelerate their paths to open, programmable, and scalable networks. By deploying the SDX portfolio in concert with a cloud platform, such as Mosaic, CSPs can achieve data-center economy and agility in their broadband and business services access networks. These solutions complement our widely deployed, field-proven Total Access<sup>®</sup> 5000 and hi-X platforms which offer the technology, performance, and scale required for ultra-high speed broadband deployments and support for new, innovative technologies like SD-Access.



## We experienced significant traction with Mosaic in 2017

Government programs to support broadband expansion, especially to the tens of millions of unserved and underserved Americans, continue to emerge, and there is growing support for increased spending in infrastructure, including broadband. In 2017, some 207 Tier 3 carriers accepted almost \$5.3 billion in Alternative Connect America Cost Model (A-CAM) funding to be used over a 10-year period to deliver higher-speed broadband services to citizens in rural America. In conjunction with this opportunity, ADTRAN announced its Gigabit Accelerator Program, offering key infrastructure elements and service offerings along with marketing assistance to service providers who received funding as a means to kick-start these programs.

The insistence for greater bandwidth is igniting the need for more fiber infrastructure. We saw increased demand for a variety of fiber-based services (FTTx) in 2017. Many Tier 1 CSPs and cable MSOs, continued or expanded their fiber-based service roll-outs. However, as network convergence continues and bandwidth demand spreads to business services and infrastructure backhaul, CSPs are turning to the promises of higher-speed services like 10G.

10G broadband enables CSPs to leverage their existing fiber infrastructure to expand residential services while entering the premium business services market. Our 10G PON solutions are ideal for CSPs who have found other PON upgrade paths to be too costly or insufficient to meet the needs of business customers requiring symmetric services.

10G services will be crucial as 5G networks become a reality. Support for low-latency applications and network timing synchronization make 10G technologies ideal to support mobile x-haul

services and 5G densification initiatives. As the number of mobile and fixed-wireless cellular and radio sites expands exponentially due to the range limitations of 5G networks, 10G access will play a critical role in providing access and termination. ADTRAN will be at the forefront helping our customers explore these and other new horizons made possible by broadband.

### **Mosaic – The Key to SD-Access**

SD-Access fueled by SDN and NFV is a new area for CSPs that holds great promise. They understand the need to develop open, programmable and scalable networks to compete with over-the-top Web-scale operators. Gartner recently noted that the initial focus of SDN/NFV is shifting toward the business case and the opportunity to create new revenue. Services such as virtual CPE (vCPE) represent high revenue potential and can be leveraged quickly. However, the more immediate benefit will be found in solutions that help improve business agility, operational efficiency, and service modeling.

The Mosaic Cloud Platform and associated solutions address the key needs of CSPs, enabling them to expedite return on investment by speeding time to market, and automating back-office processes and subscriber turn-up. ADTRAN remains in the center of the developing SD-Access market and will continue to aid CSPs as we explore the wealth of benefits these new technologies offer.

Our continued software development enabled us to announce a number of exciting enhancements to the Mosaic Cloud Platform, including the launch of the Mosaic Broadband Subscriber Management Suite, the SD-Access Accelerator program, the Mosaic Subscriber Solutions and Experience suite

of software tools and the Mosaic Open Network Alliance. These programs will play a critical role in expanding and supporting the growing ecosystem of products, services, and companies committed to building an open, scalable and flexible broadband network.

Customers and industry leaders enthusiastically embraced Mosaic in 2017. We celebrated the first Tier 1 deployments of our XGS-PON solution, using the industry's first deployed virtual OLT and our Mosaic SD-Access platform. We also made significant progress with Gfast and Mosaic Cloud Platform deployments. These solutions have moved to full production with leading Tier 1 service providers in the U.S., Europe, and Asia Pacific and are ramping up in commercial deployments. Our 10G PON solutions are currently in trials as part of a Tier 1 U.S. CSP's launch of services featuring virtualized NG-PON2 products and XGS-PON solutions. Additionally, we trialed the world's first 212 MHz Gfast solution at a Tier 1 European carrier. This solution provides over 1Gbps with enhanced upstream performance over a single pair of copper using Mosaic for management.

The Mosaic Cloud Platform is the centerpiece of the Mosaic Open Network Alliance, where member companies collaborate on SDN and NFV solutions that will underpin a new approach to access. Our developments are enabling ADTRAN to better serve our growing customer base in the U.S. and abroad as the industry moves toward a fully realized SD-Access infrastructure.

### **Subscriber Solutions and Experience**

Subscriber Solutions and Experience remain an important part of our business. This segment

represents both hardware and software solutions including residential and business CPE and Blue-socket Wi-Fi solutions. Business CPE continued to perform well spurred by roll-outs of 500Mbps and 1Gbps services and growth in business voice and data services by U.S. CSPs. We more than tripled our number of MSP partners and brought many new managed services opportunities to market.

These solutions leverage the Mosaic Cloud Platform to take user experience to the next level and put the customer in charge. With the click of a button, customers can select new services or features, typically without a phone call or the assistance of a service technician. This provides greater freedom for the customer resulting in greater customer satisfaction. It also brings added benefits to the service provider through the elimination of truck rolls and the automation of back-office and billing processes.

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put the customer  
in charge

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## variable-cost solutions to fixed-cost problems

### **Services and Solutions Integration**

Services and Support continued to be a bright spot for the company with record performance in 2017, growing 13.7 percent over the previous year and contributing over \$126 million to company revenue. We added over 40 customers and expanded our geographic footprint with customer wins in Europe and Australia.

Our services center on four key areas—System Integration, Network Implementation, Consulting, and Maintenance. Operators of all types and sizes realize the benefit of having ADTRAN drive their installation and implementation of new services. These programs highlight our engineering expertise and understanding of how access networks are designed, deployed and maintained. We also alleviate the burden of scale by providing variable-cost solutions to fixed-cost problems. We partner with our customer to tailor a program specifically meeting its needs and those of its customers, resulting in expedited time to market and a faster return on investment.

# New Markets... New Opportunities

We have identified a wealth of opportunities in adjacent markets like cable/MSO solutions, 5G, and fixed wireless solutions. These new horizons offer the potential for great reward moving forward and align well with our expertise in broadband access.

## **Cable/MSO**

The cable industry is experiencing unprecedented growth in broadband subscribers. According to Broadbandtrends, as of year-end 2017, cable represented 61 percent of broadband subscribers in North America compared to CSPs with 37 percent. Like their CSP counterparts, cable operators are finding themselves at a crossroads. They are at the beginning of an upgrade cycle that only happens every 10 to 15 years and lasts for only five to seven years. They too need a more agile network. A wealth of technologies exist to help these operators reach more customers with higher speeds, including fiber (PON) solutions, distributed access, and disaggregated networks.

ADTRAN is perfectly positioned to help with this transition. We have been providing end-user solutions to this market for almost two decades. In 2016, our solution portfolio was strengthened with the acquisition of CommScope's active fiber access product line, helping us to more than double revenue in this market. This year, we completed lab testing and began the first deployment of our 10G EPON solution with a major U.S. cable MSO, marking a significant milestone for our company. We experienced good market penetration with

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ADTRAN is  
perfectly positioned  
to help cable/MSOs

awards and lab trials underway with Tier 1 MSOs in the U.S. and growing opportunities in other countries. Moving forward, we will continue to have a strong focus on the North American cable market, augmented by opportunities in both Europe and South America. We believe the cable market represents a major growth area for our company in years to come.

## The Wireless Revolution

Many visionaries believe we are in the early stages of the next technological revolution that will result in the development of a ubiquitous wireless network marrying data collection and computation with billions of devices. Mobile data consumption is expected to grow seven-fold between 2016 and 2021, and account for 20 percent of total Internet traffic according to Cisco. Experts predict that during this period mobile video data, fueled by new technologies such as augmented and virtual reality, will be the fastest growing segment of mobile traffic with an 870 percent increase. This will bring forth yet another new opportunity for ADTRAN—wireless access/backhaul with 5G.

Several CSPs began fixed wireless tests in 2017 and those are expected to continue throughout 2018. ADTRAN has a portfolio of field-proven solutions ideal for wireless applications that will be a critical piece of the puzzle for CSPs looking to wireless to meet bandwidth demands.

5G represents a technological paradigm shift that Technology Review states will become the underlying fabric of an entire ecosystem of fully connected intelligent sensors and devices. Likewise, research firm IHS Markit recently noted that 5G has the potential to unlock up to \$12.3 trillion of revenue across a broad range of industries including a long list of infrastructure and x-haul requirements.

The demands of 5G are faster speeds, greater bandwidth, and lower latency – the same issues wireline providers face today, just on a larger scale. ADTRAN advanced broadband solutions can address each of these needs.

Earlier this year, we announced the upgrade of our NG-PON2 solutions to include non-service impacting wavelength agility and ultralow latency as a means to support 5G and other mission-critical services. We also introduced developmental breakthroughs with our millimeter wave wireless backhaul and broadband access solutions. We have seen significant interest in these solutions for both CAF and traditional applications, with several deployments in 2017 and additional trials and deployments underway. 5G is a new horizon for ADTRAN that builds on our core competency—access.

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ADTRAN can play a significant role in 5G

# A Look Ahead

ADTRAN continues to have a broad range of opportunities ahead of us, demonstrated by announced wins and deployments by leading Tier 1 carriers and dozens of new infrastructure customers.

We expect continued demand from both domestic and international carrier and cable customers wanting to deliver more services farther and at higher speeds. We also anticipate additional developments in the areas of SD-Access, fixed wireless, and 5G as open, programmable and scalable networks unleash the capacity and capability of all the network has to offer.

To this end, we continue our unwavering commitment to research and development which enables us to deliver the products, services, and support that our customers require as they move forward with gigabit and other ultra-broadband services.

ADTRAN boasts a growing portfolio of active patents that is almost 600 strong. We focus on enabling CSPs and cable operators to reach every customer over any network and any device simply and cost-effectively.

Finally, and most importantly, I would like to thank our employees. We have a global workforce over 2,000 strong. These men and women continually explore new horizons through product development, patent awards, service on industry boards and standards organizations, and much more. Their work exceeds our expectations and those of our customers. They strive daily to achieve our vision to enable a fully connected world where the power to communicate is available to everyone, everywhere.

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the innovation our customers need ”



Tom Stanton, Chairman & CEO  
ADTRAN, Inc.

**ADTRAN®**

*BRINGING THE WORLD TOGETHER*

# Financial Results

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This annual report contains forward-looking statements which reflect management’s best judgment based on factors currently known. However, these statements involve risks and uncertainties, including the successful development and market acceptance of new products, the degree of competition in the market for such products, the product and channel mix, component costs, manufacturing efficiencies, and other risks detailed in our annual report on Form 10-K for the year ended December 31, 2017. These risks and uncertainties could cause actual results to differ materially from those in the forward-looking statements included in this annual report.



# Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

ADTRAN's common stock is traded on the NASDAQ Global Select Market under the symbol ADTN. As of January 31, 2018, ADTRAN had 176 stockholders of record and approximately 7,202 beneficial owners of shares held in street name. The following table shows the high and low closing prices per share for our common stock as reported by NASDAQ for the periods indicated.

## Common Stock Prices

2017	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
High	\$23.20	\$20.65	\$24.00	\$24.50
Low	\$20.75	\$19.10	\$20.05	\$19.35
2016	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
High	\$20.47	\$20.43	\$19.74	\$23.15
Low	\$16.60	\$17.14	\$17.81	\$17.90

The following table shows the shareholder dividends paid in each quarter of 2017 and 2016. The Board of Directors presently anticipates that it will declare a regular quarterly dividend so long as the present tax treatment of dividends exists and adequate levels of liquidity are maintained.

## Dividends per Common Share

2017	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
	\$0.09	\$0.09	\$0.09	\$0.09
2016	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
	\$0.09	\$0.09	\$0.09	\$0.09

## Stock Repurchases

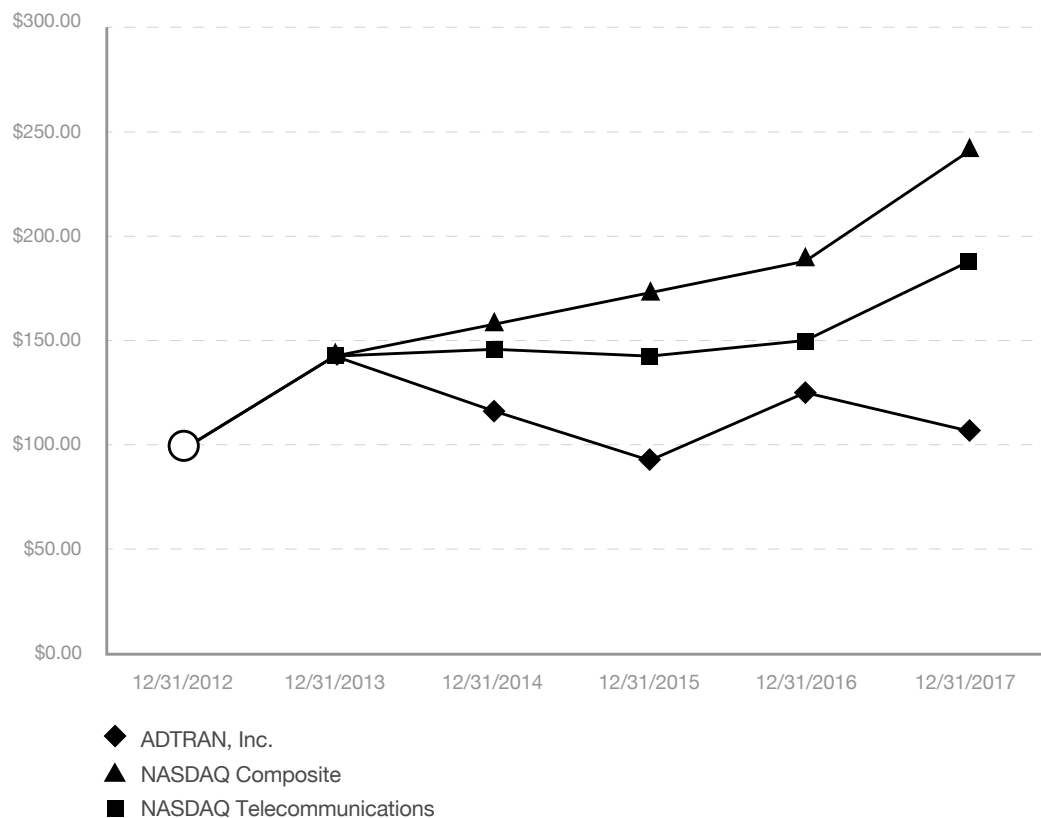
The following table sets forth repurchases of our common stock for the months indicated.

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)	Maximum Number of Shares That May Yet Be Purchased Under the Plans or Programs
October 1, 2017 – October 31, 2017	—	\$—	—	3,559,068
November 1, 2017 – November 30, 2017	—	\$—	—	3,559,068
December 1, 2017 – December 31, 2017	—	\$—	—	3,559,068
<b>Total</b>	—	—	—	—

(1) Since 1997, our Board of Directors has approved multiple share repurchase programs that have authorized open market repurchase transactions of up to 50.0 million shares of our common stock, which will be implemented through open market or private purchases from time to time as conditions warrant.

## Stock Performance Graph

Our common stock began trading on the NASDAQ National Market on August 9, 1994. The price information reflected for our common stock in the following performance graph and accompanying table represents the closing sales prices of the common stock for the period from December 31, 2012 through December 31, 2017, on an annual basis. The graph and the accompanying table compare the cumulative total stockholders' return on our common stock with the NASDAQ Telecommunications Index and the NASDAQ Composite Index. The calculations in the following graph and table assume that \$100 was invested on December 31, 2012 in each of our common stock, the NASDAQ Telecommunications Index and the NASDAQ Composite Index and also assume dividend reinvestment.



	12/31/12	12/31/13	12/31/14	12/31/15	12/31/16	12/31/17
ADTRAN, Inc.	\$100.00	\$140.41	\$115.16	\$92.93	\$122.99	\$108.26
NASDAQ Composite	\$100.00	\$141.63	\$162.09	\$173.33	\$187.19	\$242.29
NASDAQ Telecommunications	\$100.00	\$141.28	\$145.43	\$140.97	\$150.94	\$184.81

## Selected Financial Data

### Income Statement Data

(In thousands, except per share amounts)

Year Ended December 31,	2017	2016	2015	2014	2013
Sales	\$666,900	\$636,781	\$600,064	\$630,007	\$641,744
Cost of sales	363,240	345,437	333,167	318,680	332,858
<b>Gross profit</b>	<b>303,660</b>	<b>291,344</b>	<b>266,897</b>	<b>311,327</b>	<b>308,886</b>
Selling, general and administrative expenses	135,489	131,805	123,542	131,958	129,366
Research and development expenses	130,434	124,804	129,876	132,258	131,055
<b>Operating income</b>	<b>37,737</b>	<b>34,735</b>	<b>13,479</b>	<b>47,111</b>	<b>48,465</b>
Interest and dividend income	4,380	3,918	3,953	5,019	7,012
Interest expense	(556)	(572)	(596)	(677)	(2,325)
Net realized investment gain	4,685	5,923	10,337	7,278	8,614
Other income (expense), net	(1,559)	(651)	(1,465)	1,175	(911)
Gain on bargain purchase of a business	—	3,542	—	—	—
<b>Income before provision for income taxes</b>	<b>44,687</b>	<b>46,895</b>	<b>25,708</b>	<b>59,906</b>	<b>60,855</b>
Provision for income taxes (1)	(20,847)	(11,666)	(7,062)	(15,286)	(15,061)
<b>Net income</b>	<b>\$23,840</b>	<b>\$35,229</b>	<b>\$18,646</b>	<b>\$44,620</b>	<b>\$45,794</b>
Weighted average shares outstanding – basic	48,153	48,724	51,145	55,120	59,001
Weighted average shares outstanding – assuming dilution (2)	48,699	48,949	51,267	55,482	59,424
Earnings per common share – basic	\$0.50	\$0.72	\$0.36	\$0.81	\$0.78
Earnings per common share – assuming dilution (2)	\$0.49	\$0.72	\$0.36	\$0.80	\$0.77
Dividends declared and paid per common share	\$0.36	\$0.36	\$0.36	\$0.36	\$0.36

### Balance Sheet Data

(In thousands)

At December 31,	2017	2016	2015	2014	2013
Working capital (3)	\$306,296	\$226,367	\$219,219	\$214,985	\$260,252
Total assets	\$669,094	\$667,235	\$632,904	\$738,694	\$789,898
Total debt	\$26,700	\$27,800	\$28,900	\$30,000	\$46,500
Stockholders' equity	\$497,911	\$479,517	\$480,160	\$549,013	\$604,606

(1) Provision for income taxes in 2017 reflects an estimated expense of \$11.9 million related to the Tax Cuts and Jobs Act, which was signed into law on December 22, 2017. See Note 11 of Notes to Consolidated Financial Statements for additional information.

(2) Assumes exercise of dilutive stock options calculated under the treasury method. See Notes 1 and 15 of Notes to Consolidated Financial Statements.

(3) Working capital consists of current assets less current liabilities. Amounts prior to 2016 have been recast to conform to the current period's presentation as a result of our adoption of Accounting Standards Update 2015-17, Balance Sheet Classification of Deferred Taxes. See Note 1 of Notes to Consolidated Financial Statements.

# Management's Discussion and Analysis of Financial Condition and Results of Operations

## Overview

ADTRAN, Inc. (ADTRAN) is a leading global provider of networking and communications equipment. Our solutions enable voice, data, video and Internet communications across a variety of network infrastructures. These solutions are deployed by many of the United States' and the world's largest communications service providers (CSPs), distributed enterprises and small and medium-sized businesses, public and private enterprises, and millions of individual users worldwide.

Our success depends upon our ability to increase unit volume and market share through the introduction of new products and succeeding generations of products having lower selling prices and increased functionality as compared to both the prior generation of a product and to the products of competitors. An important part of our strategy is to reduce the cost of each succeeding product generation and then lower the product's selling price based on the cost savings achieved in order to gain market share and/or improve gross margins. As a part of this strategy, we seek in most instances to be a high-quality, low-cost provider of products in our markets. Our success to date is attributable in large measure to our ability to design our products initially with a view to their subsequent redesign, allowing both increased functionality and reduced manufacturing costs in each succeeding product generation. This strategy enables us to sell succeeding generations of products to existing customers, while increasing our market share by selling these enhanced products to new customers.

In addition to reporting our Network Solutions and Services & Support segments, we report revenue across three categories—**Access & Aggregation**, **Customer Devices**, and **Traditional & Other Products**.

**Access & Aggregation** solutions are used by CSPs to connect their network infrastructure to their subscribers. This category includes software and hardware-based products and services that aggregate and/or originate access technologies. The portfolio of ADTRAN solutions within this category includes a wide array of modular or fixed physical form factors designed to deliver the best technology and economic fit based on the target subscriber density and environmental conditions.

The Access & Aggregation category includes product and service families such as

- Mosaic branded network management and subscriber services control and orchestration software within a SD-Access architecture
- SDX series of SDN-controlled programmable network elements that form the hardware components within a SD-Access architecture
- Total Access® 5000 Series Fiber to the Premises (FTTP) and Fiber to the Node (FTTN) Multi-Service Access Nodes (MSAN)
- hiX 5600 Series fiber aggregation and FTTN MSAN
- Fiber to the Distribution Point (FTTdp) Gfast Optical Network Units (ONU)
- GPON, EPON and 10G PON Optical Line Terminals (OLT)
- Optical Networking Edge (ONE) aggregation
- IP-based Digital Subscriber Line Access Multiplexers (DSLAMs)
- Cabinet and Outside-Plant (OSP) enclosures and services
- Pluggable optical transceivers (i.e., SFP, SFP+, XFP, QSFP), cables and other miscellaneous materials
- Planning, engineering, program management, maintenance, installation and commissioning services to implement customer network solutions
- Other products and services that are generally applicable to Access & Aggregation

**Customer Devices** includes our products and services that provide end users access to CSP networks. Our Customer Devices portfolio includes a comprehensive array of service provider and enterprise hardware and software products and services.

The Customer Devices category includes products and services such as:

- Broadband customer premises solutions, including Passive Optical Network (PON) and point-to-point Ethernet Optical Network Terminals (ONTs)
- Radio Frequency over Glass (RfOG) MicroNodes
- Residential and business gateways
- Wi-Fi access points and associated powering and switching infrastructure
- Enterprise Session Border Controllers (eSBC)
- Branch office and access routers
- Carrier Ethernet services termination devices
- Voice over Internet Protocol (VoIP) media gateways
- ProServices pre-sale and post-sale technical support
- Planning, engineering, program management, maintenance, installation and commissioning services to implement customer devices solutions into consumer, small business and enterprise locations
- Other products and services that are generally applicable to customer devices

**Traditional & Other Products** generally includes a mix of prior generation technologies' products and services, as well as other products and services that do not fit within the Access & Aggregation or Customer Devices categories.

The Traditional & Other Products category includes products and services such as:

- Time Division Multiplexed (TDM) and Asynchronous Transfer Mode (ATM)-based aggregation systems and customer devices
- HDSL, ADSL and other mature technologies used to deliver business and residential services over the CSP access and customer networks
- Other products and services that do not fit within the Access & Aggregation and Customer Devices categories

Sales were \$666.9 million in 2017, compared to \$636.8 million in 2016 and \$600.1 million in 2015. Our gross profit margin was 45.5% in 2017, compared to 45.8% in 2016 and 44.5% in 2015. Net income was \$23.8 million in 2017, compared to \$35.2 million in 2016 and \$18.6 million in 2015. Earnings per share, assuming dilution, were \$0.49 in 2017, compared to \$0.72 in 2016 and \$0.36 in 2015. Earnings per share in 2017, 2016 and 2015 include the effect of the repurchase of 0.9 million, 1.4 million and 4.0 million shares of our stock in those years, respectively.

Our operating results have fluctuated on a quarterly basis in the past, and may vary significantly in future periods due to a number of factors, including customer order activity and backlog. Backlog levels vary because of seasonal trends, the timing of customer projects and other factors that affect customer order lead times. Many of our customers require prompt delivery of products. This requires us to maintain sufficient inventory levels to satisfy anticipated customer demand. If near-term demand for our products declines, or if potential sales in any quarter do not occur as anticipated, our financial results could be adversely affected. Operating expenses are relatively fixed in the short term; therefore, a shortfall in quarterly revenues could significantly impact our financial results in a given quarter.

Our operating results may also fluctuate as a result of a number of other factors, including a decline in general economic and market conditions, foreign currency exchange rate movements, increased competition, customer order patterns, changes in product and services mix, timing differences between price decreases and product cost reductions, product warranty returns, expediting costs and announcements of new products by us or our competitors. Additionally, maintaining sufficient inventory levels to assure prompt delivery of our products increases the amount of inventory that may become obsolete and increases the risk that the obsolescence of this inventory may have an adverse effect on our business and operating results. Also, not maintaining sufficient inventory levels to assure prompt delivery of our products may cause us to incur expediting costs to meet customer delivery requirements, which may negatively impact our operating results in a given quarter.

Accordingly, our historical financial performance is not necessarily a meaningful indicator of future results, and, in general, management expects that our financial results may vary from period to period. See Note 16 of Notes to Consolidated Financial Statements for additional information. *For a discussion of risks associated with our operating results, see Item 1A of this report.*

### Critical Accounting Policies and Estimates

An accounting policy is deemed to be critical if it requires an accounting estimate to be made based on assumptions about matters that are highly uncertain at the time the estimate is made, if different estimates reasonably could have been used, or if changes in the accounting estimate that are reasonably likely to occur could materially impact the results of financial operations. We believe the following critical accounting policies affect our more significant judgments and estimates used in the preparation of our consolidated financial statements. These policies have been consistently applied across our two reportable segments: (1) Network Solutions and (2) Services & Support.

- Revenue is generally recognized when persuasive evidence of an arrangement exists, delivery has occurred, the product price is fixed or determinable, collection of the resulting receivable is reasonably assured, and product returns are reasonably estimable. For product sales, revenue is generally recognized upon shipment of the product to our customer in accordance with the title transfer terms of the sales agreement, generally Ex Works, per International Commercial Terms. In the case of consigned inventory, revenue is recognized when the end customer assumes ownership of the product. Contracts that contain multiple deliverables are evaluated to determine the units of accounting, and the consideration from the arrangement is allocated to each unit of accounting based on the relative selling price and corresponding terms of the contract. When this is not available, we are generally not able to determine third-party evidence of selling price because of the extent of customization among competing products or services from other companies. In these instances, we use best estimates to allocate consideration to each respective unit of accounting. These estimates include analysis of respective bills of material and review and analysis of similar product and service offerings. We record revenue associated with installation services when respective contractual obligations are complete. In instances where customer acceptance is required, revenue is deferred until respective acceptance criteria have been met. Contracts that include both installation services and product sales are evaluated for revenue recognition in accordance with contract terms. As a result, installation services may be considered a separate deliverable or may be considered a combined single unit of accounting with the delivered product. Generally, either the purchaser, ADTRAN, or a third party can perform the installation of our products. Sales taxes invoiced to customers are included in revenue, and represent less than one percent of total revenues. The corresponding sales taxes paid are included in cost of goods sold. Value added taxes collected from customers in international jurisdictions are recorded in accrued expenses as a liability. Revenue is recorded net of discounts. Sales returns are recorded as a reduction of revenue and accrued based on historical sales return experience, which we believe provides a reasonable estimate of future returns.

A significant portion of our products are sold in the U.S. through a non-exclusive distribution network of major technology distributors. These organizations then distribute or provide fulfillment services to an extensive network of VARs and SIs. VARs and SIs may be affiliated with us as a channel partner, or they may purchase from the distributor on an unaffiliated basis. Additionally, with certain limitations, our distributors may return unused and unopened product for stock-balancing purposes when these returns are accompanied by offsetting orders for products of equal or greater value.

- We carry our inventory at the lower of cost and net realizable value, with cost being determined using the first-in, first-out method. We use standard costs for material, labor, and manufacturing overhead to value our inventory. Our standard costs are updated on at least a quarterly basis and any variances are expensed in the current period; therefore, our inventory costs approximate actual costs at the end of each reporting period. We write down our inventory for estimated obsolescence or unmarketable inventory by an amount equal to the difference between the cost of inventory and the estimated fair value based upon assumptions about future demand and market conditions. If actual future demand or market conditions are less favorable than those projected by management, we may be required to make additional inventory write-downs. Our reserve for excess and obsolete inventory was \$23.4 million and \$25.2 million at December 31, 2017 and 2016, respectively. Inventory disposals charged against the reserve were \$8.3 million, \$4.7 million and \$0.2 million for the years ended December 31, 2017, 2016 and 2015, respectively.
- For purposes of determining the estimated fair value of our stock option awards on the date of grant, we use the Black-Scholes Model. This model requires the input of certain assumptions that require subjective judgment. These assumptions include, but are not limited to, expected stock price volatility over the term of the awards and actual and projected employee stock option exercise behaviors. Because our stock option awards have characteristics significantly different from those of traded options, and because changes in the input assumptions can materially affect the fair value estimate,

the existing model may not provide a reliable, single measure of the fair value of our stock option awards. For purposes of determining the estimated fair value of our market-based performance stock unit (PSU) awards on the date of grant, we use a Monte Carlo Simulation valuation method. The PSUs are subject to a market condition based on the relative total shareholder return of ADTRAN against all of the companies in the NASDAQ Telecommunications Index and vest at the end of a three-year performance period. The fair value of performance-based PSUs, restricted stock units (RSUs) and restricted stock is equal to the closing price of our stock on the business day immediately preceding the grant date. Compensation expense related to unvested performance-based PSUs will be recognized over the requisite service period of three years as achievement of the performance obligation becomes probable. Management will continue to assess the assumptions and methodologies used to calculate the estimated fair value of stock-based compensation. Circumstances may change and additional data may become available over time, which could result in changes to these assumptions and methodologies and thereby materially impact our fair value determination. If factors change in future periods, the compensation expense that we record may differ significantly from what we have recorded in the current period.

- We estimate our income tax provision or benefit in each of the jurisdictions in which we operate, including estimating exposures related to examinations by taxing authorities. We also make judgments regarding the realization of deferred tax assets, and establish valuation allowances where we believe it is more likely than not that future taxable income in certain jurisdictions will be insufficient to realize these deferred tax assets. Our estimates regarding future taxable income and income tax provision or benefit may vary due to changes in market conditions, changes in tax laws, or other factors. If our assumptions, and consequently our estimates, change in the future, the valuation allowances we have established may be increased or decreased, impacting future income tax expense. At December 31, 2017 and 2016 respectively, the valuation allowance was \$6.0 million and \$6.1 million. As of December 31, 2017, we have state research tax credit carry-forwards of \$3.8 million, which will expire between 2018 and 2030. These carry-forwards were caused by tax credits in excess of our annual tax liabilities to an individual state where we no longer generate sufficient state income. In addition, as of December 31, 2017, we have a deferred tax asset of \$5.2 million relating to net operating loss carry-forwards which will expire between 2018 and 2030. These carry-forwards are the result of acquisitions in 2009 and in 2011. The acquired net operating losses are in excess of the amount of estimated earnings. We believe it is more likely than not that we will not realize the full benefits of our deferred tax asset arising from these credits and net operating losses, and accordingly, have provided a valuation allowance against that piece.

We establish reserves to remove some or all of the tax benefit of any of our tax positions at the time we determine that the positions become uncertain. We adjust these reserves, including any impact on the related interest and penalties, as facts and circumstances change.

- Our products generally include warranties of 90 days to five years for product defects. We accrue for warranty returns at the time revenue is recognized based on our historical return rate and estimate of the cost to repair or replace the defective products. We engage in extensive product quality programs and processes, including actively monitoring and evaluating the quality of our component suppliers. Our products continue to become more complex in both size and functionality as many of our product offerings migrate from line card applications to total systems. The increasing complexity of our products will cause warranty incidences, when they arise, to be more costly. Our estimates regarding future warranty obligations may change due to product failure rates, material usage, and other rework costs incurred in correcting a product failure. In addition, from time to time, specific warranty accruals may be recorded if unforeseen problems arise. Should our actual experience relative to these factors be worse than our estimates, we will be required to record additional warranty expense. Alternatively, if we provide for more reserves than we require, we will reverse a portion of such provisions in future periods. The liability for warranty obligations totaled \$9.7 million and \$8.5 million at December 31, 2017 and 2016, respectively. These liabilities are included in accrued expenses in the accompanying Consolidated Balance Sheets.
- Pension benefit plan obligations are based on various assumptions used by our actuaries in calculating these amounts. These assumptions include discount rates, compensation rate increases, expected return on plan assets, retirement rates, and mortality rates. Actual results that differ from the assumptions and changes in assumptions could affect future expenses and obligations. Our net pension liability totaled \$8.3 million and \$10.0 million at December 31, 2017 and 2016, respectively. This liability is included in other non-current liabilities in the accompanying Consolidated Balance Sheets.

## Results of Operations

The following table presents selected financial information derived from our consolidated statements of income expressed as a percentage of sales for the years indicated. Amounts may not foot due to rounding.

Year Ended December 31,	2017	2016	2015
<b>Sales</b>			
Products	81.0%	82.5%	87.9%
Services	19.0	17.5	12.1
<b>Total sales</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Cost of sales</b>			
Products	41.9	42.5	49.0
Services	12.6	11.7	6.6
<b>Gross profit</b>	<b>45.5</b>	<b>45.8</b>	<b>44.5</b>
Selling, general and administrative expenses	20.3	20.7	20.6
Research and development expenses	19.6	19.6	21.6
<b>Operating income</b>	<b>5.7</b>	<b>5.5</b>	<b>2.2</b>
Interest and dividend income	0.7	0.6	0.7
Interest expense	(0.1)	(0.1)	(0.1)
Net realized investment gain	0.7	0.9	1.7
Other income (expense), net	(0.2)	(0.1)	(0.2)
Gain on bargain purchase of a business	—	0.6	—
<b>Income before provision for income taxes</b>	<b>6.7</b>	<b>7.4</b>	<b>4.3</b>
Provision for income taxes	(3.1)	(1.8)	(1.2)
<b>Net income</b>	<b>3.6%</b>	<b>5.5%</b>	<b>3.1%</b>

## 2017 Compared to 2016

### Sales

Our sales increased 4.7% from \$636.8 million in 2016 to \$666.9 million in 2017. The increase in sales is attributable to a \$14.9 million increase in Network Solutions sales and a \$15.2 million increase in Services & Support sales.

Network Solutions sales increased 2.8% from \$525.5 million in 2016 to \$540.4 million in 2017. The increase in sales in 2017 is primarily attributable to an increase in sales of our Access & Aggregation products, partially offset by a decrease in sales of our Traditional & Other products. The increase in sales of our Access & Aggregation products is primarily attributable to increased VDSL2 vectoring product sales in the U.S. and European carrier markets. While we expect that revenues from Traditional & Other products will continue to decline over time, these revenues may fluctuate and continue for years because of the time required for our customers to transition to newer technologies.

Services & Support sales increased 13.7% from \$111.3 million in 2016 to \$126.5 million in 2017. The increase in sales in 2017 is primarily attributable to an increase in network installation services for Access & Aggregation products.

International sales, which are included in the Network Solutions and Services & Support amounts discussed above, increased 17.2% from \$135.4 million in 2016 to \$158.7 million in 2017. International sales, as a percentage of total sales, increased from 21.3% in 2016 to 23.8% in 2017. The increase in international sales in 2017 is primarily attributable to an increase in sales in EMEA, partially offset by a decrease in sales in Latin America and the APAC region.

Our international revenues are largely focused on broadband infrastructure and are impacted by the decisions of our customers as to timing for installation of new technologies, expansion of their networks and/or network upgrades. Our international customers must make these decisions in the regulatory and political environment in which they operate – both nationally and in some instances, regionally – whether of a multi-country region or a more local region within a country. For example, the European Commission launched a Gigabit Society initiative, and before that, the Digital Agenda, which has provided a favorable market environment for the deployment of ultra-broadband and Gigabit network solutions. Although the overall environment and market demand for broadband service deployment in the European Union has improved, some new broadband technolo-



gies are still being reviewed for regulatory and standards completion, which may affect the timing of those technologies. In Mexico, regulatory changes have created uncertainty for customers, which have resulted in slowdowns in network buying patterns. The competitive landscape in certain international markets is also impacted by the increased presence of Asian manufacturers that seek to compete aggressively on price. A strengthening U.S. dollar can also negatively impact our revenues in regions such as Latin America, where our products are traditionally priced in U.S. dollars, while in regions where our products are sold in local currency, such as Europe, a stronger U.S. dollar can negatively impact operating income. Consequently, while we expect the global trend towards deployment of more robust broadband speeds and access to continue to create expanded market opportunities for us, the factors described above may result in pressure on revenues and operating income. However, we do not presently foresee a significant negative impact to our financial condition based on our strong liquidity and the generally positive environment described above.

We recognized a positive impact to our revenues in the first half of 2017 due to our being awarded a network expansion program by a large European tier-1 customer. We anticipate that as our European and Latin American customers resume their network upgrade projects, we may experience further enhancement to our revenues. We have recently announced receipt of a new nationwide award in the Pacific region, as well as additional awards based on new ADTRAN technologies in the EMEA region that we believe will likely result in a positive impact to our revenues. Further, we expect that a resolution of the regulatory changes in Mexico may result in business with our major customer in that region returning to a more normal level.

### **Cost of Sales**

As a percentage of sales, cost of sales increased from 54.2% in 2016 to 54.5% in 2017. The increase is primarily attributable to a regional revenue shift, customer and product mix and services and support mix.

Network Solutions cost of sales, as a percent of that segment's sales, increased from 51.5% of sales in 2016 to 51.7% of sales in 2017. The increase in Network Solutions cost of sales as a percentage of that segment's sales is primarily attributable to customer and product mix.

An important part of our strategy is to reduce the product cost of each succeeding product generation and then to lower the product's price based on the cost savings achieved. This may cause variations in our gross profit percentage due to timing differences between the recognition of cost reductions and the lowering of product selling prices.

Services & Support cost of sales, as a percent of that segment's sales, decreased from 67.2% of sales in 2016 to 66.2% of sales in 2017. The decrease in Services & Support cost of sales as a percentage of that segment's sales is primarily attributable to the mix of network installation programs and support.

Our Services business has experienced significant growth since 2015 as competitive pressures to expand broadband access and speeds have strained carriers' ability to respond to customer demand. Our Services & Support revenues are comprised of network planning and implementation, maintenance, support and cloud-based management services, with network planning and implementation being the largest and fastest growing component. Compared to our other services such as maintenance, support and cloud-based management services, our network planning and implementation services typically utilize a higher percentage of internal and subcontracted engineers, professionals and contractors to perform the work for customers. The additional costs incurred to perform these infrastructure and labor intensive services inherently result in lower average gross margins as compared to maintenance and support services.

As our network planning and implementation revenues have grown and are now the largest component of our Services & Support business, our Services & Support segment gross margins have decreased versus those reported when maintenance and support comprised the majority of the business. Further, because the growth in our network planning and implementation services has resulted in our Services & Support revenues comprising a larger percentage of our overall revenues, and because our Services & Support gross margins are below those of the Network Solutions segment, our overall corporate gross margins have declined as that business has continued to grow. Within the Services & Support segment, we do expect variability in gross margins from quarter-to-quarter based on the mix of the services recognized.

### **Selling, General and Administrative Expenses**

Selling, general and administrative expenses increased 2.8% from \$131.8 million in 2016 to \$135.5 million in 2017. Selling, general and administrative expenses include personnel costs for administration, finance, information technology, human resources, sales and marketing, and general management, as well as rent, utilities, legal and accounting expenses, bad debt expense, advertising, promotional material, trade show expenses, and related travel costs. The increase in selling, general and administrative

expenses is primarily attributable to increases in ERP implementation expense, deferred compensation expense, travel expense, and equity-based compensation expense, partially offset by a decrease in performance-based compensation expense.

Selling, general and administrative expenses as a percentage of sales decreased from 20.7% for the year ended December 31, 2016 to 20.3% for the year ended December 31, 2017. Selling, general and administrative expenses as a percentage of sales will generally fluctuate whenever there is a significant fluctuation in revenues for the periods being compared.

#### **Research and Development Expenses**

Research and development expenses increased 4.5% from \$124.8 million in 2016 to \$130.4 million in 2017. The increase in research and development expenses is primarily attributable to an increase in labor and engineering materials related to customer specific projects, contract services and amortization of intangibles acquired in the third quarter of 2016.

Research and development expenses as a percentage of sales remained constant at 19.6% for the years ended December 31, 2016 and 2017. Research and development expenses as a percentage of sales will fluctuate whenever there are incremental product development activities or a significant fluctuation in revenues for the periods being compared.

We expect to continue to incur research and development expenses in connection with our new and existing products and our expansion into international markets. We continually evaluate new product opportunities and engage in intensive research and product development efforts which provide for new product development, enhancement of existing products and product cost reductions. We may incur significant research and development expenses prior to the receipt of revenues from a major new product group.

#### **Interest and Dividend Income**

Interest and dividend income increased from \$11.8 million in 2016 to \$14.4 million in 2017. The increase in interest and dividend income is primarily attributable to an increase in the rate of return on investments.

#### **Interest Expense**

Interest expense, which is primarily related to our taxable revenue bond, remained consistent at \$0.6 million in 2016 and 2017, as we had no substantial change in our fixed-rate borrowing. See “Financing Activities” in “Liquidity and Capital Resources” below for additional information on our taxable revenue bond.

#### **Net Realized Investment Gain**

Net realized investment gain decreased 20.9% from \$5.9 million in 2016 to \$4.7 million in 2017. The decrease in realized investment gains is primarily attributable to decreased gains from the sale of equity securities. See “Investing Activities” in “Liquidity and Capital Resources” below for additional information.

#### **Other Income (Expense), net**

Other income (expense), net, comprised primarily of miscellaneous income and expense, gains and losses on foreign currency transactions, gains and losses on foreign exchange forward contracts, investment account management fees, and scrap raw material sales, increased 139.5% from \$0.7 million of expense in 2016 to \$1.6 million of expense in 2017. The change is primarily attributable to increased losses on our foreign exchange contracts.

#### **Gain on Bargain Purchase of a Business**

Gain on bargain purchase of a business in 2016 is related to our acquisition of key fiber access products, technologies and service relationships from a third party on September 13, 2016. See Note 2 of *Notes to Consolidated Financial Statements* for additional information.

#### **Income Taxes**

Our effective tax rate increased from 24.9% in 2016 to 46.7% in 2017. The increase in the effective tax rate between the two periods is primarily attributable to the Tax Cuts and Jobs Act, which was signed into law on December 22, 2017. As a result of the new law, we recognized an estimated expense of \$11.9 million in the fourth quarter of 2017, of which \$9.2 million related to the write-down of deferred tax assets and \$2.7 million related to tax on unrepatriated foreign earnings. See Note 11 of *Notes to Consolidated Financial Statements* for additional information.

#### **Net Income**

As a result of the above factors, net income decreased from \$35.2 million in 2016 to \$23.8 million in 2017. As a percentage of sales, net income decreased from 5.5% in 2016 to 3.6% in 2017.

## 2016 Compared to 2015

### Sales

Our sales increased 6.1% from \$600.1 million in 2015 to \$636.8 million in 2016. The increase in sales is primarily attributable to a \$38.6 million increase in Services & Support sales, partially offset by a \$1.9 million decrease in Network Solutions sales.

Network Solutions sales decreased 0.4% from \$527.4 million in 2015 to \$525.5 million in 2016. The decrease in sales in 2016 is primarily attributable to a decrease in sales of our Access & Aggregation products and Traditional & Other products, partially offset by an increase in sales of our Customer Devices products. The decrease in sales of our Access & Aggregation products is primarily attributable to a decrease in international hiX product sales, partially offset by an increase in OSP DSLAM sales. The increase in sales of our Customer Devices products is primarily attributable to increased sales of our FTTP ONT products. While we expect that revenues from Traditional & Other products will continue to decline over time, these revenues may fluctuate and continue for years because of the time required for our customers to transition to newer technologies.

Services & Support sales increased 53.2% from \$72.6 million in 2015 to \$111.3 million in 2016. The increase in sales in 2016 is primarily attributable to an increase in network installation services for Access & Aggregation products.

International sales, which are included in the Network Solutions and Services & Support amounts discussed above, decreased 25.0% from \$180.7 million in 2015 to \$135.4 million in 2016. International sales, as a percentage of total sales, decreased from 30.1% in 2015 to 21.3% in 2016. Our international revenues are affected to a great extent by the timing of network upgrade projects at our larger European and Latin American customers and by changes in foreign exchange rates in territories in which we sell our products and services. Throughout 2016, our largest European customer focused on completing network upgrade activities in regions outside of our footprint with them. However, we expect that once current projects are completed, future network upgrades will resume in the second half of 2017 within our geographic footprint with this customer. Additionally, after reaching a cyclical high in the second quarter of 2014, the value of the Euro currency relative to the U.S. dollar declined significantly throughout the second half of 2014 and in 2015. Though the Euro-USD exchange rate appears to have stabilized since reaching a low in the fourth quarter of 2015, it remains approximately 20% below the highs of 2014. This decline in the value of the Euro throughout 2015 and into 2016 significantly reduced the U.S. dollar value of revenue from our European sales.

### Cost of Sales

As a percentage of sales, cost of sales decreased from 55.5% in 2015 to 54.2% in 2016. The decrease is primarily attributable to a regional revenue shift and customer and product mix, partially offset by a change in services mix, restructuring expenses and an increase in warranty expense related to a product recall caused by a defect in a part provided by a third party supplier.

Network Solutions cost of sales, as a percent of that segment's sales, decreased from 55.7% of sales in 2015 to 51.5% of sales in 2016. The decrease in Network Solutions cost of sales as a percentage of that segment's sales is primarily attributable to a regional revenue shift and customer and product mix, partially offset by restructuring expenses and an increase in warranty expense related to a product recall caused by a defect in a part provided by a third party supplier.

Services & Support cost of sales, as a percent of that segment's sales, increased from 54.1% of sales in 2015 to 67.2% of sales in 2016. The increase in Services & Support cost of sales as a percentage of that segment's sales is primarily attributable to an increase in network installation services, which have higher costs than maintenance and support services, and in restructuring expenses.

An important part of our strategy is to reduce the product cost of each succeeding product generation and then to lower the product's price based on the cost savings achieved. This may cause variations in our gross profit percentage due to timing differences between the recognition of cost reductions and the lowering of product selling prices.

### Selling, General and Administrative Expenses

Selling, general and administrative expenses increased 6.7% from \$123.5 million in 2015 to \$131.8 million in 2016. Selling, general and administrative expenses include personnel costs for administration, finance, information systems, human resources, sales and marketing, and general management, as well as rent, utilities, legal and accounting expenses, bad debt expense, advertising, promotional material, trade show expenses, and related travel costs. The increase in selling, general and administrative expenses is primarily attributable to an increase in variable incentive compensation expense and use tax expense, partially offset by a decrease in professional services.

Selling, general and administrative expenses as a percentage of sales increased from 20.6% for the year ended December 31, 2015 to 20.7% for the year ended December 31, 2016. Selling, general and administrative expenses as a percentage of sales will generally fluctuate whenever there is a significant fluctuation in revenues for the periods being compared.

### **Research and Development Expenses**

Research and development expenses decreased 3.9% from \$129.9 million in 2015 to \$124.8 million in 2016. The decrease in research and development expenses is primarily attributable to a decrease in compensation expense, lease expense and testing expense, partially offset by an increase in contract services. The decrease in compensation expense and lease expense in 2016 was primarily attributable to the consolidation of engineering resources that occurred during the second quarter of 2015.

Research and development expenses as a percentage of sales decreased from 21.6% for the year ended December 31, 2015 to 19.6% for the year ended December 31, 2016. Research and development expenses as a percentage of sales will fluctuate whenever there are incremental product development activities or a significant fluctuation in revenues for the periods being compared.

We expect to continue to incur research and development expenses in connection with our new and existing products and our expansion into international markets. We continually evaluate new product opportunities and engage in intensive research and product development efforts which provide for new product development, enhancement of existing products and product cost reductions. We may incur significant research and development expenses prior to the receipt of revenues from a major new product group.

### **Interest and Dividend Income**

Interest and dividend income remained constant at \$3.95 million in 2015 and \$3.92 million in 2016.

### **Interest Expense**

Interest expense, which is primarily related to our taxable revenue bond, remained consistent at \$0.6 million in 2015 and 2016, as we had no substantial change in our fixed-rate borrowing. See “Financing Activities” in “Liquidity and Capital Resources” below for additional information on our taxable revenue bond.

### **Net Realized Investment Gain**

Net realized investment gain decreased from \$10.3 million in 2015 to \$5.9 million in 2016. The decrease in realized investment gains is primarily attributable to fewer gains from the sale of equity securities in 2016. See “Investing Activities” in “Liquidity and Capital Resources” below for additional information.

### **Other Income (Expense), net**

Other income (expense), net, comprised primarily of miscellaneous income, gains and losses resulting from foreign currency exchange rate movements, and investment account management fees, decreased from \$1.5 million of expense in 2015 to \$0.7 million of expense in 2016. The change is primarily attributable to gains on forward currency contracts during the fourth quarter of 2016.

### **Gain on Bargain Purchase of a Business**

Gain on bargain purchase of a business is related to our acquisition of key fiber access products, technologies and service relationships from a third party on September 13, 2016. See Note 2 of *Notes to Consolidated Financial Statements* for additional information.

### **Income Taxes**

Our effective tax rate decreased from 27.5% in 2015 to 24.9% in 2016. The decrease in the effective tax rate between the two periods is primarily attributable to the benefit associated with the bargain purchase gain.

### **Net Income**

As a result of the above factors, net income increased from \$18.6 million in 2015 to \$35.2 million in 2016. As a percentage of sales, net income increased from 3.1% in 2015 to 5.5% in 2016.

## **Liquidity and Capital Resources**

### **Liquidity**

We intend to finance our operations with cash flow from operations. We have used, and expect to continue to use, the cash generated from operations for working capital, purchases of treasury stock, shareholder dividends, and other general corporate purposes, including (i) product development activities to enhance our existing products and develop new products and (ii) expansion of sales and marketing activities. We believe our cash and cash equivalents, investments and cash generated from operations to be adequate to meet our operating and capital needs for at least the next 12 months.

At December 31, 2017, cash on hand was \$86.4 million and short-term investments were \$16.1 million, which resulted in available short-term liquidity of \$102.6 million, of which \$56.8 million was held by our foreign subsidiaries. At December 31, 2016, cash on hand was \$79.9 million and short-term investments were \$43.2 million, which resulted in available short-term liquidity of \$123.1 million, of which \$42.1 million was held by our foreign subsidiaries. The decrease in short-term liquidity from December 31, 2016 to December 31, 2017 is primarily attributable to shifts among available investment option tenures to provide funds for our short-term cash needs.

### **Operating Activities**

Our working capital, which consists of current assets less current liabilities, increased 35.3% from \$226.4 million as of December 31, 2016 to \$306.3 million as of December 31, 2017. The current ratio, defined as current assets divided by current liabilities, increased from 2.79 as of December 31, 2016 to 3.87 as of December 31, 2017. The increase in our working capital and current ratio is primarily attributable to an increase in accounts receivable, inventory, and other receivables, and a decrease in accounts payable and accrued wages and benefits. The quick ratio, defined as cash and cash equivalents, short-term investments, and net accounts receivable, divided by current liabilities, increased from 1.70 as of December 31, 2016 to 2.31 as of December 31, 2017. The increase in the quick ratio is primarily attributable to an increase in accounts receivable and a decrease in accounts payable and accrued wages and benefits. The decrease in accrued wages and benefits was primarily attributable to a decrease in accrued variable incentive compensation.

Net accounts receivable increased 56.1% from \$92.3 million at December 31, 2016 to \$144.2 million at December 31, 2017. We did not have an allowance for doubtful accounts at December 31, 2016 or 2017. Quarterly accounts receivable DSO increased from 52 days as of December 31, 2016 to 105 days as of December 31, 2017. The increase in net accounts receivable and DSO is attributable to customer specific payment terms that will become due early in the first quarter of 2018 and the timing of sales and collections during the quarter. Additionally, certain international customers can have longer payment terms than U.S. customers.

Other receivables increased 67.2% from \$15.9 million at December 31, 2016 to \$26.6 million at December 31, 2017. The increase in other receivables is primarily attributable to an increase in lease receivables and income tax receivables.

Annual inventory turnover decreased from 3.51 turns as of December 31, 2016 to 3.19 turns as of December 31, 2017. Inventory increased 16.6% from \$105.1 million at December 31, 2016 to \$122.5 million at December 31, 2017. We expect inventory levels to fluctuate as we attempt to maintain sufficient inventory in response to seasonal cycles of our business ensuring competitive lead times while managing the risk of inventory obsolescence that may occur due to rapidly changing technology and customer demand.

Accounts payable decreased 21.6% from \$77.3 million at December 31, 2016 to \$60.6 million at December 31, 2017. Accounts payable will fluctuate due to variations in the timing of the receipt of supplies, inventory and services and our subsequent payments for these purchases.

### **Investing Activities**

Capital expenditures totaled approximately \$14.7 million, \$21.4 million and \$11.8 million for the years ended December 31, 2017, 2016 and 2015, respectively. These expenditures were primarily used to purchase computer hardware, software, manufacturing and test equipment, and building improvements.

Our combined short-term and long-term investments decreased \$72.9 million from \$219.3 million at December 31, 2016 to \$146.4 million at December 31, 2017. This decrease reflects the impact of our cash used by our operating activities, cash needs for share repurchases, shareholder dividends, equipment acquisitions, as well as net realized and unrealized losses, and amortization of net premiums on our combined investments, partially offset by funds provided by stock option exercises by our employees.

We invest all available cash not required for immediate use in operations primarily in securities that we believe bear minimal risk of loss. At December 31, 2017, these investments included corporate bonds of \$32.5 million, municipal fixed-rate bonds of \$2.9 million, asset-backed bonds of \$6.5 million, mortgage/agency-backed bonds of \$5.5 million, U.S. government bonds of \$14.3 million, and foreign government bonds of \$0.7 million. At December 31, 2016, these investments included corporate bonds of \$66.4 million, municipal fixed-rate bonds of \$11.8 million, asset-backed bonds of \$10.2 million, mortgage/agency-backed bonds of \$13.0 million, U.S. government bonds of \$29.8 million, foreign government bonds of \$3.7 million, and variable rate demand notes of \$11.9 million. As of December 31, 2017, our corporate bonds, municipal fixed-rate bonds, asset-backed bonds, mortgage/agency-backed bonds, U.S. government bonds, and foreign government bonds were classified as available-for-sale and had a combined duration of 1.15 years with an average credit rating of A+. Because our bond portfolio has a high quality rating and contractual maturities of a short duration, we are able to obtain prices for these bonds derived from observable market inputs, or for similar securities traded in an active market, on a daily basis.

Our long-term investments decreased 26.0% from \$176.1 million at December 31, 2016 to \$130.3 million at December 31, 2017. Long-term investments at December 31, 2017 and December 31, 2016 included an investment in a certificate of deposit of \$27.8 million, which serves as collateral for our revenue bond, as discussed below. We have investments in various marketable equity securities classified as long-term investments at a cost of \$33.5 million and \$30.6 million, and with a fair value of \$35.7 million and \$29.4 million, at December 31, 2017 and December 31, 2016, respectively.

Long-term investments at December 31, 2017 and 2016 also included \$19.9 million and \$14.6 million, respectively, related to our deferred compensation plan, and \$0.5 million and \$0.8 million, respectively, of other investments, consisting of interests in two private equity funds and an investment in a privately held telecommunications equipment manufacturer.

We review our investment portfolio for potential “other-than-temporary” declines in value on an individual investment basis. We assess, on a quarterly basis, significant declines in value which may be considered other-than-temporary and, if necessary, recognize and record the appropriate charge to write-down the carrying value of such investments. In making this assessment, we take into consideration qualitative and quantitative information, including but not limited to the following: the magnitude and duration of historical declines in market prices, credit rating activity, assessments of liquidity, public filings, and statements made by the issuer. We generally begin our identification of potential other-than-temporary impairments by reviewing any security with a fair value that has declined from its original or adjusted cost basis by 25% or more for six or more consecutive months. We then evaluate the individual security based on the previously identified factors to determine the amount of the write-down, if any. For the years ended December 31, 2017, 2016, and 2015, we recorded charges of \$0.2 million, \$0.8 million and \$0.2 million, respectively, related to the other-than-temporary impairment of certain publicly traded equity securities, our deferred compensation plan assets, and our investments in two private equity funds.

#### **Financing Activities**

In conjunction with an expansion of our Huntsville, Alabama, facility, we were approved for participation in an incentive program offered by the State of Alabama Industrial Development Authority (the “Authority”). Pursuant to the program, on January 13, 1995, the Authority issued \$20.0 million of its taxable revenue bonds and loaned the proceeds from the sale of the bonds to ADTRAN. The bonds were originally purchased by AmSouth Bank of Alabama, Birmingham, Alabama (the “Bank”). Wachovia Bank, N.A., Nashville, Tennessee (formerly First Union National Bank of Tennessee) (the “Bondholder”), which was acquired by Wells Fargo & Company on December 31, 2008, purchased the original bonds from the Bank and made further advances to the Authority, bringing the total amount outstanding to \$50.0 million. An Amended and Restated Taxable Revenue Bond (“Amended and Restated Bond”) was issued and the original financing agreement was amended. The Amended and Restated Bond bears interest, payable monthly. The interest rate is 2% per annum. The Amended and Restated Bond matures on January 1, 2020, and is currently outstanding in the aggregate principal amount of \$26.7 million. The estimated fair value of the bond using a level 2 valuation technique at December 31, 2017 was approximately \$26.7 million, based on a debt security with a comparable interest rate and maturity and a Standard & Poor’s credit rating of AAA. We are required to make payments to the Authority in amounts necessary to pay the interest on the Amended and Restated Bond. Included in long-term investments at December 31, 2017 is \$27.8 million which is invested in a restricted certificate of deposit. These funds serve as a collateral deposit against the principal of this bond, and we have the right to set-off the balance of the Bond with the collateral deposit in order to reduce the balance of the indebtedness.

In conjunction with this program, we are eligible to receive certain economic incentives from the state of Alabama that reduce the amount of payroll withholdings that we are required to remit to the state for those employment positions that qualify under the program. We realized economic incentives related to payroll withholdings totaling \$1.5 million for the year ended December 31, 2017 and \$1.3 million for each of the years ended December 31, 2016 and 2015.

We made principal payments of \$1.1 million for each of the years ended December 31, 2017 and 2016, and we anticipate making a principal payment in 2018. At December 31, 2017, \$1.1 million of the bond debt was classified as a current liability in accounts payable in the Consolidated Balance Sheets.



## Dividends

During 2017, 2016 and 2015, we paid shareholder dividends totaling \$17.4 million, \$17.6 million and \$18.4 million, respectively. The Board of Directors presently anticipates that it will declare a regular quarterly dividend so long as the present tax treatment of dividends exists and adequate levels of liquidity are maintained. The following table shows dividends per common share paid to our shareholders in each quarter of 2017, 2016 and 2015.

## Dividends per Common Share

2017	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
	\$0.09	\$0.09	\$0.09	\$0.09
2016	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
	\$0.09	\$0.09	\$0.09	\$0.09
2015	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
	\$0.09	\$0.09	\$0.09	\$0.09

## Stock Repurchase Program

Since 1997, our Board of Directors has approved multiple share repurchase programs that have authorized open market repurchase transactions of up to 50.0 million shares of our common stock, which will be implemented through open market or private purchases from time to time as conditions warrant. For the years 2017, 2016 and 2015, we repurchased 0.9 million shares, 1.4 million shares and 4.0 million shares, respectively, for a cost of \$17.3 million, \$25.8 million and \$66.2 million, respectively, at an average price of \$20.27, \$18.29 and \$16.68 per share, respectively. We currently have the authority to purchase an additional 3.6 million shares of our common stock under the current plans approved by the Board of Directors.

## Stock Option Exercises

To accommodate employee stock option exercises, we issued 0.7 million shares of treasury stock for \$13.4 million during the year ended December 31, 2017, 0.3 million shares of treasury stock for \$4.7 million during the year ended December 31, 2016, and 0.1 million shares of treasury stock for \$1.0 million during the year ended December 31, 2015.

## Off-Balance Sheet Arrangements and Contractual Obligations

We do not have off-balance sheet financing arrangements and have not engaged in any related party transactions or arrangements with unconsolidated entities or other persons that are reasonably likely to materially affect liquidity or the availability of or requirements for capital resources.

We have various contractual obligations and commercial commitments. The following table sets forth, in millions, the annual payments we are required to make under contractual cash obligations and other commercial commitments at December 31, 2017.

## Contractual Obligations

<i>(In millions)</i>	Total	2018	2019	2020	2021	After 2021
Long-term debt	\$26.7	\$1.1	\$—	\$25.6	\$—	\$—
Interest on long-term debt	1.0	0.5	0.5	—	—	—
Purchase obligations	140.0	139.1	0.8	0.1	—	—
Operating lease obligations	8.5	3.1	0.9	0.8	0.8	2.9
Tax Cuts and Jobs Act toll charge	2.7	0.5	0.2	0.2	0.2	1.6
<b>Totals</b>	<b>\$178.9</b>	<b>\$144.3</b>	<b>\$2.4</b>	<b>\$26.7</b>	<b>\$1.0</b>	<b>\$4.5</b>

We are required to make payments necessary to pay the interest on the Amended and Restated Bond, currently outstanding in the aggregate principal amount of \$26.7 million. The bond matures on January 1, 2020, and bears interest at the rate of 2% per annum. Included in long-term investments are \$27.8 million of restricted funds, which is a collateral deposit against the principal amount of this bond. We made principal payments of \$1.1 million for each of the years ended December 31, 2017 and 2016. We anticipate making a principal payment in 2018. At December 31, 2017, \$1.1 million of the bond debt was classified as a current liability in accounts payable in the Consolidated Balance Sheets. See Note 10 of Notes to Consolidated Financial Statements for additional information.

Purchase obligations primarily relate to open purchase orders to our contract manufacturers, component suppliers, service partners, and other vendors.

We have committed to invest up to an aggregate of \$7.9 million in two private equity funds, and we have contributed \$8.4 million as of December 31, 2017, of which \$7.7 million has been applied to these commitments. The additional \$0.2 million commitment has been excluded from the table above due to uncertainty of when it will be applied.

We also have obligations related to uncertain income tax positions that have been excluded from the table above due to the uncertainty of when the related expense will be recognized. See Note 11 of Notes to Consolidated Financial Statements for additional information.

### Recently Issued Accounting Pronouncements

In May 2014, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update No. 2014-09, Revenue from Contracts with Customers (Topic 606) (ASU 2014-09), which supersedes the revenue recognition requirements in Topic 605, Revenue Recognition, including most industry-specific revenue recognition guidance throughout the Industry Topics of the Codification. The core principle of ASU 2014-09 is to recognize revenues when promised goods or services are transferred to customers in an amount that reflects the consideration that is expected to be received for those goods or services. In August 2015, the FASB issued ASU 2015-14, which deferred the effective date of ASU 2014-09 to fiscal years beginning after December 31, 2017, and interim periods within those fiscal years, with early adoption permitted for reporting periods beginning after December 15, 2016. Subsequently, the FASB issued ASUs in 2016 containing implementation guidance related to ASU 2014-09, including: ASU 2016-08, Revenue from Contracts with Customers (Topic 606): Principal versus Agent Considerations (Reporting Revenue Gross versus Net), which is intended to improve the operability and understandability of the implementation guidance on principal versus agent considerations; ASU 2016-10, Revenue from Contracts with Customers (Topic 606): Identifying Performance Obligations and Licensing, which is intended to clarify two aspects of Topic 606: identifying performance obligations and the licensing implementation guidance; ASU 2016-12, Revenue from Contracts with Customers (Topic 606): Narrow-Scope Improvements and Practical Expedients, which contains certain provisions and practical expedients in response to identified implementation issues; and ASU 2016-20, Technical Corrections and Improvements to Topic 606, Revenue from Contracts with Customers, which is intended to clarify the Codification or to correct unintended application of guidance. ASU 2014-09 allows for either full retrospective or modified retrospective adoption. We adopted ASU 2014-09 and the related ASUs on January 1, 2018 using the modified retrospective method.

The two areas of impact of these ASUs are network installation service revenue performance obligations and contract costs. The output method will be used to measure network installation services progress. The primary impact will be the timing of revenue recognition for certain performance obligations related to service revenue arrangements that are currently deferred until customer acceptance.

In connection with the adoption of the new revenue standard, effective January 1, 2018, we adopted ASC 340-40, Other Assets and Deferred Costs - Contracts with Customers, with respect to capitalization and amortization of incremental costs of obtaining a contract. As a result, certain costs of obtaining a contract will need to be capitalized, including sales commissions, as the guidance requires the capitalization of all incremental costs incurred to obtain a contract with a customer that it would not have incurred if the contract had not been obtained, provided the costs are recoverable. The primary impact will be capitalization of certain sales commissions for our extended maintenance and support contracts in excess of one year and costs associated with our capital lease arrangements that are billed monthly, and amortization of those costs over the period that the related revenue is recognized.

We will recognize the cumulative adjustment for network installation service revenue performance obligations and contract costs to retained earnings during the three months ended March 31, 2018. We do not believe the cumulative adjustment will have a significant impact on our consolidated financial statements during 2018.

In February 2016, the FASB issued Accounting Standards Update No. 2016-02, Leases (Topic 842) (ASU 2016-02). ASU 2016-02 requires an entity to recognize lease assets and lease liabilities on the balance sheet and to disclose key information about the entity's leasing arrangements. ASU 2016-02 is effective for fiscal years beginning after December 15, 2018, and interim periods within those fiscal years. A modified retrospective approach is required. We anticipate the adoption of ASU 2016-02 will have a material impact on our financial position; however, we do not believe adoption will have a material impact on our results of operations. We believe the most significant impact relates to our accounting for operating leases for office space and equipment.

In January 2017, the FASB issued Accounting Standards Update No. 2017-04, Intangibles – Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment (ASU 2017-04). ASU 2017-04 simplifies the measurement of goodwill by eliminating step 2 of the goodwill impairment test. Under ASU 2017-04, entities will be required to compare the fair value of a reporting unit to its carrying amount and recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value. ASU 2017-04 is effective for annual or interim impairment tests performed in fiscal years beginning after December 15, 2019, with early adoption permitted for annual or interim impairment tests performed on testing dates after January 1, 2017. The amendments should be applied prospectively. We are currently evaluating whether to early adopt ASU



2017-04, but we do not expect it will have a material impact on our financial position, results of operations or cash flows.

In March 2017, the FASB issued Accounting Standards Update No. 2017-07, Compensation – Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost (ASU 2017-07). ASU 2017-07 amends ASC 715, Compensation — Retirement Benefits, to require employers that present a measure of operating income in their statements of earnings to include only the service cost component of net periodic pension cost and net periodic postretirement benefit cost in operating expenses (together with other employee compensation costs). The other components of net benefit cost, including amortization of prior service cost/credit, and settlement and curtailment effects, are to be included in non-operating expenses. ASU 2017-07 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2017. We adopted ASU 2017-07 on January 1, 2018 and we do not expect ASU 2017-07 will have a material impact on our financial position, results of operations or cash flows.

In August 2017, the FASB issued Accounting Standards Update No. 2017-12, Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities (ASU 2017-12). ASU 2017-12 expands and refines hedge accounting for both financial and non-financial risk components, aligns the recognition and presentation of the effects of hedging instruments and hedge items in the financial statements, and includes certain targeted improvements to ease the application of current guidance related to the assessment of hedge effectiveness. ASU 2017-12 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018, with early adoption permitted. We are currently evaluating the impact ASU 2017-12 will have on our financial position, results of operations and cash flows.

During 2017, we adopted the following accounting standards, which had no material effect on our financial position, results of operations or cash flows:

In July 2015, the FASB issued Accounting Standards Update No. 2015-11, Inventory (Topic 330): Simplifying the Measurement of Inventory (ASU 2015-11). Currently, Topic 330, Inventory, requires an entity to measure inventory at the lower of cost or market. Market could be replacement cost, net realizable value, or net realizable value less an approximately normal profit margin. ASU 2015-11 does not apply to inventory that is measured using last-in, first-out (LIFO) or the retail inventory method. The amendments apply to all other inventory, which includes inventory that is measured using first-in, first-out (FIFO) or average cost. ASU 2015-11 requires an entity to measure in scope inventory at the lower of cost and net realizable value. Net realizable value is the estimated selling prices in the ordinary course of business, less reasonably predictable costs of completion, disposal, and transportation. ASU 2015-11 is effective for annual reporting periods beginning after December 15, 2016, including interim periods within that reporting period. The amendments should be applied prospectively with earlier application permitted as of the beginning of an interim or annual reporting period. We adopted ASU 2015-11 in the first quarter of 2017, and there was no material impact on our financial position, results of operations or cash flows.

In January 2017, we adopted ASU 2016-09, Compensation – Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting. As a result, beginning in the first quarter of 2017, we began recognizing all excess tax benefits and tax deficiencies as income tax expense or benefit as a discrete event. The treatment of forfeitures has changed as we have elected to discontinue our past practice of estimating forfeitures and now account for forfeitures as they occur. As a result, we recorded an increase in additional paid in capital of \$0.1 million, a charge to beginning retained earnings of \$0.1 million, and an increase in the deferred tax assets related to non-qualified stock options and RSUs of \$10 thousand. In addition, cash flows related to excess tax benefits will no longer be separately classified as a financing activity apart from other income tax cash flows within operating activities. We elected to retrospectively apply the changes in presentation to the statements of cash flows and no longer classify excess tax benefits as a financing activity, which had an immaterial impact on our cash flows for the years ended December 31, 2017, 2016 and 2015. There was no material impact on our financial position, results of operations or cash flows as a result of these changes.

### Subsequent Events

On January 16, 2018, the Board declared a quarterly cash dividend of \$0.09 per common share to be paid to shareholders of record at the close of business on January 31, 2018. The quarterly dividend payment was \$4.4 million and was paid on February 14, 2018. In July 2003, our Board of Directors elected to begin declaring quarterly dividends on our common stock considering the tax treatment of dividends and adequate levels of Company liquidity.

During the first quarter and as of February 23, 2018, we have repurchased 0.6 million shares of our common stock through open market purchases at an average cost of \$16.18 per share. We currently have the authority to purchase an additional 2.9 million shares of our common stock under the current plan approved by the Board of Directors.

In January 2018, we announced an early retirement incentive program for employees that met certain requirements. The estimated liability associated with this program ranges from \$3.6 to \$14.3 million.

# Quantitative and Qualitative Disclosures About Market Risk

We are exposed to financial market risks, including changes in interest rates, foreign currency rates and prices of marketable equity and fixed-income securities. The primary objective of the large majority of our investment activities is to preserve principal while at the same time achieving appropriate yields without significantly increasing risk. To achieve this objective, a majority of our marketable securities are investment grade, fixed-rate bonds and municipal money market instruments denominated in U.S. dollars. Our investment policy provides limitations for issuer concentration, which limits, at the time of purchase, the concentration in any one issuer to 5% of the market value of our total investment portfolio.

We maintain depository investments with certain financial institutions. Although these depository investments may exceed government insured depository limits, we have evaluated the credit worthiness of these financial institutions, and determined the risk of material financial loss due to exposure of such credit risk to be minimal. As of December 31, 2017, \$83.7 million of our cash and cash equivalents, primarily certain domestic money market funds and foreign depository accounts, were in excess of government provided insured depository limits.

As of December 31, 2017, approximately \$83.5 million of our cash and investments may be directly affected by changes in interest rates. We have performed a hypothetical sensitivity analysis assuming market interest rates increase or decrease by 50 basis points (bps) for an entire year, while all other variables remain constant. At December 31, 2017, we held \$34.2 million of cash and variable-rate investments where a change in interest rates would impact our interest income. A hypothetical 50 bps decline in interest rates as of December 31, 2017 would reduce annualized interest income on our cash and investments by approximately \$0.2 million. In addition, we held \$49.2 million of fixed-rate bonds whose fair values may be directly affected by a change in interest rates. A hypothetical 50 bps increase in interest rates as of December 31, 2017 would reduce the fair value of our fixed-rate bonds by approximately \$0.3 million.

As of December 31, 2016, interest income on approximately \$166.7 million of our cash and investments was subject to being directly affected by changes in interest rates. We performed a hypothetical sensitivity analysis assuming market interest rates increase or decrease by 50 bps for an entire year, while all other variables remain constant. A hypothetical 50 bps decline in interest rates as of December 31, 2016 would have reduced annualized interest income on our cash, money market instruments, floating rate corporate bonds and municipal variable rate demand notes by approximately \$0.3 million. In addition, a hypothetical 50 bps increase in interest rates as of December 31, 2016 would have reduced the fair value of our municipal and corporate bonds by approximately \$0.6 million.

We are exposed to changes in foreign currency exchange rates to the extent that such changes affect our revenue and gross margin on revenue derived from some international customers, expenses, and assets and liabilities held in non-functional currencies related to our foreign subsidiaries. Our primary exposures to foreign currency exchange rate movements are with our German subsidiary, whose functional currency is the Euro, our Australian subsidiary, whose functional currency is the Australian dollar, and our Mexican subsidiary, whose functional currency is the U.S. dollar. We are exposed to changes in foreign currency exchange rates to the extent of our German subsidiary's use of contract manufacturers and raw material suppliers whom we predominantly pay in U.S. dollars. As a result, changes in currency exchange rates could cause variations in gross margin in the products that we sell in the EMEA region.

We have certain international customers who are invoiced or pay in a non-functional currency. Changes in the monetary exchange rates used to invoice such customers versus the functional currency of the entity billing such customers may adversely affect our results of operations and financial condition. To manage the volatility relating to these typical business exposures, we may enter into various derivative transactions, when appropriate. We do not hold or issue derivative instruments for trading or other speculative purposes. All non-functional currencies billed would result in a combined hypothetical gain or loss of \$0.1 million if the U.S. dollar weakened or strengthened 10% against the billing currencies. Any gain or loss would be partially mitigated by these derivative instruments.

As of December 31, 2017, we had no material contracts subject to currency revaluation, other than accounts receivable and accounts payable denominated in foreign currencies. As of December 31, 2017, we had no forward contracts outstanding.

For further information about the fair value of our available-for-sale investments and our derivative and hedging activities as of December 31, 2017, see Notes 4 and 5 of Notes to Consolidated Financial Statements.

# Report of Independent Registered Public Accounting Firm

**To Board of Directors and Stockholders of ADTRAN, Inc.:**

## **Opinions on the Financial Statements and Internal Control over Financial Reporting**

We have audited the accompanying consolidated balance sheets of ADTRAN, Inc. and its subsidiaries as of December 31, 2017 and 2016, and the related consolidated statements of income, comprehensive income, changes in stockholders' equity and cash flows for each of the three years in the period ended December 31, 2017, including the related notes listed in the accompanying index (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2017, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2017 and 2016, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2017 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2017, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

## **Basis for Opinions**

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

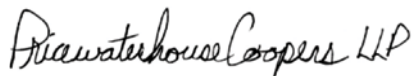
We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

**Definition and Limitations of Internal Control over Financial Reporting**

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

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

A handwritten signature in cursive script that reads "PricewaterhouseCoopers LLP".

PricewaterhouseCoopers LLP  
Birmingham, Alabama  
February 23, 2018

We have served as the Company's auditor since 1986.

# Financial Statements

## ADTRAN, INC.

### Consolidated Balance Sheets

December 31, 2017 and 2016

(In thousands, except per share amounts)

Assets	2017	2016
<b>Current Assets</b>		
Cash and cash equivalents	\$86,433	\$79,895
Short-term investments	16,129	43,188
Accounts receivable, less allowance for doubtful accounts of \$— at December 31, 2017 and 2016	144,150	92,346
Other receivables	26,578	15,897
Inventory, net	122,542	105,117
Prepaid expenses and other current assets	17,282	16,459
<b>Total Current Assets</b>	<b>413,114</b>	<b>352,902</b>
Property, plant and equipment, net	85,079	84,469
Deferred tax assets, net	23,428	38,036
Goodwill	3,492	3,492
Other assets	13,725	12,234
Long-term investments	130,256	176,102
<b>Total Assets</b>	<b>\$669,094</b>	<b>\$667,235</b>
<b>Liabilities and Stockholders' Equity</b>		
<b>Current Liabilities</b>		
Accounts payable	\$60,632	\$77,342
Unearned revenue	13,070	16,326
Accrued expenses	13,232	12,434
Accrued wages and benefits	15,948	20,433
Income tax payable	3,936	—
<b>Total Current Liabilities</b>	<b>106,818</b>	<b>126,535</b>
Non-current unearned revenue	4,556	6,333
Other non-current liabilities	34,209	28,050
Bonds payable	25,600	26,800
<b>Total Liabilities</b>	<b>171,183</b>	<b>187,718</b>
Commitments and contingencies (see Note 14)		
<b>Stockholders' Equity</b>		
Common stock, par value \$0.01 per share; 200,000 shares authorized; 79,652 shares issued and 48,485 shares outstanding at December 31, 2017 and 79,652 shares issued and 48,472 shares outstanding at December 31, 2016	797	797
Additional paid-in capital	260,515	252,957
Accumulated other comprehensive loss	(3,295)	(12,188)
Retained earnings	922,178	921,942
Less treasury stock at cost: 31,167 and 31,180 shares at December 31, 2017 and 2016, respectively	(682,284)	(683,991)
<b>Total Stockholders' Equity</b>	<b>497,911</b>	<b>479,517</b>
<b>Total Liabilities and Stockholders' Equity</b>	<b>\$669,094</b>	<b>\$667,235</b>

See notes to consolidated financial statements.

**ADTRAN, INC.****Consolidated Statements of Income**

Years ended December 31, 2017, 2016 and 2015

<i>(In thousands, except per share amounts)</i>	<b>2017</b>	<b>2016</b>	<b>2015</b>
<b>Sales</b>			
Products	\$540,396	\$525,502	\$527,422
Services	126,504	111,279	72,642
<b>Total Sales</b>	<b>666,900</b>	<b>636,781</b>	<b>600,064</b>
<b>Cost of Sales</b>			
Products	279,541	270,695	293,843
Services	83,699	74,742	39,324
<b>Total Cost of Sales</b>	<b>363,240</b>	<b>345,437</b>	<b>333,167</b>
<b>Gross Profit</b>	<b>303,660</b>	<b>291,344</b>	<b>266,897</b>
Selling, general and administrative expenses	135,489	131,805	123,542
Research and development expenses	130,434	124,804	129,876
<b>Operating Income</b>	<b>37,737</b>	<b>34,735</b>	<b>13,479</b>
Interest and dividend income	4,380	3,918	3,953
Interest expense	(556)	(572)	(596)
Net realized investment gain	4,685	5,923	10,337
Other expense, net	(1,559)	(651)	(1,465)
Gain on bargain purchase of a business	—	3,542	—
<b>Income before provision for income taxes</b>	<b>44,687</b>	<b>46,895</b>	<b>25,708</b>
Provision for income taxes	(20,847)	(11,666)	(7,062)
<b>Net Income</b>	<b>\$23,840</b>	<b>\$35,229</b>	<b>\$18,646</b>
Weighted average shares outstanding—basic	48,153	48,724	51,145
Weighted average shares outstanding—diluted	48,699	48,949	51,267
Earnings per common share—basic	\$0.50	\$0.72	\$0.36
Earnings per common share—diluted	\$0.49	\$0.72	\$0.36

See notes to consolidated financial statements.

**ADTRAN, INC.****Consolidated Statements of Comprehensive Income**

Years ended December 31, 2017, 2016 and 2015

<i>(In thousands)</i>	2017	2016	2015
<b>Net Income</b>	<b>\$23,840</b>	<b>\$35,229</b>	<b>\$18,646</b>
Other Comprehensive Income (Loss), net of tax:			
Net unrealized gains (losses) on available-for-sale securities	2,163	(1,528)	(7,032)
Defined benefit plan adjustments	731	(1,122)	1,862
Foreign currency translation	5,999	(569)	(3,724)
<b>Other Comprehensive Income (Loss), net of tax</b>	<b>8,893</b>	<b>(3,219)</b>	<b>(8,894)</b>
<b>Comprehensive Income, net of tax</b>	<b>\$32,733</b>	<b>\$32,010</b>	<b>\$9,752</b>

*See notes to consolidated financial statements.*

**ADTRAN, INC.**
**Consolidated Statements of Changes in Stockholders' Equity**

Years ended December 31, 2017, 2016 and 2015

<i>(In thousands)</i>	Common Shares	Common Stock	Additional Paid-In Capital	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Income (Loss)	Total Stockholders' Equity
<b>Balance, December 31, 2014</b>	<b>79,652</b>	<b>\$797</b>	<b>\$241,829</b>	<b>\$907,751</b>	<b>\$(601,289)</b>	<b>\$(75)</b>	<b>\$549,013</b>
Net income				18,646			18,646
Other comprehensive loss, net of tax						(8,894)	(8,894)
Dividend payments				(18,449)			(18,449)
Dividends accrued for unvested restricted stock units				(7)			(7)
Stock options exercised: 60 shares				(402)	1,363		961
PSUs, RSUs and restricted stock vested: 34 shares			(69)	(767)	767		(69)
Purchase of treasury stock: 3,967 shares					(66,160)		(66,160)
Income tax effect of stock compensation arrangements			(1,593)				(1,593)
Stock-based compensation expense			6,712				6,712
<b>Balance, December 31, 2015</b>	<b>79,652</b>	<b>797</b>	<b>246,879</b>	<b>906,772</b>	<b>(665,319)</b>	<b>(8,969)</b>	<b>480,160</b>
Net income				35,229			35,229
Other comprehensive loss, net of tax						(3,219)	(3,219)
Dividend payments				(17,583)			(17,583)
Dividends accrued for unvested restricted stock units				(48)			(48)
Stock options exercised: 283 shares				(1,499)	6,216		4,717
PSUs, RSUs and restricted stock vested: 42 shares			(142)	(929)	929		(142)
Purchase of treasury stock: 1,411 shares					(25,817)		(25,817)
Income tax effect of stock compensation arrangements			(475)				(475)
Stock-based compensation expense			6,695				6,695
<b>Balance, December 31, 2016</b>	<b>79,652</b>	<b>797</b>	<b>252,957</b>	<b>921,942</b>	<b>(683,991)</b>	<b>(12,188)</b>	<b>479,517</b>
Net income				23,840			23,840
Other comprehensive income, net of tax						8,893	8,893
Dividend payments				(17,368)			(17,368)
Dividends accrued for unvested restricted stock units				(37)			(37)
Stock options exercised: 742 shares				(2,827)	16,239		13,412
PSUs, RSUs and restricted stock vested: 154 shares				(3,257)	2,816		(441)
Purchase of treasury stock: 856 shares					(17,348)		(17,348)
Stock-based compensation expense			7,433				7,433
ASU 2016-09 adoption (see Note 1)			125	(115)			10
<b>Balance, December 31, 2017</b>	<b>79,652</b>	<b>\$797</b>	<b>\$260,515</b>	<b>\$922,178</b>	<b>\$(682,284)</b>	<b>\$(3,295)</b>	<b>\$497,911</b>

See notes to consolidated financial statements.



**ADTRAN, INC.****Consolidated Statements of Cash Flows**

Years ended December 31, 2017, 2016 and 2015

<i>(In thousands)</i>	2017	2016	2015
<b>Cash flows from operating activities</b>			
Net income	\$23,840	\$35,229	\$18,646
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	15,692	14,407	14,245
Amortization of net premium on available-for-sale investments	425	643	2,402
Net realized gain on long-term investments	(4,685)	(5,923)	(10,337)
Net (gain) loss on disposal of property, plant and equipment	(145)	22	644
Gain on bargain purchase of a business	—	(3,542)	—
Stock-based compensation expense	7,433	6,695	6,712
Deferred income taxes	14,073	(2,685)	(692)
Tax impact of stock option exercises	—	—	(40)
Change in operating assets and liabilities:			
Accounts receivable, net	(49,103)	(21,302)	14,918
Other receivables	(10,222)	4,101	11,704
Inventory	(15,518)	(10,887)	(6,877)
Prepaid expenses and other assets	(4,830)	(7,108)	(5,070)
Accounts payable	(17,742)	26,722	(5,826)
Accrued expenses and other liabilities	(5,455)	8,792	(10,289)
Income taxes payable	3,858	(3,162)	(11,590)
<b>Net cash provided by (used in) operating activities</b>	<b>(42,379)</b>	<b>42,002</b>	<b>18,550</b>
<b>Cash flows from investing activities</b>			
Purchases of property, plant and equipment	(14,720)	(21,441)	(11,753)
Proceeds from disposals of property, plant and equipment	151	—	183
Proceeds from sales and maturities of available-for-sale investments	173,752	225,075	280,435
Purchases of available-for-sale investments	(93,141)	(209,172)	(188,921)
Acquisition of business	—	(943)	—
<b>Net cash provided by (used in) investing activities</b>	<b>66,042</b>	<b>(6,481)</b>	<b>79,944</b>
<b>Cash flows from financing activities</b>			
Proceeds from stock option exercises	13,412	4,717	961
Purchases of treasury stock	(17,348)	(25,817)	(66,160)
Dividend payments	(17,368)	(17,583)	(18,449)
Payments on long-term debt	(1,100)	(1,100)	(1,100)
<b>Net cash used in financing activities</b>	<b>(22,404)</b>	<b>(39,783)</b>	<b>(84,748)</b>
Net increase (decrease) in cash and cash equivalents	1,259	(4,262)	13,746
Effect of exchange rate changes	5,279	(393)	(2,635)
<b>Cash and cash equivalents, beginning of year</b>	<b>79,895</b>	<b>84,550</b>	<b>73,439</b>
<b>Cash and cash equivalents, end of year</b>	<b>\$86,433</b>	<b>\$79,895</b>	<b>\$84,550</b>
Supplemental disclosure of cash flow information			
Cash paid during the year for interest	\$555	\$575	\$598
Cash paid during the year for income taxes	\$2,988	\$18,689	\$20,139
Supplemental disclosure of non-cash investing activities			
Purchases of property, plant and equipment included in accounts payable	\$408	\$2,103	\$598

See notes to consolidated financial statements.

# Notes to Consolidated Financial Statements

## 1 Nature of Business and Summary of Significant Accounting Policies

ADTRAN, Inc. (ADTRAN) is a leading global provider of networking and communications equipment. Our solutions enable voice, data, video and Internet communications across a variety of network infrastructures. These solutions are deployed by many of the United States' and the world's largest communications service providers (CSPs), distributed enterprises and small and medium-sized businesses, public and private enterprises, and millions of individual users worldwide.

### Principles of Consolidation

Our consolidated financial statements include ADTRAN and its wholly owned subsidiaries. All inter-company accounts and transactions have been eliminated in consolidation.

### Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenue and expense during the reporting period. Our more significant estimates include the obsolete and excess inventory reserves, warranty reserves, customer rebates, determination of the deferred revenue components of multiple element sales agreements, estimated costs to complete obligations associated with deferred revenues and network installations, estimated income tax provision and income tax contingencies, the fair value of stock-based compensation, impairment of goodwill, valuation and estimated lives of intangible assets, estimated pension liability, fair value of investments, and the evaluation of other-than-temporary declines in the value of investments. Actual amounts could differ significantly from these estimates.

### Cash and Cash Equivalents

Cash and cash equivalents represent demand deposits, money market funds, and short-term investments classified as available-for-sale with original maturities of three months or less. We maintain depository investments with certain financial institutions. Although these depository investments may exceed government insured depository limits, we have evaluated the credit worthiness of these applicable financial institutions, and determined the risk of material financial loss due to the exposure of such credit risk to be minimal. As of December 31, 2017, \$83.7 million of our cash and cash equivalents, primarily certain domestic money market funds and foreign depository accounts, were in excess of government provided insured depository limits.

### Financial Instruments

The carrying amounts reported in the consolidated balance sheets for cash and cash equivalents, accounts receivable, and accounts payable approximate fair value due to the immediate or short-term maturity of these financial instruments. The carrying amount reported for bonds payable was \$26.7 million, compared to an estimated fair value of \$26.7 million, based on a debt security with a comparable interest rate and maturity and a Standard & Poor's credit rating of AAA.

Investments with contractual maturities beyond one year, such as our variable rate demand notes, may be classified as short-term based on their highly liquid nature and because such marketable securities represent the investment of cash that is available for current operations. Despite the long-term nature of their stated contractual maturities, we routinely buy and sell these securities and we believe we have the ability to quickly sell them to the remarketing agent, tender agent, or issuer at par value plus accrued interest in the event we decide to liquidate our investment in a particular variable rate demand note. All income generated from these investments was recorded as interest income. We have not been required to record any losses relating to variable rate demand notes.

Long-term investments represent a restricted certificate of deposit held at cost, deferred compensation plan assets, corporate bonds, municipal fixed-rate bonds, asset-backed bonds, mortgage/agency backed bonds, U.S. and foreign government bonds, variable rate demand notes, marketable equity securities, and other equity investments. Marketable equity securities are reported at fair value as determined by the most recently traded price of the securities at the balance sheet date, although the securities may not be readily marketable due to the size of the available market. Unrealized gains and losses, net of tax, are reported as a separate component of stockholders' equity. Realized gains and losses on sales of securities are computed under the specific identification method and are included in current income. We review our investment portfolio quarterly for investments considered to have sustained an other-than-temporary decline in value. Impairment charges for other-than-temporary declines in value are recorded as realized losses in the accompanying consolidated statements of income. All of our investments at December 31, 2017 and 2016 are classified as available-for-sale securities. See Note 4 of Notes to Consolidated Financial Statements for additional information.

#### **Accounts Receivable**

We record accounts receivable at net realizable value. Prior to establishing payment terms for a new customer, we evaluate the credit risk of the customer. Credit limits and payment terms established for new customers are re-evaluated periodically based on customer collection experience and other financial factors. At December 31, 2017, single customers comprising more than 10% of our total accounts receivable balance included two customers, which accounted for 63.8% of our total accounts receivable. At December 31, 2016, single customers comprising more than 10% of our total accounts receivable balance included three customers, which accounted for 63.3% of our total accounts receivable.

We regularly review the need to maintain an allowance for doubtful accounts and consider factors such as the age of accounts receivable balances, the current economic conditions that may affect a customer's ability to pay, significant one-time events and our historical experience. If the financial condition of a customer deteriorates, resulting in an impairment of their ability to make payments, we may be required to record an allowance for doubtful accounts. If circumstances change with regard to individual receivable balances that have previously been determined to be uncollectible (and for which a specific reserve has been established), a reduction in our allowance for doubtful accounts may be required. We did not have an allowance for doubtful accounts at December 31, 2017 or December 31, 2016.

#### **Other Receivables**

Other receivables are comprised primarily of lease receivables, amounts due from subcontract manufacturers for product component transfers, unbilled receivables, amounts due from various jurisdictions for value-added tax, income tax receivable, accrued interest on investments and on a restricted certificate of deposit, and amounts due from employee stock option exercises.

#### **Inventory**

Inventory is carried at the lower of cost and net realizable value, with cost being determined using the first-in, first-out method. Standard costs for material, labor and manufacturing overhead are used to value inventory. Standard costs are updated at least quarterly; therefore, inventory costs approximate actual costs at the end of each reporting period. We establish reserves for estimated excess, obsolete or unmarketable inventory equal to the difference between the cost of the inventory and the estimated fair value of the inventory based upon assumptions about future demand, market conditions and age. When we dispose of excess and obsolete inventories, the related disposals are charged against the inventory reserve. See Note 6 of Notes to Consolidated Financial Statements for additional information.

#### **Property, Plant and Equipment**

Property, plant and equipment, which is stated at cost, is depreciated using the straight-line method over the estimated useful lives of the assets. We depreciate building and land improvements from five to 39 years, office machinery and equipment from three to seven years, engineering machinery and equipment from three to seven years, and computer software from three to five years. Expenditures for repairs and maintenance are charged to expense as incurred. Betterments that materially prolong the lives of the assets are capitalized. Gains and losses on the disposal of property, plant and equipment are recorded in operating income. See Note 7 of Notes to Consolidated Financial Statements for additional information.

### Liability for Warranty

Our products generally include warranties of 90 days to five years for product defects. We accrue for warranty returns at the time revenue is recognized based on our historical return rate and estimate of the cost to repair or replace the defective products. We engage in extensive product quality programs and processes, including actively monitoring and evaluating the quality of our component suppliers. Our products continue to become more complex in both size and functionality as many of our product offerings migrate from line card applications to total systems. The increasing complexity of our products will cause warranty incidences, when they arise, to be more costly. Our estimates regarding future warranty obligations may change due to product failure rates, material usage, and other rework costs incurred in correcting a product failure. In addition, from time to time, specific warranty accruals may be recorded if unforeseen problems arise. Should our actual experience relative to these factors be worse than our estimates, we will be required to record additional warranty expense. Alternatively, if we provide for more reserves than we require, we will reverse a portion of such provisions in future periods. During 2017, we recorded a reduction in warranty expense related to a settlement with a third party supplier for a defective component, the impact of which is reflected in the following table. The liability for warranty obligations totaled \$9.7 million and \$8.5 million at December 31, 2017 and 2016, respectively. These liabilities are included in accrued expenses in the accompanying consolidated balance sheets.

A summary of warranty expense and write-off activity for the years ended December 31, 2017, 2016 and 2015 is as follows:

*(In thousands)*

Year Ended December 31,	2017	2016	2015
Balance at beginning of period	\$8,548	\$8,739	\$8,415
Plus: Amounts charged to cost and expenses	6,951	8,561	2,998
Less: Deductions	(5,775)	(8,752)	(2,674)
<b>Balance at end of period</b>	<b>\$9,724</b>	<b>\$8,548</b>	<b>\$8,739</b>

### Pension Benefit Plan Obligations

We maintain a defined benefit pension plan covering employees in certain foreign countries. Pension benefit plan obligations are based on various assumptions used by our actuaries in calculating these amounts. These assumptions include discount rates, compensation rate increases, expected return on plan assets, retirement rates and mortality rates. Actual results that differ from the assumptions and changes in assumptions could affect future expenses and obligations.

### Stock-Based Compensation

We have two Board and stockholder approved stock incentive plans from which stock options, performance stock units (PSUs), restricted stock units (RSUs) and restricted stock are available for grant to employees and directors. All employee and director stock options granted under our stock option plans have an exercise price equal to the fair market value of the award, as defined in the plan, of the underlying common stock on the grant date. All of our outstanding stock option awards are classified as equity awards.

Stock-based compensation expense recognized in 2017, 2016 and 2015 was approximately \$7.4 million, \$6.7 million and \$6.7 million, respectively. As of December 31, 2017, total compensation cost related to non-vested stock options, market-based PSUs, RSUs and restricted stock not yet recognized was approximately \$17.1 million, which is expected to be recognized over an average remaining recognition period of 2.9 years. In addition, there was \$11.4 million of unrecognized compensation expense related to unvested performance-based PSUs, which will be recognized over the requisite service period of three years as achievement of the performance obligation becomes probable. See Note 3 of Notes to Consolidated Financial Statements for additional information.

### Impairment of Long-Lived Assets

We review long-lived assets used in operations for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable and the undiscounted cash flows estimated to be generated by the asset are less than the asset's carrying value. An impairment loss would be recognized in the amount by which the recorded value of the asset exceeds the fair value of the asset, measured by the quoted market price of an asset or an estimate based on the best information available in the circumstances. There were no impairment losses recognized during 2017, 2016 or 2015.

### Goodwill and Purchased Intangible Assets

We evaluate the carrying value of goodwill during the fourth quarter of each year and between annual evaluations if events occur or circumstances change that would more likely than not reduce the fair value of the reporting unit below its carrying amount. We have elected to first assess the qualitative factors to determine whether it is more likely than not that the fair value of the reporting unit to which the goodwill is assigned is less than its carrying amount as a basis for determining whether it is necessary to perform the two-step impairment test. If we determine that it is more likely than not that its fair value is less than its carrying amount, then the two-step impairment test will be performed. Based on the results of our qualitative assessment in 2017, we concluded that it was not necessary to perform the two-step impairment test. There have been no impairment losses recognized since the goodwill was acquired in an acquisition in 2011. Purchased intangible assets with finite lives are carried at cost, less accumulated amortization. Amortization is recorded over the estimated useful lives of the respective assets, which is 9 months to 14 years.

### Research and Development Costs

Research and development costs include compensation for engineers and support personnel, outside contracted services, depreciation and material costs associated with new product development, the enhancement of current products, and product cost reductions. We continually evaluate new product opportunities and engage in intensive research and product development efforts. Research and development costs totaled \$130.4 million, \$124.8 million and \$129.9 million for the years ended December 31, 2017, 2016 and 2015, respectively.

### Other Comprehensive Income

Other comprehensive income consists of unrealized gains (losses) on available-for-sale securities; unrealized gains (losses) on cash flow hedges; reclassification adjustments for amounts included in net income related to impairments of available-for-sale securities, realized gains (losses) on available-for-sale securities, realized gains (losses) on cash flow hedges, and amortization of actuarial gains (losses) related to our defined benefit plan; defined benefit plan adjustments; and foreign currency translation adjustments.

The following table presents changes in accumulated other comprehensive income, net of tax, by component for the years ended December 31, 2015, 2016 and 2017:

<i>(In thousands)</i>	Unrealized Gains (Losses) on Available-for-Sale Securities	Unrealized Gains (Losses) on Cash Flow Hedges	Defined Benefit Plan Adjustments	Foreign Currency Adjustments	Total
<b>Balance at December 31, 2014</b>	<b>\$8,964</b>	<b>\$—</b>	<b>\$(5,757)</b>	<b>\$(3,282)</b>	<b>\$(75)</b>
Other comprehensive income (loss) before reclassifications	(844)	—	1,589	(3,724)	(2,979)
Amounts reclassified from accumulated other comprehensive income	(6,188)	—	273	—	(5,915)
<b>Balance at December 31, 2015</b>	<b>1,932</b>	<b>—</b>	<b>(3,895)</b>	<b>(7,006)</b>	<b>(8,969)</b>
Other comprehensive income (loss) before reclassifications	1,515	—	(1,229)	(569)	(283)
Amounts reclassified from accumulated other comprehensive income	(3,043)	—	107	—	(2,936)
<b>Balance at December 31, 2016</b>	<b>404</b>	<b>—</b>	<b>(5,017)</b>	<b>(7,575)</b>	<b>(12,188)</b>
Other comprehensive income (loss) before reclassifications	5,020	(619)	451	5,999	10,851
Amounts reclassified from accumulated other comprehensive income	(2,857)	619	280	—	(1,958)
<b>Balance at December 31, 2017</b>	<b>\$2,567</b>	<b>\$—</b>	<b>\$(4,286)</b>	<b>\$(1,576)</b>	<b>\$(3,295)</b>

The following tables present the details of reclassifications out of accumulated other comprehensive income for the years ended December 31, 2017, 2016 and 2015:

<i>(In thousands)</i>	<b>2017</b>	
Details about Accumulated Other Comprehensive Income Components	Amount Reclassified from Accumulated Other Comprehensive Income	Affected Line Item in the Statement Where Net Income Is Presented
<b>Unrealized gains (losses) on available-for-sale securities:</b>		
Net realized gain on sales of securities	\$4,864	Net realized investment gain
Impairment expense	(180)	Net realized investment gain
Net losses on derivatives designated as hedging instruments	(897)	Cost of sales
Defined benefit plan adjustments – actuarial losses	(406)	(1)
<b>Total reclassifications for the period, before tax</b>	<b>3,381</b>	
Tax (expense) benefit	(1,423)	
<b>Total reclassifications for the period, net of tax</b>	<b>\$1,958</b>	

(1) Included in the computation of net periodic pension cost. See Note 12 of Notes to Consolidated Financial Statements.

<i>(In thousands)</i>	<b>2016</b>	
Details about Accumulated Other Comprehensive Income Components	Amount Reclassified from Accumulated Other Comprehensive Income	Affected Line Item in the Statement Where Net Income Is Presented
<b>Unrealized gains (losses) on available-for-sale securities:</b>		
Net realized gain on sales of securities	\$5,408	Net realized investment gain
Impairment expense	(419)	Net realized investment gain
Defined benefit plan adjustments – actuarial losses	(156)	(1)
<b>Total reclassifications for the period, before tax</b>	<b>4,833</b>	
Tax (expense) benefit	(1,897)	
<b>Total reclassifications for the period, net of tax</b>	<b>\$2,936</b>	

(1) Included in the computation of net periodic pension cost. See Note 12 of Notes to Consolidated Financial Statements.

<i>(In thousands)</i>	<b>2015</b>	
Details about Accumulated Other Comprehensive Income Components	Amount Reclassified from Accumulated Other Comprehensive Income	Affected Line Item in the Statement Where Net Income Is Presented
<b>Unrealized gains (losses) on available-for-sale securities:</b>		
Net realized gain on sales of securities	\$10,348	Net realized investment gain
Impairment expense	(203)	Net realized investment gain
Defined benefit plan adjustments – actuarial losses	(396)	(1)
<b>Total reclassifications for the period, before tax</b>	<b>9,749</b>	
Tax (expense) benefit	(3,834)	
<b>Total reclassifications for the period, net of tax</b>	<b>\$5,915</b>	

(1) Included in the computation of net periodic pension cost. See Note 12 of Notes to Consolidated Financial Statements.

The following tables present the tax effects related to the change in each component of other comprehensive income for the years ended December 31, 2017, 2016 and 2015:

	<b>2017</b>		
<i>(In thousands)</i>	Before-Tax Amount	Tax (Expense) Benefit	Net-of-Tax Amount
Unrealized gains (losses) on available-for-sale securities	\$8,230	\$(3,210)	\$5,020
Reclassification adjustment for amounts related to available-for-sale investments included in net income	(4,684)	1,827	(2,857)
Unrealized gains (losses) on cash flow hedges	(897)	278	(619)
Reclassification adjustment for amounts related to cash flow hedges included in net income	897	(278)	619
Defined benefit plan adjustments	654	(203)	451
Reclassification adjustment for amounts related to defined benefit plan adjustments included in net income	406	(126)	280
Foreign currency translation adjustment	5,999	—	5,999
<b>Total Other Comprehensive Income (Loss)</b>	<b>\$10,605</b>	<b>\$(1,712)</b>	<b>\$8,893</b>

	<b>2016</b>		
<i>(In thousands)</i>	Before-Tax Amount	Tax (Expense) Benefit	Net-of-Tax Amount
Unrealized gains (losses) on available-for-sale securities	\$2,484	\$(969)	\$1,515
Reclassification adjustment for amounts related to available-for-sale investments included in net income	(4,989)	1,946	(3,043)
Defined benefit plan adjustments	(1,782)	553	(1,229)
Reclassification adjustment for amounts related to defined benefit plan adjustments included in net income	156	(49)	107
Foreign currency translation adjustment	(569)	—	(569)
<b>Total Other Comprehensive Income (Loss)</b>	<b>\$(4,700)</b>	<b>\$1,481</b>	<b>\$(3,219)</b>

	<b>2015</b>		
<i>(In thousands)</i>	Before-Tax Amount	Tax (Expense) Benefit	Net-of-Tax Amount
Unrealized gains (losses) on available-for-sale securities	\$(1,384)	\$540	\$(844)
Reclassification adjustment for amounts related to available-for-sale investments included in net income	(10,145)	3,957	(6,188)
Defined benefit plan adjustments	2,303	(714)	1,589
Reclassification adjustment for amounts related to defined benefit plan adjustments included in net income	396	(123)	273
Foreign currency translation adjustment	(3,724)	—	(3,724)
<b>Total Other Comprehensive Income (Loss)</b>	<b>\$(12,554)</b>	<b>\$3,660</b>	<b>\$(8,894)</b>



### **Income Taxes**

The provision for income taxes has been determined using the asset and liability approach of accounting for income taxes. Under this approach, deferred taxes represent the future tax consequences expected to occur when the reported amounts of assets and liabilities are recovered or paid. The provision for income taxes represents income taxes paid or payable for the current year plus the change in deferred taxes during the year. Deferred taxes result from the difference between financial and tax bases of our assets and liabilities and are adjusted for changes in tax rates and tax laws when such changes are enacted. Valuation allowances are recorded to reduce deferred tax assets when it is more likely than not that a tax benefit will not be realized.

We establish reserves to remove some or all of the tax benefit of any of our tax positions at the time we determine that the positions become uncertain. We adjust these reserves, including any impact on the related interest and penalties, as facts and circumstances change.

On December 22, 2017, the Tax Cuts and Jobs Act (the Act) was signed into law. As a result of the Act, we have recognized an estimated expense of \$11.9 million in the fourth quarter of 2017, of which \$9.2 million related to the write-down of deferred tax assets and \$2.7 million related to tax on unrepatriated foreign earnings. We have calculated our best estimate of the impact of the Act in our year-end income tax provision, in accordance with Staff Accounting Bulletin No. 118, which was issued to address the application of U.S. GAAP in situations when a registrant does not have the necessary information available, prepared or analyzed to finalize the accounting for certain income tax effects of the Act. Additional work is necessary to do a more detailed analysis of historical foreign earnings, as well as the full impact relating to the write-down of deferred tax assets. Any subsequent adjustments to these amounts will be recorded as income tax expense in the quarter the analysis is complete.

### **Foreign Currency**

We record transactions denominated in foreign currencies on a monthly basis using exchange rates from throughout the year. Assets and liabilities denominated in foreign currencies are remeasured at the balance sheet dates using the closing rates of exchange between those foreign currencies and the functional currency with any transaction gains or losses reported in other income (expense). Our primary exposures to foreign currency exchange rate movements are with our German subsidiary, whose functional currency is the Euro, our Australian subsidiary, whose functional currency is the Australian dollar, and our Mexican subsidiary, whose functional currency is the U.S. dollar. Adjustments resulting from translating financial statements of international subsidiaries are recorded as a component of accumulated other comprehensive income (loss).

### **Revenue Recognition**

Revenue is generally recognized when persuasive evidence of an arrangement exists, delivery has occurred, the product price is fixed or determinable, collection of the resulting receivable is reasonably assured, and product returns are reasonably estimable. For product sales, revenue is generally recognized upon shipment of the product to our customer in accordance with the title transfer terms of the sales agreement, generally Ex Works, per International Commercial Terms. In the case of consigned inventory, revenue is recognized when the end customer assumes ownership of the product. Contracts that contain multiple deliverables are evaluated to determine the units of accounting, and the consideration from the arrangement is allocated to each unit of accounting based on the relative selling price and corresponding terms of the contract. When this is not available, we are generally not able to determine third-party evidence of selling price because of the extent of customization among competing products or services from other companies. In these instances, we use best estimates to allocate consideration to each respective unit of accounting. These estimates include analysis of respective bills of material and review and analysis of similar product and service offerings. We record revenue associated with installation services when respective contractual obligations are complete. In instances where customer acceptance is required, revenue is deferred until respective acceptance criteria have been met. Contracts that include both installation services and product sales are evaluated for revenue recognition in accordance with contract terms. As a result, installation services may be considered a separate deliverable or may be considered a combined single unit of accounting with the delivered product. Generally, either the purchaser, ADTRAN, or a third party can perform the installation of our products. Shipping fees are recorded as revenue and the related cost is included in cost of sales. Sales taxes invoiced to customers are included in revenues, and represent less than one percent of total revenues. The corresponding sales taxes paid are included in cost of goods sold. Value added taxes collected from customers in international jurisdictions are recorded in accrued expenses as a liability. Revenue is recorded net of discounts. Sales returns are recorded as a reduction of revenue and accrued based on historical sales return experience, which we believe provides a reasonable estimate of future returns.



A portion of our products are sold to a non-exclusive distribution network of major technology distributors in the United States. These large organizations then distribute or provide fulfillment services to an extensive network of VARs and SIs. VARs and SIs may be affiliated with us as a channel partner, or they may purchase from the distributor in an unaffiliated fashion. Additionally, with certain limitations our distributors may return unused and unopened product for stock-balancing purposes when such returns are accompanied by offsetting orders for products of equal or greater value.

We participate in cooperative advertising and market development programs with certain customers. We use these programs to reimburse customers for certain forms of advertising, and in general, to allow our customers credits up to a specified percentage of their net purchases. Our costs associated with these programs are estimated and included in marketing expenses in our consolidated statements of income. We also participate in rebate programs to provide sales incentives for certain products. Our costs associated with these programs are estimated and accrued at the time of sale, and are recorded as a reduction of sales in our consolidated statements of income.

#### **Unearned Revenue**

Unearned revenue primarily represents customer billings on our maintenance service programs and leases and unearned revenues relating to multiple element contracts where we still have contractual obligations to our customers. We currently offer maintenance contracts ranging from one to five years. Revenue attributable to maintenance contracts is recognized on a straight-line basis over the related contract term. In addition, we provide software maintenance and a variety of hardware maintenance services to customers under contracts with terms up to ten years. When we defer revenue related to multiple-element contracts where we still have contractual obligations, we also defer the related costs. Current deferred costs are included in prepaid expenses and other assets and totaled \$11.4 million and \$10.7 million at December 31, 2017 and 2016, respectively. Non-current deferred costs are included in other assets and totaled \$2.8 million and \$0.9 million at December 31, 2017 and 2016, respectively.

#### **Other Income (Expense), Net**

Other income (expense), net, is comprised primarily of miscellaneous income and expense, gains and losses on foreign currency transactions, gains and losses on foreign exchange forward contracts, investment account management fees, and scrap raw material sales.

#### **Earnings per Share**

Earnings per common share, and earnings per common share assuming dilution, are based on the weighted average number of common shares and, when dilutive, common equivalent shares outstanding during the year. See Note 15 of Notes to Consolidated Financial Statements for additional information.

## Dividends

During 2017, 2016 and 2015, we paid shareholder dividends totaling \$17.4 million, \$17.6 million and \$18.4 million, respectively. The Board of Directors presently anticipates that it will declare a regular quarterly dividend so long as the present tax treatment of dividends exists and adequate levels of liquidity are maintained. The following table shows dividends paid to our shareholders in each quarter of 2017, 2016 and 2015.

### Dividends per Common Share

2017	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
	\$0.09	\$0.09	\$0.09	\$0.09
2016	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
	\$0.09	\$0.09	\$0.09	\$0.09
2015	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
	\$0.09	\$0.09	\$0.09	\$0.09

On January 16, 2018, the Board of Directors declared a quarterly cash dividend of \$0.09 per common share to be paid to shareholders of record at the close of business on January 31, 2018. The ex-dividend date was January 30, 2018 and the payment date was February 14, 2018. The quarterly dividend payment was \$4.4 million.

## Business Combinations

We use the acquisition method to account for business combinations. Under the acquisition method of accounting, we recognize the assets acquired and liabilities assumed at their fair value on the acquisition date. Goodwill is measured as the excess of the consideration transferred over the net assets acquired. Costs incurred to complete the business combination, such as legal, accounting or other professional fees, are charged to general and administrative expenses as they are incurred.

## Recently Issued Accounting Standards

In May 2014, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update No. 2014-09, Revenue from Contracts with Customers (Topic 606) (ASU 2014-09), which supersedes the revenue recognition requirements in Topic 605, Revenue Recognition, including most industry-specific revenue recognition guidance throughout the Industry Topics of the Codification. The core principle of ASU 2014-09 is to recognize revenues when promised goods or services are transferred to customers in an amount that reflects the consideration that is expected to be received for those goods or services. In August 2015, the FASB issued ASU 2015-14, which deferred the effective date of ASU 2014-09 to fiscal years beginning after December 31, 2017, and interim periods within those fiscal years, with early adoption permitted for reporting periods beginning after December 15, 2016. Subsequently, the FASB issued ASUs in 2016 containing implementation guidance related to ASU 2014-09, including: ASU 2016-08, Revenue from Contracts with Customers (Topic 606): Principal versus Agent Considerations (Reporting Revenue Gross versus Net), which is intended to improve the operability and understandability of the implementation guidance on principal versus agent considerations; ASU 2016-10, Revenue from Contracts with Customers (Topic 606): Identifying Performance Obligations and Licensing, which is intended to clarify two aspects of Topic 606: identifying performance obligations and the licensing implementation guidance; ASU 2016-12, Revenue from Contracts with Customers (Topic 606): Narrow-Scope Improvements and Practical Expedients, which contains certain provisions and practical expedients in response to identified implementation issues; and ASU 2016-20, Technical Corrections and Improvements to Topic 606, Revenue from Contracts with Customers, which is intended to clarify the Codification or to correct unintended application of guidance. ASU 2014-09 allows for either full retrospective or modified retrospective adoption. We adopted ASU 2014-09 and the related ASUs on January 1, 2018 using the modified retrospective method.

The two areas of impact of these ASUs are network installation service revenue performance obligations and contract costs. The output method will be used to measure network installation services progress. The primary impact will be the timing of revenue recognition for certain performance obligations related to service revenue arrangements that are currently deferred until customer acceptance.

In connection with the adoption of the new revenue standard, effective January 1, 2018, we adopted ASC 340-40, Other Assets and Deferred Costs - Contracts with Customers, with respect to capitalization and amortization of incremental costs of obtaining a contract. As a result, certain costs of obtaining a contract will need to be capitalized, including sales commissions, as the guidance requires the capitalization of all incremental costs incurred to obtain a contract with a customer that it would not have

incurred if the contract had not been obtained, provided the costs are recoverable. The primary impact will be capitalization of certain sales commissions for our extended maintenance and support contracts in excess of one year and costs associated with our capital lease arrangements that are billed monthly, and amortization of those costs over the period that the related revenue is recognized.

We will recognize the cumulative adjustment for network installation service revenue performance obligations and contract costs to retained earnings during the three months ended March 31, 2018. We do not believe the cumulative adjustment will have a significant impact on our consolidated financial statements during 2018.

In February 2016, the FASB issued Accounting Standards Update No. 2016-02, Leases (Topic 842) (ASU 2016-02). ASU 2016-02 requires an entity to recognize lease assets and lease liabilities on the balance sheet and to disclose key information about the entity's leasing arrangements. ASU 2016-02 is effective for fiscal years beginning after December 15, 2018, and interim periods within those fiscal years. A modified retrospective approach is required. We anticipate the adoption of ASU 2016-02 will have a material impact on our financial position; however, we do not believe adoption will have a material impact on our results of operations. We believe the most significant impact relates to our accounting for operating leases for office space and equipment.

In January 2017, the FASB issued Accounting Standards Update No. 2017-04, Intangibles – Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment (ASU 2017-04). ASU 2017-04 simplifies the measurement of goodwill by eliminating step 2 of the goodwill impairment test. Under ASU 2017-04, entities will be required to compare the fair value of a reporting unit to its carrying amount and recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value. ASU 2017-04 is effective for annual or interim impairment tests performed in fiscal years beginning after December 15, 2019, with early adoption permitted for annual or interim impairment tests performed on testing dates after January 1, 2017. The amendments should be applied prospectively. We are currently evaluating whether to early adopt ASU 2017-04, but we do not expect it will have a material impact on our financial position, results of operations or cash flows.

In March 2017, the FASB issued Accounting Standards Update No. 2017-07, Compensation – Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost (ASU 2017-07). ASU 2017-07 amends ASC 715, Compensation — Retirement Benefits, to require employers that present a measure of operating income in their statements of earnings to include only the service cost component of net periodic pension cost and net periodic postretirement benefit cost in operating expenses (together with other employee compensation costs). The other components of net benefit cost, including amortization of prior service cost/credit, and settlement and curtailment effects, are to be included in non-operating expenses. ASU 2017-07 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2017. We adopted ASU 2017-07 on January 1, 2018 and we do not expect it will have a material impact on our financial position, results of operations or cash flows.

In August 2017, the FASB issued Accounting Standards Update No. 2017-12, Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities (ASU 2017-12). ASU 2017-12 expands and refines hedge accounting for both financial and non-financial risk components, aligns the recognition and presentation of the effects of hedging instruments and hedge items in the financial statements, and includes certain targeted improvements to ease the application of current guidance related to the assessment of hedge effectiveness. ASU 2017-12 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018, with early adoption permitted. We are currently evaluating the impact ASU 2017-12 will have on our financial position, results of operations and cash flows.

During 2017, we adopted the following accounting standards, which had no material effect on our financial position, results of operations or cash flows:

In July 2015, the FASB issued Accounting Standards Update No. 2015-11, Inventory (Topic 330): Simplifying the Measurement of Inventory (ASU 2015-11). Currently, Topic 330, Inventory, requires an entity to measure inventory at the lower of cost or market. Market could be replacement cost, net realizable value, or net realizable value less an approximately normal profit margin. ASU 2015-11 does not apply to inventory that is measured using last-in, first-out (LIFO) or the retail inventory method. The amendments apply to all other inventory, which includes inventory that is measured using first-in, first-out (FIFO) or average cost. ASU 2015-11 requires an entity to measure in scope inventory at the lower of cost and net realizable value. Net realizable value is the estimated selling prices in the ordinary course of business, less reasonably predictable costs of completion, disposal, and transportation. ASU 2015-11 is effective for annual reporting periods beginning after December 15, 2016, including interim periods within that reporting period. The amendments should be applied prospectively with earlier application permitted as of the beginning of an interim or annual reporting period. We adopted ASU 2015-11 in the first quarter of 2017, and there was no material impact on our financial position, results of operations or cash flows.

In January 2017, we adopted ASU 2016-09, Compensation – Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting. As a result, beginning in the first quarter of 2017, we began recognizing all excess tax benefits and tax deficiencies as income tax expense or benefit as a discrete event. The treatment of forfeitures has changed as we have elected to discontinue our past practice of estimating forfeitures and now account for forfeitures as they occur. As a result, we recorded an increase in additional paid in capital of \$0.1 million, a charge to beginning retained earnings of \$0.1 million, and an increase in the deferred tax assets related to non-qualified stock options and RSUs of \$10 thousand. In addition, cash flows related to excess tax benefits will no longer be separately classified as a financing activity apart from other income tax cash flows within operating activities. We elected to retrospectively apply the changes in presentation to the statements of cash flows and no longer classify excess tax benefits as a financing activity, which had an immaterial impact on our cash flows for the years ended December 31, 2017, 2016 and 2015. There was no material impact on our financial position, results of operations or cash flows as a result of these changes.

## 2 Business Combinations

On September 13, 2016, we acquired key fiber access products, technologies and service relationships from subsidiaries of ComScope, Inc. for \$0.9 million in cash. This acquisition enhanced our solutions for the cable MSO industry and provided cable operators with the scalable solutions, services and support they required to compete in the multi-gigabit service delivery market. This transaction was accounted for as a business combination. We have included the financial results of this acquisition in our consolidated financial statements since the date of acquisition. These revenues are included in the Network Solutions reportable segment, and in the Access & Aggregation and Customer Devices categories.

We recorded a bargain purchase gain of \$3.5 million during the year ended December 31, 2016, net of income taxes, which was subject to customary working capital adjustments between the parties. The bargain purchase gain of \$3.5 million represents the excess fair value of the net assets acquired over the consideration exchanged. We have assessed the recognition and measurement of the assets acquired and liabilities assumed based on historical and pro forma data for future periods and have concluded that our valuation procedures and resulting measures were appropriate. The gain is included in the line item “Gain on bargain purchase of a business” in the 2016 Consolidated Statements of Income.

Working capital adjustments were recorded in the fourth quarter of 2016 and resulted in an immaterial reduction in the inventory acquired, accounts payable assumed, deferred income taxes and bargain purchase gain. If these adjustments had been recorded on the date of acquisition, the bargain purchase gain would have been reduced by \$8 thousand for the three months ended September 30, 2016. The final allocation of the purchase price to the estimated fair value of the assets acquired and liabilities assumed at the acquisition date is as follows:

*(In thousands)*

<b>Assets</b>	
Inventory	\$3,131
Property, plant and equipment	352
Intangible assets	4,700
<b>Total assets acquired</b>	<b>8,183</b>
<b>Liabilities</b>	
Accounts payable	(1,250)
Warranty payable	(61)
Accrued wages and benefits	(122)
Deferred income taxes	(2,265)
<b>Total liabilities assumed</b>	<b>(3,698)</b>
<b>Total net assets</b>	<b>4,485</b>
Gain on bargain purchase of a business, net of tax	(3,542)
<b>Total purchase price</b>	<b>\$943</b>

The details of the acquired intangible assets are as follows:

<i>(In thousands)</i>	Value	Life (years)
Supply agreement	\$1,400	0.8
Customer relationships	1,200	6.0
Developed technology	800	10.0
License	500	1.3
Patent	500	7.3
Non-compete	200	2.3
Trade name	100	2.0
<b>Total</b>	<b>\$4,700</b>	

The following unaudited supplemental pro forma information presents the financial results as if the acquisition had occurred on January 1, 2015. This unaudited supplemental pro forma information does not purport to be indicative of what would have occurred had the acquisition been completed on January 1, 2015, nor is it indicative of any future results. Aside from revising the 2015 net income for the effect of the bargain purchase gain, there were no material, non-recurring adjustments to this unaudited pro forma information.

<i>(In thousands)</i>	2016	2015
Pro forma revenue	\$641,170	\$603,923
Pro forma net income	\$31,212	\$22,945
Pro forma earnings per share—basic	\$0.64	\$0.45
Pro forma earnings per share—diluted	\$0.64	\$0.45

For the years ended December 31, 2017 and 2016, we incurred acquisition and integration related expenses and amortization of acquired intangibles of \$1.8 million and \$1.0 million, respectively, related to this acquisition.

### 3 Stock-Based Compensation

#### Stock Incentive Program Descriptions

On January 23, 2006, the Board of Directors adopted the ADTRAN, Inc. 2006 Employee Stock Incentive Plan (2006 Plan), which authorized 13.0 million shares of common stock for issuance to certain employees and officers through incentive stock options and non-qualified stock options, stock appreciation rights, RSUs and restricted stock. The 2006 Plan was adopted by stockholder approval at our annual meeting of stockholders held on May 9, 2006. Options granted under the 2006 Plan typically become exercisable beginning after one year of continued employment, normally pursuant to a four-year vesting schedule beginning on the first anniversary of the grant date, and have a ten-year contractual term. The 2006 Plan was replaced on May 13, 2015 by the ADTRAN, Inc. 2015 Employee Stock Incentive Plan (2015 Plan). Expiration dates of options outstanding at December 31, 2017 under the 2006 Plan range from 2018 to 2024.

Our stockholders approved the 2010 Directors Stock Plan (2010 Directors Plan) on May 5, 2010, under which 0.5 million shares of common stock have been reserved. This plan replaces the 2005 Directors Stock Option Plan. Under the 2010 Directors Plan, the Company may issue stock options, restricted stock and RSUs to our non-employee directors. Stock awards issued under the 2010 Directors Plan normally become vested in full on the first anniversary of the grant date. Options issued under the 2010 Directors Plan have a ten-year contractual term. Expiration dates of options outstanding at December 31, 2017 under the 2010 Directors Plan range from 2018 to 2019.

On January 20, 2015, the Board of Directors adopted the ADTRAN, Inc. 2015 Employee Stock Incentive Plan (2015 Plan), which authorizes 7.7 million shares of common stock for issuance to certain employees and officers through incentive stock options and non-qualified stock options, stock appreciation rights, PSUs, RSUs and restricted stock. The 2015 Plan was adopted by stockholder approval at our annual meeting of stockholders held on May 13, 2015. PSUs, RSUs and restricted stock granted under the 2015 Plan reduce the shares authorized for issuance under the 2015 Plan by 2.5 shares of common stock for each share underlying the award. Options granted under the 2015 Plan typically become exercisable beginning after one year of continued employment, normally pursuant to a four-year vesting schedule beginning on the first anniversary of the grant date, and have a ten-year contractual term. Expiration dates of options outstanding at December 31, 2017 under the 2015 Plan range from 2025 to 2026.

The following table summarizes stock-based compensation expense related to stock options, PSUs, RSUs and restricted stock for the years ended December 31, 2017, 2016 and 2015, which was recognized as follows:

<i>(In thousands)</i>	2017	2016	2015
<b>Stock-based compensation expense included in cost of sales</b>	<b>\$379</b>	<b>\$389</b>	<b>\$280</b>
Selling, general and administrative expense	4,063	3,341	3,261
Research and development expense	2,991	2,965	3,171
<b>Stock-based compensation expense included in operating expenses</b>	<b>7,054</b>	<b>6,306</b>	<b>6,432</b>
<b>Total stock-based compensation expense</b>	<b>7,433</b>	<b>6,695</b>	<b>6,712</b>
Tax benefit for expense associated with non-qualified options, PSUs, RSUs and restricted stock	(1,699)	(963)	(862)
<b>Total stock-based compensation expense, net of tax</b>	<b>\$5,734</b>	<b>\$5,732</b>	<b>\$5,850</b>

With our adoption of ASU 2016-09 Compensation – Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting in January 2017, we elected to discontinue our past practice of estimating forfeitures and now account for forfeitures as they occur.

### Stock Options

The following table is a summary of our stock options outstanding as of December 31, 2016 and 2017 and the changes that occurred during 2017:

<i>(In thousands, except per share amounts)</i>	Number of Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life in Years	Aggregate Intrinsic Value
<b>Stock Options outstanding, December 31, 2016</b>	<b>6,338</b>	<b>\$22.14</b>	<b>5.63</b>	<b>\$16,972</b>
Stock options granted	—	\$—		
Stock options exercised	(742)	\$18.08		
Stock options forfeited	(70)	\$17.29		
Stock options expired	(378)	\$24.14		
<b>Stock options outstanding, December 31, 2017</b>	<b>5,148</b>	<b>\$22.65</b>	<b>4.87</b>	<b>\$6,109</b>
<b>Stock options vested and expected to vest, December 31, 2017</b>	<b>5,148</b>	<b>\$22.65</b>	<b>4.87</b>	<b>\$6,109</b>
<b>Stock options exercisable, December 31, 2017</b>	<b>4,351</b>	<b>\$23.78</b>	<b>4.37</b>	<b>\$3,810</b>

At December 31, 2017, total compensation cost related to non-vested stock options not yet recognized was approximately \$3.2 million, which is expected to be recognized over an average remaining recognition period of 1.5 years.

All of the options above were issued at exercise prices that approximated fair market value at the date of grant. At December 31, 2017, 3.5 million options were available for grant under the shareholder approved plans.

The aggregate intrinsic values in the table above represent the total pre-tax intrinsic value (the difference between ADTRAN's closing stock price on the last trading day of 2017 and the exercise price, multiplied by the number of in-the-money options) that would have been received by the option holders had all option holders exercised their options on December 31, 2017. The amount of aggregate intrinsic value will change based on the fair market value of ADTRAN's stock.

The total pre-tax intrinsic value of options exercised during 2017, 2016 and 2015 was \$3.4 million, \$1.1 million and \$0.1 million, respectively. The fair value of options fully vesting during 2017, 2016 and 2015 was \$4.3 million, \$5.7 million and \$6.6 million, respectively.

The following table further describes our stock options outstanding as of December 31, 2017:

Range of Exercise Prices	Options Outstanding			Options Exercisable		
	Options Outstanding at 12/31/17 (in thousands)	Weighted Avg. Remaining Contractual Life in Years	Weighted Average Exercise Price	Options Exercisable at 12/31/17 (in thousands)	Weighted Average Exercise Price	
\$14.88 – 18.96	1,623	6.02	\$15.77	1,063	\$15.96	
\$18.97 – 23.45	801	6.68	\$19.11	565	\$19.17	
\$23.46 – 30.35	1,400	4.16	\$23.85	1,399	\$23.85	
\$30.36 – 41.92	1,324	3.29	\$31.94	1,324	\$31.94	
	5,148			4,351		

#### PSUs, RSUs and restricted stock

Under the 2015 Plan, awards other than stock options, including PSUs, RSUs and restricted stock, may be granted to certain employees and officers.

Under our market-based PSU program, the number of shares of common stock earned by a recipient pursuant to the PSUs is subject to a market condition based on ADTRAN's relative total shareholder return against all companies in the NASDAQ Telecommunications Index at the end of a three-year performance period. Depending on the relative total shareholder return over the performance period, the recipient may earn from 0% to 150% of the shares underlying the PSUs, with the shares earned distributed upon the vesting of the PSUs at the end of the three-year performance period. The fair value of the award is based on the market price of our common stock on the date of grant, adjusted for the expected outcome of the impact of market conditions using a Monte Carlo Simulation valuation method. A portion of the granted PSUs also vest and the underlying shares become deliverable upon the death or disability of the recipient or upon a change of control of ADTRAN, as defined by the 2015 Plan. The recipients of the PSUs receive dividend credits based on the shares of common stock underlying the PSUs. The dividend credits are vested and earned in the same manner as the PSUs and are paid in cash upon the issuance of common stock for the PSUs.

During the first quarter of 2017, the Compensation Committee of the Board of Directors approved a PSU grant of 0.5 million shares that contain performance conditions. The fair value of these performance-based PSU awards was equal to the closing price of our stock on the date of grant.

The fair value of RSUs and restricted stock is equal to the closing price of our stock on the business day immediately preceding the grant date. RSUs and restricted stock vest ratably over four year and one year periods, respectively.



The following table is a summary of our PSUs, RSUs and restricted stock outstanding as of December 31, 2016 and 2017 and the changes that occurred during 2017. The unvested awards outstanding as of December 31, 2016 have been adjusted for the actual shares vested in 2017 for our market-based PSUs.

<i>(In thousands except per share amounts)</i>	Number of Shares	Weighted Average Grant Date Fair Value
<b>Unvested PSUs, RSUs and restricted stock outstanding, December 31, 2016</b>	<b>527</b>	<b>\$20.53</b>
PSUs, RSUs and restricted stock granted	950	\$21.69
PSUs, RSUs and restricted stock vested	(154)	\$20.84
PSUs, RSUs and restricted stock forfeited	(31)	\$20.99
<b>Unvested RSUs and restricted stock outstanding, December 31, 2017</b>	<b>1,292</b>	<b>\$21.33</b>

At December 31, 2017, total compensation cost related to the non-vested portion of market-based PSUs, RSUs and restricted stock not yet recognized was approximately \$13.9 million, which is expected to be recognized over an average remaining recognition period of 3.2 years. In addition, there was \$11.4 million of unrecognized compensation expense related to unvested performance-based PSUs, which will be recognized over the requisite service period of three years as achievement of the performance obligation becomes probable. For the year ended 2017, no compensation expense was recognized related to these performance-based PSUs.

#### Valuation and Expense Information

We use the Black-Scholes option pricing model (Black-Scholes Model) for the purpose of determining the estimated fair value of stock option awards on the date of grant. The Black-Scholes Model requires the input of certain assumptions that involve judgment. Because our stock options have characteristics significantly different from those of traded options, and because changes in the input assumptions can materially affect the fair value estimate, existing models may not provide reliable measures of fair value of our stock options. We use a Monte Carlo Simulation valuation method to value our market-based PSUs. The fair value of our performance-based PSUs, RSUs and restricted stock issued is equal to the closing price of our stock on the date of grant. We will continue to assess the assumptions and methodologies used to calculate the estimated fair value of stock-based compensation. If circumstances change, and additional data becomes available over time, we may change our assumptions and methodologies, which may materially impact our fair value determination.

The stock option pricing model requires the use of several assumptions that impact the fair value estimate. These variables include, but are not limited to, the volatility of our stock price and employee exercise behaviors.

There were no stock option grants in 2017. The weighted-average estimated fair value of stock options granted to employees during the years ended December 31, 2016 and 2015 was \$5.22 per share and \$4.28 per share, respectively, with the following weighted-average assumptions:

	2016	2015
Expected volatility	34.79%	34.57%
Risk-free interest rate	1.36%	1.81%
Expected dividend yield	1.98%	2.35%
Expected life (in years)	6.25	6.23

We based our estimate of expected volatility for the years ended December 31, 2016 and 2015 on the sequential historical daily trading data of our common stock for a period equal to the expected life of the options granted. The selection of the historical volatility method was based on available data indicating our historical volatility is as equally representative of our future stock price trends as is our implied volatility. We have no reason to believe the future volatility of our stock price is likely to differ from its past volatility. The risk-free interest rate assumption is based upon implied yields of U.S. Treasury zero-coupon bonds on the date of grant having a remaining term equal to the expected life of the options granted. The dividend yield is based on our historical and expected dividend payouts. The expected life of our stock options is based upon historical exercise and forfeiture activity of our previous stock-based grants with a ten-year contractual term.



The PSU pricing model also requires the use of several significant assumptions that impact the fair value estimate. The estimated fair value of the PSUs granted to employees during the years ended December 31, 2017, 2016 and 2015 was \$24.17 per share, \$23.50 per share and \$17.64 per share, respectively, with the following assumptions:

	2017	2016	2015
Expected volatility	27.03%	29.79%	31.34%
Risk-free interest rate	1.78%	1.17%	1.20%
Expected dividend yield	1.74%	1.80%	2.35%

#### 4 Investments

At December 31, 2017, we held the following securities and investments, recorded at either fair value or cost:

<i>(In thousands)</i>	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value/ Carrying Value
Deferred compensation plan assets	\$17,804	\$2,175	\$(96)	\$19,883
Corporate bonds	32,654	44	(155)	32,543
Municipal fixed-rate bonds	2,902	2	(22)	2,882
Asset-backed bonds	6,545	1	(20)	6,526
Mortgage/Agency-backed bonds	5,554	1	(46)	5,509
U.S. government bonds	14,477	—	(174)	14,303
Foreign government bonds	725	5	—	730
Marketable equity securities	33,478	3,034	(850)	35,662
<b>Available-for-sale securities held at fair value</b>	<b>\$114,139</b>	<b>\$5,262</b>	<b>\$(1,363)</b>	<b>\$118,038</b>
<b>Restricted investment held at cost</b>				<b>27,800</b>
<b>Other investments</b>				<b>547</b>
<b>Total carrying value of available-for-sale investments</b>				<b>\$146,385</b>

At December 31, 2016, we held the following securities and investments, recorded at either fair value or cost:

<i>(In thousands)</i>	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value/ Carrying Value
Deferred compensation plan assets	\$12,367	\$2,271	\$(42)	\$14,596
Corporate bonds	66,522	64	(174)	66,412
Municipal fixed-rate bonds	11,799	12	(37)	11,774
Asset-backed bonds	10,201	19	(14)	10,206
Mortgage/Agency-backed bonds	13,080	15	(91)	13,004
U.S. government bonds	30,022	15	(270)	29,767
Foreign government bonds	3,729	2	(1)	3,730
Variable rate demand notes	11,855	—	—	11,855
Marketable equity securities	30,571	311	(1,503)	29,379
<b>Available-for-sale securities held at fair value</b>	<b>\$190,146</b>	<b>\$2,709</b>	<b>\$(2,132)</b>	<b>\$190,723</b>
<b>Restricted investment held at cost</b>				<b>27,800</b>
<b>Other investments held at cost</b>				<b>767</b>
<b>Total carrying value of available-for-sale investments</b>				<b>\$219,290</b>

As of December 31, 2017, corporate bonds, municipal fixed-rate bonds, asset-backed bonds, mortgage/agency-backed bonds, U.S. government bonds, and foreign government bonds had the following contractual maturities:

<i>(In thousands)</i>	Corporate bonds	Municipal fixed-rate bonds	Asset-backed bonds	Mortgage/Agency-backed bonds	U.S. government bonds	Foreign government bonds
Less than one year	\$12,021	\$891	\$143	\$—	\$3,073	\$—
One to two years	9,145	826	2,367	—	5,960	—
Two to three years	7,345	212	2,245	—	3,568	730
Three to five years	4,032	953	810	356	1,702	—
Five to ten years	—	—	158	1,144	—	—
More than ten years	—	—	803	4,009	—	—
<b>Total</b>	<b>\$32,543</b>	<b>\$2,882</b>	<b>\$6,526</b>	<b>\$5,509</b>	<b>\$14,303</b>	<b>\$730</b>

Our investment policy provides limitations for issuer concentration, which limits, at the time of purchase, the concentration in any one issuer to 5% of the market value of our total investment portfolio.

We review our investment portfolio for potential “other-than-temporary” declines in value on an individual investment basis. We assess, on a quarterly basis, significant declines in value which may be considered other-than-temporary and, if necessary, recognize and record the appropriate charge to write-down the carrying value of such investments. In making this assessment, we take into consideration qualitative and quantitative information, including but not limited to the following: the magnitude and duration of historical declines in market prices, credit rating activity, assessments of liquidity, public filings, and statements made by the issuer. We generally begin our identification of potential other-than-temporary impairments by reviewing any security with a fair value that has declined from its original or adjusted cost basis by 25% or more for six or more consecutive months. We then evaluate the individual security based on the previously identified factors to determine the amount of the write-down, if any. For each of the years ended December 31, 2017, 2016 and 2015, we recorded a charge of \$0.2 million, \$0.8 million and \$0.2 million, respectively, related to the other-than-temporary impairment of certain marketable equity securities and our deferred compensation plan assets.

Realized gains and losses on sales of securities are computed under the specific identification method. The following table presents gross realized gains and losses related to our investments for the years ended December 31, 2017, 2016 and 2015:

<i>(In thousands)</i>	2017	2016	2015
<b>Year Ended December 31,</b>			
Gross realized gains	\$5,258	\$7,530	\$10,906
Gross realized losses	\$(573)	\$(1,607)	\$(569)

The following table presents the breakdown of investments with unrealized losses at December 31, 2017:

<i>(In thousands)</i>	Continuous Unrealized Loss Position for Less than 12 Months		Continuous Unrealized Loss Position for 12 Months or Greater		Total	
	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses
Deferred compensation plan assets	\$1,922	\$(81)	\$262	\$(15)	\$2,184	\$(96)
Corporate bonds	16,015	(58)	6,112	(97)	22,127	(155)
Municipal fixed-rate bonds	230	—	1,165	(22)	1,395	(22)
Asset-backed bonds	4,941	(17)	179	(3)	5,120	(20)
Mortgage/Agency-backed bonds	3,062	(8)	1,673	(38)	4,735	(46)
U.S. government bonds	2,754	(26)	11,549	(148)	14,303	(174)
Marketable equity securities	10,169	(712)	544	(138)	10,713	(850)
<b>Total</b>	<b>\$39,093</b>	<b>\$(902)</b>	<b>\$21,484</b>	<b>\$(461)</b>	<b>\$60,577</b>	<b>\$(1,363)</b>

The following table presents the breakdown of investments with unrealized losses at December 31, 2016:

<i>(In thousands)</i>	Continuous Unrealized Loss Position for Less than 12 Months		Continuous Unrealized Loss Position for 12 Months or Greater		Total	
	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses
Deferred compensation plan assets	\$294	\$(12)	\$245	\$(30)	\$539	\$(42)
Corporate bonds	32,562	(166)	2,722	(8)	35,284	(174)
Municipal fixed-rate bonds	8,936	(37)	—	—	8,936	(37)
Asset-backed bonds	2,986	(14)	—	—	2,986	(14)
Mortgage/Agency-backed bonds	7,842	(81)	1,239	(10)	9,081	(91)
U.S. government bonds	26,449	(270)	—	—	26,449	(270)
Mortgage/Agency-backed bonds	924	(1)	—	—	924	(1)
Marketable equity securities	21,607	(1,200)	1,495	(303)	23,102	(1,503)
<b>Total</b>	<b>\$101,600</b>	<b>\$(1,781)</b>	<b>\$5,701</b>	<b>\$(351)</b>	<b>\$107,301</b>	<b>\$(2,132)</b>

The decrease in unrealized losses during 2017, as reflected in the table above, results from changes in market positions associated with our fixed income and equity investment portfolio. At December 31, 2017, a total of 274 of our marketable equity securities were in an unrealized loss position.

We have categorized our cash equivalents and our investments held at fair value into a three-level fair value hierarchy based on the priority of the inputs to the valuation technique for the cash equivalents and investments as follows: Level 1 - Values based on unadjusted quoted prices for identical assets or liabilities in an active market; Level 2 - Values based on quoted prices in markets that are not active or model inputs that are observable either directly or indirectly; Level 3 - Values based on prices or valuation techniques that require inputs that are both unobservable and significant to the overall fair value measurement. These inputs could include information supplied by investees.

#### Fair Value Measurements at December 31, 2017 Using

<i>(In thousands)</i>	Fair Value	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
<b>Cash equivalents</b>				
Money market funds	\$5,851	\$5,851	\$—	\$—
Commercial paper	3,999	—	3,999	—
<b>Cash equivalents</b>	<b>9,850</b>	<b>5,851</b>	<b>3,999</b>	<b>—</b>
<b>Available-for-sale securities</b>				
Deferred compensation plan assets	19,883	19,883	—	—
<b>Available-for-sale debt securities</b>				
Corporate bonds	32,543	—	32,543	—
Municipal fixed-rate bonds	2,882	—	2,882	—
Asset-backed bonds	6,526	—	6,526	—
Mortgage/Agency-backed bonds	5,509	—	5,509	—
U.S. government bonds	14,303	14,303	—	—
Foreign government bonds	730	—	730	—
<b>Available-for-sale marketable equity securities</b>				
Marketable equity securities— various industries	35,662	35,662	—	—
<b>Available-for-sale securities</b>	<b>118,038</b>	<b>69,848</b>	<b>48,190</b>	<b>—</b>
<b>Total</b>	<b>\$127,888</b>	<b>\$75,699</b>	<b>\$52,189</b>	<b>\$—</b>

### Fair Value Measurements at December 31, 2016 Using

<i>(In thousands)</i>	Fair Value	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
<b>Cash equivalents</b>				
Money market funds	\$6,878	\$6,878	\$—	\$—
Commercial paper	17,222	—	17,222	—
<b>Cash equivalents</b>	<b>24,100</b>	<b>6,878</b>	<b>17,222</b>	<b>—</b>
<b>Available-for-sale securities</b>				
Deferred compensation plan assets	14,596	14,596	—	—
<b>Available-for-sale debt securities</b>				
Corporate bonds	66,412	—	66,412	—
Municipal fixed-rate bonds	11,774	—	11,774	—
Asset-backed bonds	10,206	—	10,206	—
Mortgage/Agency-backed bonds	13,004	—	13,004	—
U.S. government bonds	29,767	29,767	—	—
Foreign government bonds	3,730	—	3,730	—
Variable rate demand notes	11,855	—	11,855	—
<b>Available-for-sale marketable equity securities</b>				
Marketable equity securities— various industries	29,379	29,379	—	—
<b>Available-for-sale securities</b>	<b>190,723</b>	<b>73,742</b>	<b>116,981</b>	<b>—</b>
<b>Total</b>	<b>\$214,823</b>	<b>\$80,620</b>	<b>\$134,203</b>	<b>\$—</b>

The fair value of our Level 2 securities is calculated using a weighted average market price for each security. Market prices are obtained from a variety of industry standard data providers, security master files from large financial institutions, and other third-party sources. These multiple market prices are used as inputs into a distribution-curve-based algorithm to determine the daily market value of each security.

Our municipal variable rate demand notes have a structure that implies a standard expected market price. The frequent interest rate resets make it reasonable to expect the price to stay at par. These securities are priced at the expected market price.

## 5 Derivative Instruments and Hedging Activities

We participate in foreign exchange forward contracts in connection with the management of exposure to fluctuations in foreign exchange rates.

### Cash Flow Hedges

Our cash flow hedging activities utilize foreign exchange forward contracts to reduce the risk that movements in exchange rates will adversely affect the net cash flows resulting from the planned purchase of products from foreign suppliers. Purchases of U.S. denominated inventory by our European subsidiary represent our primary exposure. Changes in the fair value of derivatives designated as cash flow hedges are not recognized in current operating results, but are recorded in accumulated other comprehensive income. Amounts related to cash flow hedges are reclassified from accumulated other comprehensive income when the underlying hedged item impacts earnings. This reclassification is recorded in the same line item of the consolidated statements of income as where the effects of the hedged item are recorded, which is cost of sales.

### Undesignated Hedges

We have certain customers and suppliers who are invoiced or pay in a non-functional currency. Changes in the monetary exchange rates may adversely affect our results of operations and financial condition, as outstanding non-functional balances are revalued to the functional currency through profit and loss. When appropriate, we utilize foreign exchange forward contracts to help manage the volatility relating to these valuation exposures. All changes in the fair value of our derivative instruments that do not qualify for or are not designated for hedged accounting transactions are recognized as other income (expense) in the Consolidated Statements of Income.

We do not hold or issue derivative instruments for trading or other speculative purposes. Our derivative instruments are recorded in the Consolidated Balance Sheets at their fair values. Our derivative instruments are not subject to master netting agreements and are not offset in the Consolidated Balance Sheets. As of December 31, 2017, we had no forward contracts outstanding. The fair values of our derivative instruments recorded in the Consolidated Balance Sheet as of December 31, 2017 and 2016 were as follows:

<i>(In thousands)</i>	Balance Sheet Location	2017	2016
<b>Derivatives Not Designated as Hedging Instruments (Level 2):</b>			
Foreign exchange contracts – derivative assets	Other receivables	\$—	\$159

The change in the fair values of our derivative instruments recorded in the Consolidated Statements of Income during the years ended December 31, 2017, 2016 and 2015 were as follows:

<i>(In thousands)</i>	Income Statement Location	2017	2016	2015
<b>Derivatives Not Designated as Hedging Instruments:</b>				
Foreign exchange contracts	Other income (expense)	\$(754)	\$724	\$511

The change in our derivatives designated as hedging instruments recorded in other comprehensive income (OCI) and reclassified to income, net of tax, during the twelve months ended December 31, 2017, 2016 and 2015 were as follows:

<i>(In thousands)</i>	Amount of Gains (Losses) Recognized in OCI on Derivatives			Location of Gains (Losses) Reclassified from AOCI into Income	Amount of Gains (Losses) Reclassified from AOCI into Income		
	2017	2016	2015		2017	2016	2015
<b>Derivatives Designated as Hedging Instruments:</b>							
Foreign exchange contracts	\$—	\$—	\$—	Cost of Sales	\$(897)	\$—	\$—

## 6 Inventory

At December 31, 2017 and 2016, inventory was comprised of the following:

<i>(In thousands)</i>	2017	2016
Raw materials	\$44,185	\$40,461
Work in process	1,939	4,003
Finished goods	76,418	60,653
<b>Total Inventory, net</b>	<b>\$122,542</b>	<b>\$105,117</b>

We establish reserves for estimated excess, obsolete, or unmarketable inventory equal to the difference between the cost of the inventory and the estimated fair value of the inventory based upon assumptions about future demand and market conditions. At December 31, 2017 and 2016, raw materials reserves totaled \$15.0 million and \$14.6 million, respectively, and finished goods inventory reserves totaled \$8.3 million and \$10.6 million, respectively.

## 7 Property, Plant and Equipment

At December 31, 2017 and 2016, property, plant and equipment were comprised of the following:

<i>(In thousands)</i>	2017	2016
Land	\$4,575	\$4,575
Building and land improvements	32,470	29,229
Building	68,301	68,301
Furniture and fixtures	19,489	18,477
Computer hardware and software	90,726	87,655
Engineering and other equipment	123,363	118,746
<b>Total Property, Plant and Equipment</b>	<b>338,924</b>	<b>326,983</b>
Less accumulated depreciation	(253,845)	(242,514)
<b>Total Property, Plant and Equipment, net</b>	<b>\$85,079</b>	<b>\$84,469</b>

Depreciation expense was \$12.8 million, \$12.0 million and \$12.3 million in 2017, 2016, and 2015, respectively.

## 8 Lease Arrangements

We are the lessor in sales-type lease arrangements for network equipment, which have terms of 18 months to five years. The net investment in sales-type leases consists of lease receivables less unearned income. Collectability of sales-type leases is evaluated periodically on an individual customer level. At December 31, 2017, we had no allowance for credit losses for our net investment in sales-type leases. As of December 31, 2017 and 2016, the components of the net investment in sales-type leases were as follows:

<i>(In thousands)</i>	2017	2016
Current minimum lease payments receivable (included in other receivables)	\$11,325	\$2,141
Non-current minimum lease payments receivable (included in other assets)	2,913	2,912
<b>Total minimum lease payments receivable</b>	<b>14,238</b>	<b>5,053</b>
Less: Current unearned revenue	707	841
Less: Non-current unearned revenue	787	1,153
<b>Net investment in sales-type leases</b>	<b>\$12,744</b>	<b>\$3,059</b>

Future minimum lease payments to be received from sales-type leases at December 31, 2017 are as follows:

<i>(In thousands)</i>	Amount
2018	\$11,211
2019	2,172
2020	592
2021	205
2022	58
<b>Total</b>	<b>\$14,238</b>

## 9 Goodwill and Intangible Assets

Goodwill, all of which relates to our acquisition of Bluesocket, Inc., was \$3.5 million at December 31, 2017 and 2016, of which \$3.1 million and \$0.4 million is allocated to our Network Solutions and Services & Support reportable segments, respectively.

We evaluate the carrying value of goodwill during the fourth quarter of each year and between annual evaluations if events occur or circumstances change that would more likely than not reduce the fair value of the reporting unit below its carrying amount. We have elected to first assess the qualitative factors to determine whether it is more likely than not that the fair value of the reporting unit to which the goodwill is assigned is less than its carrying amount as a basis for determining whether it is necessary to perform the two-step impairment test. If we determine that it is more likely than not that its fair value is less than its carrying amount, then the two-step impairment test will be performed. Based on the results of our qualitative assessment in 2017, we concluded that it was not necessary to perform the two-step impairment test. There have been no impairment losses recognized since the acquisition in 2011.

Intangible assets are included in other assets in the accompanying Consolidated Balance Sheets. The following table presents our intangible assets as of December 31, 2017 and 2016:

<i>(In thousands)</i>	2017			2016		
	Gross Value	Accumulated Amortization	Net Value	Gross Value	Accumulated Amortization	Net Value
Customer relationships	\$7,474	\$(4,283)	\$3,191	\$6,899	\$(3,208)	\$3,691
Developed technology	5,524	(4,663)	861	5,184	(3,801)	1,383
Intellectual property	2,340	(2,262)	78	2,340	(2,129)	211
Supply agreement	1,400	(1,400)	—	1,400	(544)	856
License	500	(500)	—	500	(113)	387
Patent	500	(89)	411	500	(20)	480
Trade names	370	(335)	35	370	(285)	85
Non-compete	200	(115)	85	200	(26)	174
<b>Total</b>	<b>\$18,308</b>	<b>\$(13,647)</b>	<b>\$4,661</b>	<b>\$17,393</b>	<b>\$(10,126)</b>	<b>\$7,267</b>

Amortization expense was \$2.9 million, \$2.5 million and \$1.9 million for the years ended December 31, 2017, 2016 and 2015, respectively.

As of December 31, 2017, the estimated future amortization expense of intangible assets is as follows:

<i>(In thousands)</i>	<b>Amount</b>
2018	\$1,212
2019	697
2020	659
2021	603
2022	567
Thereafter	923
<b>Total</b>	<b>\$4,661</b>

## 10 Alabama State Industrial Development Authority Financing and Economic Incentives

In conjunction with an expansion of our Huntsville, Alabama, facility, we were approved for participation in an incentive program offered by the State of Alabama Industrial Development Authority (the "Authority"). Pursuant to the program, on January 13, 1995, the Authority issued \$20.0 million of its taxable revenue bonds and loaned the proceeds from the sale of the bonds to ADTRAN. The bonds were originally purchased by AmSouth Bank of Alabama, Birmingham, Alabama (the "Bank"). Wachovia Bank, N.A., Nashville, Tennessee (formerly First Union National Bank of Tennessee) (the "Bondholder"), which was acquired by Wells Fargo & Company on December 31, 2008, purchased the original bonds from the Bank and made further advances to the Authority, bringing the total amount outstanding to \$50.0 million. An Amended and Restated Taxable Revenue Bond ("Amended and Restated Bond") was issued and the original financing agreement was amended. The Amended and Restated Bond bears interest, payable monthly. The interest rate is 2% per annum. The Amended and Restated Bond matures on January 1, 2020, and is currently outstanding in the aggregate principal amount of \$26.7 million. The estimated fair value of the bond using a level 2 valuation technique at December 31, 2017 was approximately \$26.7 million, based on a debt security with a comparable interest rate and maturity and a Standard & Poor's credit rating of AAA. We are required to make payments to the Authority in amounts necessary to pay the interest on the Amended and Restated Bond. Included in long-term investments at December 31, 2017 is \$27.8 million which is invested in a restricted certificate of deposit. These funds serve as a collateral deposit against the principal of this bond, and we have the right to set-off the balance of the Bond with the collateral deposit in order to reduce the balance of the indebtedness.

In conjunction with this program, we are eligible to receive certain economic incentives from the state of Alabama that reduce the amount of payroll withholdings that we are required to remit to the state for those employment positions that qualify under the program. We realized economic incentives related to payroll withholdings totaling \$1.5 million for the year ended December 31, 2017 and \$1.3 million for each of the years ended December 31, 2016 and 2015.

We made principal payments of \$1.1 million for each of the years ended December 31, 2017 and 2016, and anticipate making a principal payment in 2018. At December 31, 2017, \$1.1 million of the bond debt was classified as a current liability in accounts payable in the Consolidated Balance Sheets.

## 11 Income Taxes

A summary of the components of the provision for income taxes for the years ended December 31, 2017, 2016 and 2015 is as follows:

<i>(In thousands)</i>	<b>2017</b>	<b>2016</b>	<b>2015</b>
<b>Current</b>			
Federal	\$466	\$12,733	\$7,504
State	(150)	1,141	279
International	6,458	477	(29)
<b>Total Current</b>	<b>6,774</b>	<b>14,351</b>	<b>7,754</b>
<b>Deferred</b>			
Federal	8,024	647	(585)
State	1,882	73	(66)
International	4,167	(3,405)	(41)
<b>Total Deferred</b>	<b>14,073</b>	<b>(2,685)</b>	<b>(692)</b>
<b>Total Provision for Income Taxes</b>	<b>\$20,847</b>	<b>\$11,666</b>	<b>\$7,062</b>

Our effective income tax rate differs from the federal statutory rate due to the following:

	2017	2016	2015
Tax provision computed at the federal statutory rate	35.00%	35.00%	35.00%
State income tax provision, net of federal benefit	2.17	3.93	4.86
Federal research credits	(11.88)	(8.15)	(12.55)
Foreign taxes	(2.27)	(0.34)	2.10
Tax-exempt income	(0.75)	(0.53)	(1.94)
State tax incentives	(2.71)	(2.77)	(5.04)
Stock-based compensation	1.43	2.53	6.91
Domestic production activity deduction	(1.13)	(2.23)	(3.17)
Bargain purchase	—	(2.64)	—
Impact of U.S. tax reform	26.70	—	—
Other, net	0.09	0.08	1.30
<b>Effective Tax Rate</b>	<b>46.65%</b>	<b>24.88%</b>	<b>27.47%</b>

Income before provision for income taxes for the years ended December 31, 2017, 2016 and 2015 is as follows:

<i>(In thousands)</i>	2017	2016	2015
U.S. entities	\$26,552	\$54,077	\$27,400
International entities	18,135	(7,182)	(1,692)
<b>Total</b>	<b>\$44,687</b>	<b>\$46,895</b>	<b>\$25,708</b>

Income before provision for income taxes for international entities reflects income based on statutory transfer pricing agreements. This amount does not correlate to consolidated international revenues, many of which occur from our U.S. entity.

Deferred income taxes on the balance sheet result from temporary differences between the amount of assets and liabilities recognized for financial reporting and tax purposes. The principal components of our current and non-current deferred taxes are as follows:

<i>(In thousands)</i>	2017	2016
<b>Deferred tax assets</b>		
Inventory	\$7,545	\$12,020
Accrued expenses	3,103	5,551
Investments	—	1,062
Deferred compensation	5,204	5,751
Stock-based compensation	2,988	4,724
Uncertain tax positions related to state taxes and related interest	370	762
Pensions	4,727	4,273
Foreign losses	3,091	6,486
State losses and credit carry-forwards	3,854	4,021
Federal loss and research carry-forwards	3,058	5,886
Valuation allowance	(6,006)	(6,149)
<b>Total Deferred Tax Assets</b>	<b>27,934</b>	<b>44,387</b>
<b>Deferred tax liabilities</b>		
Property, plant and equipment	(3,553)	(4,433)
Intellectual property	(663)	(1,918)
Investments	(290)	—
<b>Total Deferred Tax Liabilities</b>	<b>(4,506)</b>	<b>(6,351)</b>
<b>Net Deferred Tax Assets</b>	<b>\$23,428</b>	<b>\$38,036</b>



On December 22, 2017, the Tax Cuts and Jobs Act (the Act) was signed into law. As a result of the Act, we have recognized an estimated expense of \$11.9 million in the fourth quarter of 2017, of which \$9.2 million related to the write-down of deferred tax assets and \$2.7 million related to tax on unrepatriated foreign earnings. We have calculated our best estimate of the impact of the Act in our year-end income tax provision, in accordance with Staff Accounting Bulletin No. 118, which was issued to address the application of U.S. GAAP in situations when a registrant does not have the necessary information available, prepared or analyzed to finalize the accounting for certain income tax effects of the Act. Additional work is necessary to do a more detailed analysis of historical foreign earnings, as well as the full impact relating to the write-down of deferred tax assets. Any subsequent adjustments to these amounts will be recorded as income tax expense in the quarter the analysis is complete.

At December 31, 2017 and 2016, non-current deferred taxes related to our investments and our defined benefit pension plan reflect deferred taxes on the net unrealized gains on available-for-sale investments and deferred taxes on unrealized losses in our pension plan. The net change in non-current deferred taxes associated with these items, a deferred tax benefit of \$1.7 million and \$1.5 million in 2017 and 2016, respectively, is recorded as an adjustment to other comprehensive income, presented in the Consolidated Statements of Comprehensive Income.

Based upon our results of operations in 2017 and expected profitability in future years in a certain international jurisdiction, we concluded that it is more likely than not certain foreign deferred tax assets will be realized. As of December 31, 2017, the remaining valuation allowance primarily relates to deferred tax assets related to state credit carry-forwards from tax credits in excess of our annual tax liability to an individual state where we do not generate sufficient state income to offset the credit and net operating losses in foreign jurisdictions. We believe it is more likely than not that we will not realize the full benefits of the deferred tax assets arising from these losses and credits, and accordingly, we have provided a valuation allowance against these deferred tax assets. The deferred tax assets for foreign and domestic carry-forwards, unamortized research and development costs, and state credit carry-forwards of \$10.0 million will expire between 2018 and 2030. The loss carry-forwards were acquired through acquisitions in 2009 and 2011. We will continue to assess the realization of our deferred tax assets and related valuation allowances. The net change in our valuation allowance from December 31, 2016 to December 31, 2017 was \$(0.1) million.

As of December 31, 2017 and 2016, respectively, our cash and cash equivalents were \$86.4 million and \$79.9 million and short-term investments were \$16.1 million and \$43.2 million, which provided an available short-term liquidity of \$102.6 million and \$123.1 million. Of these amounts, our foreign subsidiaries held cash of \$56.8 million and \$42.1 million, respectively, representing approximately 55.4% and 34.2% of available short-term liquidity, which is used to fund on-going liquidity needs of these subsidiaries. We intend to permanently reinvest these funds outside the U.S. and our current business plans do not indicate a need to repatriate to fund domestic operations. However, if these funds were repatriated to the U.S. or used for U.S. operations, certain amounts could be subject to tax. Due to the timing and circumstances of repatriation of such earnings, if any, it is not practical to determine the amount of funds subject to unrecognized deferred tax liability.

During 2017 and 2016, we recorded no income tax benefit or expense for stock options exercised as an adjustment to equity. In 2015, we recorded an income tax expense of \$(40) thousand as an adjustment to equity. This is calculated on the difference between the exercise price of stock option exercises and the market price of the underlying common stock upon exercise.

The change in the unrecognized income tax benefits for the years ended December 31, 2017, 2016 and 2015 is reconciled below:

<i>(In thousands)</i>	2017	2016	2015
<b>Balance at beginning of period</b>	<b>\$2,226</b>	<b>\$2,537</b>	<b>\$3,334</b>
<b>Increases for tax position related to:</b>			
Prior years	465	95	—
Current year	285	428	280
<b>Decreases for tax positions related to:</b>			
Prior years	(14)	—	(29)
Settlements with taxing authorities	—	—	(103)
Expiration of applicable statute of limitations	(596)	(834)	(945)
<b>Balance at end of period</b>	<b>\$2,366</b>	<b>\$2,226</b>	<b>\$2,537</b>

As of December 31, 2017, 2016, and 2015, our total liability for unrecognized tax benefits was \$2.4 million, \$2.2 million, and \$2.5 million, respectively, of which \$2.2 million, \$1.7 million, and \$1.8 million, respectively, would reduce our effective tax rate if we were successful in upholding all of the uncertain positions and recognized the amounts recorded. We classify interest and penalties recognized on the liability for unrecognized tax benefits as income tax expense. As of December 31, 2017, 2016 and 2015, the balances of accrued interest and penalties were \$0.8 million, \$0.8 million and \$0.9 million, respectively.

We do not anticipate a single tax position generating a significant increase or decrease in our liability for unrecognized tax benefits within 12 months of this reporting date. We file income tax returns in the U.S. federal and various state jurisdictions and several foreign jurisdictions. We are not currently under audit by the Internal Revenue Service. Generally, we are not subject to changes in income taxes by any taxing jurisdiction for the years prior to 2013.

## 12 Employee Benefit Plans

### Pension Benefit Plan

We maintain a defined benefit pension plan covering employees in certain foreign countries.

The pension benefit plan obligations and funded status at December 31, 2017 and 2016, are as follows:

<i>(In thousands)</i>	2017	2016
<b>Change in projected benefit obligation:</b>		
Projected benefit obligation at beginning of period	\$30,011	\$26,851
Service cost	1,260	1,211
Interest cost	607	720
Actuarial gain (loss) - experience	47	(431)
Actuarial gain (loss) - assumptions	(1,294)	2,628
Benefit payments	(80)	(52)
Effects of foreign currency exchange rate changes	4,342	(916)
<b>Projected benefit obligation at end of period</b>	<b>34,893</b>	<b>30,011</b>
<b>Change in plan assets:</b>		
Fair value of plan assets at beginning of period	20,045	19,213
Actual return on plan assets	709	1,494
Contributions	3,001	—
Effects of foreign currency exchange rate changes	2,869	(662)
<b>Fair value of plan assets at end of period</b>	<b>26,624</b>	<b>20,045</b>
<b>Funded (unfunded) status at end of period</b>	<b>\$(8,269)</b>	<b>\$(9,966)</b>

The accumulated benefit obligation was \$32.9 million and \$28.7 million at December 31, 2017 and 2016, respectively. The increase in the accumulated benefit obligation is primarily attributable to the weakening U.S. dollar to Euro exchange rate during 2017. The change in actuarial gain (loss) is primarily attributable to an increase in the discount rate used in 2017.

The net amounts recognized in the balance sheet for the unfunded pension liability as of December 31, 2017 and 2016 are as follows:

<i>(In thousands)</i>	2017	2016
Current liability	\$—	\$—
Non-current liability	8,269	9,966
<b>Total</b>	<b>\$8,269</b>	<b>\$9,966</b>

The components of net periodic pension cost and amounts recognized in other comprehensive income for the years ended December 31, 2017, 2016 and 2015 are as follows:

<i>(In thousands)</i>	2017	2016	2015
<b>Net periodic benefit cost:</b>			
Service cost	\$1,260	\$1,211	\$1,314
Interest cost	607	720	615
Expected return on plan assets	(1,267)	(1,057)	(1,011)
Amortization of actuarial losses	309	175	407
<b>Net periodic benefit cost</b>	<b>909</b>	<b>1,049</b>	<b>1,325</b>
<b>Other changes in plan assets and benefit obligations recognized in other comprehensive income:</b>			
Net actuarial (gain) loss	(654)	1,782	(2,303)
Amortization of actuarial losses	(406)	(156)	(396)
<b>Amount recognized in other comprehensive income</b>	<b>(1,060)</b>	<b>1,626</b>	<b>(2,699)</b>
<b>Total recognized in net periodic benefit cost and other comprehensive income</b>	<b>\$(151)</b>	<b>\$2,675</b>	<b>\$(1,374)</b>

The amounts recognized in accumulated other comprehensive income as of December 31, 2017 and 2016 are as follows:

<i>(In thousands)</i>	2017	2016
Net actuarial loss	\$(5,812)	\$(6,871)

The defined benefit pension plan is accounted for on an actuarial basis, which requires the selection of various assumptions, including an expected rate of return on plan assets and a discount rate. The expected return on our German plan assets that is utilized in determining the benefit obligation and net periodic benefit cost is derived from periodic studies, which include a review of asset allocation strategies, anticipated future long-term performance of individual asset classes, risks using standard deviations and correlations of returns among the asset classes that comprise the plans' asset mix. While the studies give appropriate consideration to recent plan performance and historical returns, the assumptions are primarily long-term, prospective rates of return.

Another key assumption in determining net pension expense is the assumed discount rate to be used to discount plan obligations. The discount rate has been derived from the returns of high-quality, corporate bonds denominated in Euro currency with durations close to the duration of our pension obligations.

The weighted-average assumptions that were used to determine the net periodic benefit cost for the years ended December 31, 2017, 2016 and 2015 are as follows:

	2017	2016	2015
Discount rates	1.90%	2.64%	2.20%
Rate of compensation increase	2.00%	2.00%	2.25%
Expected long-term rates of return	5.90%	5.40%	5.40%

The weighted-average assumptions that were used to determine the benefit obligation at December 31, 2017 and 2016:

	2017	2016
Discount rates	2.13%	1.90%
Rate of compensation increase	2.00%	2.00%

Actuarial gains and losses are recorded in accumulated other comprehensive income. To the extent unamortized gains and losses exceed 10% of the higher of the market-related value of assets or the projected benefit obligation, the excess is amortized as a component of net periodic pension cost over the remaining service period of active participants. We estimate that \$0.2 million will be amortized from accumulated other comprehensive income into net periodic pension cost in 2018 for the net actuarial loss.

We do not anticipate making a contribution to this pension plan in 2018. The following pension benefit payments, which reflect expected future service, as appropriate, are expected to be paid to participants:

<i>(In thousands)</i>	
2018	\$549
2019	772
2020	1,090
2021	1,225
2022	1,315
2023 – 2027	6,301
<b>Total</b>	<b>\$11,252</b>

We have categorized our cash equivalents and our investments held at fair value into a three-level fair value hierarchy based on the priority of the inputs to the valuation technique for the cash equivalents and investments as follows: Level 1 - Values based on unadjusted quoted prices for identical assets or liabilities in an active market; Level 2 - Values based on quoted prices in markets that are not active or model inputs that are observable either directly or indirectly; Level 3 - Values based on prices or valuation techniques that require inputs that are both unobservable and significant to the overall fair value measurement. These inputs include information supplied by investees.

#### **Fair Value Measurements at December 31, 2017 Using**

<i>(In thousands)</i>	Fair Value	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Cash and cash equivalents	\$3,005	\$3,005	\$—	\$—
<b>Available-for-sale securities</b>				
<b>Bond funds:</b>				
Corporate bonds	14,349	14,349	—	—
Government bonds	2,305	2,305	—	—
<b>Equity funds:</b>				
Large cap blend	5,758	5,758	—	—
Large cap value	309	309	—	—
Balanced fund	898	898	—	—
<b>Available-for-sale securities</b>	<b>23,619</b>	<b>23,619</b>	<b>—</b>	<b>—</b>
<b>Total</b>	<b>\$26,624</b>	<b>\$26,624</b>	<b>\$—</b>	<b>\$—</b>

### Fair Value Measurements at December 31, 2016 Using

<i>(In thousands)</i>	Fair Value	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Cash and cash equivalents	\$6	\$6	\$—	\$—
<b>Available-for-sale securities</b>				
<b>Bond funds:</b>				
Corporate bonds	12,546	12,546	—	—
Government bonds	2,037	2,037	—	—
<b>Equity funds:</b>				
Large cap blend	4,462	4,462	—	—
Large cap value	249	249	—	—
Balanced fund	745	745	—	—
<b>Available-for-sale securities</b>	<b>20,039</b>	<b>20,039</b>	<b>—</b>	<b>—</b>
<b>Total</b>	<b>\$20,045</b>	<b>\$20,045</b>	<b>\$—</b>	<b>\$—</b>

Our investment policy includes various guidelines and procedures designed to ensure assets are invested in a manner necessary to meet expected future benefits earned by participants, and consider a broad range of economic conditions. Central to the policy are target allocation ranges by asset class, which is currently 75% for bond funds and 25% for equity funds.

The objectives of the target allocations are to maintain investment portfolios that diversify risk through prudent asset allocation parameters, achieve asset returns that meet or exceed the plans' actuarial assumptions, and achieve asset returns that are competitive with like institutions employing similar investment strategies.

The investment policy is periodically reviewed by us and a designated third-party fiduciary for investment matters. The policy is established and administered in a manner that is compliant at all times with applicable government regulations.

#### 401(k) Savings Plan

We maintain the ADTRAN, Inc. 401(k) Retirement Plan (Savings Plan) for the benefit of our eligible employees. The Savings Plan is intended to qualify under Sections 401(a) and 401(k) of the Internal Revenue Code of 1986, as amended (Code), and is intended to be a "safe harbor" 401(k) plan under Code Section 401(k)(12). The Savings Plan allows employees to save for retirement by contributing part of their compensation to the plan on a tax-deferred basis. The Savings Plan also requires us to contribute a "safe harbor" amount each year. We match up to 4% of employee contributions (100% of an employee's first 3% of contributions and 50% of their next 2% of contributions), beginning on the employee's one year anniversary date. In calculating our matching contribution, we only use compensation up to the statutory maximum under the Code (\$270 thousand for 2017). All contributions under the Savings Plan are 100% vested. Expenses recorded for employer contributions and plan administration costs for the Savings Plan amounted to approximately \$4.6 million, \$4.1 million and \$4.7 million in 2017, 2016 and 2015, respectively.

#### Deferred Compensation Plans

We maintain four deferred compensation programs for certain executive management employees and our Board of Directors.

For our executive management employees, the ADTRAN, Inc. Deferred Compensation Program for Employees is offered as a supplement to our tax-qualified 401(k) plan and is available to certain executive management employees who have been designated by our Board of Directors. This deferred compensation plan allows participants to defer all or a portion of certain specified bonuses and up to 25% of remaining cash compensation, and permits us to make matching contributions on a discretionary basis, without the limitations that apply to the 401(k) plan. To date, we have not made any matching contributions under this plan. We also maintain the ADTRAN, Inc. Equity Deferral Program for Employees. Under this plan, participants may elect to defer all or a portion of their vested PSUs to the Plan. Such deferrals shall continue to be held and deemed to be invested in shares of ADTRAN stock unless and until the amounts are distributed or such deferrals are moved to another deemed investment pursuant to an election made by the Participant.

For our Board of Directors, we maintain the ADTRAN, Inc. Deferred Compensation Program for Directors. This program allows our Board of Directors to defer all or a portion of monetary remuneration paid to the Director, including, but not limited to, meeting fees and annual retainers. We also maintain the ADTRAN, Inc. Equity Deferral Program for Directors. Under this plan, participants may elect to defer all or a portion of their vested restricted stock awards. Such deferrals shall continue to be held and deemed to be invested in shares of ADTRAN stock unless and until the amounts are distributed or such deferrals are moved to another deemed investment pursuant to an election made by the Director.

We have set aside the plan assets for all plans in a rabbi trust (Trust) and all contributions are credited to bookkeeping accounts for the participants. The Trust assets are subject to the claims of our creditors in the event of bankruptcy or insolvency. The assets of the Trust are deemed to be invested in pre-approved mutual funds as directed by each participant, and the participant's bookkeeping account is credited with the earnings and losses attributable to those investments. Benefits are scheduled to be distributed six months after termination of employment in a single lump sum payment or annual installments paid over a three or ten year term. Distributions will be made on a pro rata basis from each of the hypothetical investments of the Participant's account in cash. Any whole shares of ADTRAN, Inc. common stock that are distributed will be distributed in-kind.

Assets of the Trust are deemed invested in mutual funds that cover an investment spectrum ranging from equities to money market instruments. These mutual funds are publicly quoted and reported at fair value. The fair value of the assets held by the Trust and the amounts payable to the plan participants at December 31, 2017 and 2016 are as follows:

<i>(In thousands)</i>	2017	2016
<b>Fair Value of Plan Assets</b>		
Long-term Investments	\$19,883	\$14,596
<b>Total Fair Value of Plan Assets</b>	<b>\$19,883</b>	<b>\$14,596</b>
<b>Amounts Payable to Plan Participants</b>		
Non-current Liabilities	\$19,883	\$14,596
<b>Total Amounts Payable to Plan Participants</b>	<b>\$19,883</b>	<b>\$14,596</b>

Interest and dividend income of the Trust have been included in interest and dividend income in the accompanying 2017, 2016 and 2015 Consolidated Statements of Income. Changes in the fair value of the plan assets held by the Trust have been included in accumulated other comprehensive income in the accompanying 2017 and 2016 Consolidated Balance Sheets. Changes in the fair value of the deferred compensation liability are included as selling, general and administrative expense in the accompanying 2017, 2016 and 2015 Consolidated Statements of Income. Based on the changes in the total fair value of the Trust's assets, we recorded deferred compensation income (expense) in 2017, 2016 and 2015 of \$(2.6) million, \$(1.3) million and \$0.3 million, respectively.

#### **Retiree Medical Coverage**

We provide medical, dental and prescription drug coverage to one retired former officer and his spouse, for his life, on the same terms as provided to our active officers, and to the spouse of a former deceased officer for up to 30 years. At December 31, 2017 and 2016, this liability totaled \$0.1 million and \$0.2 million, respectively.

### **13 Segment Information and Major Customers**

In 2015, we realigned our organizational structure to better match our market opportunities, technological development initiatives, and improve efficiencies. During the first quarter of 2016, our chief operating decision maker requested changes in the information that he regularly reviews for purposes of allocating resources and assessing performance. As a result, beginning with the quarter ended March 31, 2016, we began reporting our financial performance based on two, new reportable segments – Network Solutions and Services & Support. Network Solutions includes hardware products and next-generation virtualized solutions used in service provider or business networks, as well as prior-generation products. Services & Support includes our suite of ProCloud managed services, network installation, engineering and maintenance services, and fee-based technical support and equipment repair/replacement plans.

We evaluate the performance of our new segments based on gross profit; therefore, selling, general and administrative expenses, research and development expenses, interest and dividend income, interest expense, net realized investment gain/loss, other income/expense and provision for taxes are reported on a company-wide, functional basis only. Historical financial information by reportable segment and category, as discussed below, has been recast to conform to our new reporting structure. There are no inter-segment revenues.

The following table presents information about the reported sales and gross profit of our reportable segments for each of the years ended December 31, 2017, 2016 and 2015. Asset information by reportable segment is not reported, since we do not produce such information internally.

<i>(In thousands)</i>	2017		2016		2015	
<b>Sales and Gross Profit by Market Segment</b>	Sales	Gross Profit	Sales	Gross Profit	Sales	Gross Profit
Network Solutions	\$540,396	\$260,855	\$525,502	\$254,807	\$527,422	\$233,579
Services & Support	126,504	42,805	111,279	36,537	72,642	33,318
<b>Total</b>	<b>\$666,900</b>	<b>\$303,660</b>	<b>\$636,781</b>	<b>\$291,344</b>	<b>\$600,064</b>	<b>\$266,897</b>

#### **Sales by Category**

In addition to our new reporting segments, we will also report revenue for the following three categories – Access & Aggregation, Customer Devices, and Traditional & Other Products.

The following table presents sales information by product category for the years ended December 31, 2017, 2016 and 2015:

<i>(In thousands)</i>	2017	2016	2015
Access & Aggregation	\$473,943	\$436,372	\$405,698
Customer Devices	138,456	137,608	125,565
Traditional & Other Products	54,501	62,801	68,801
<b>Total</b>	<b>\$666,900</b>	<b>\$636,781</b>	<b>\$600,064</b>

The following table presents sales information by geographic area for the years ended December 31, 2017, 2016 and 2015. International sales correlate to shipments with a non-U.S. destination.

<i>(In thousands)</i>	2017	2016	2015
United States	\$508,178	\$501,337	\$419,366
Germany	119,502	85,780	111,666
Other international	39,220	49,664	69,032
<b>Total</b>	<b>\$666,900</b>	<b>\$636,781</b>	<b>\$600,064</b>

Customers comprising more than 10% of revenue can change from year to year. Single customers comprising more than 10% of our revenue in 2017 included two customers at 40% and 16%. Single customers comprising more than 10% of our revenue in 2016 included three customers at 24%, 19% and 12%. Single customers comprising more than 10% of our revenue in 2015 included three customers at 20%, 17% and 14%. No other customer accounted for 10% or more of our sales in 2017, 2016 or 2015. Our five largest customers, other than those with more than 10 percent of revenues disclosed above, can change from year to year. These customers represented 15%, 13%, and 14% of total revenue in 2017, 2016 and 2015, respectively. Revenues in this disclosure do not include distributor agents, who predominantly provide fulfillment services to end users. In such cases where known, that revenue is associated with the end user.

#### **Additional Segment Information**

As of December 31, 2017, long-lived assets, net totaled \$85.1 million, which includes \$80.6 million held in the U.S. and \$4.5 million held outside the U.S. As of December 31, 2016, long-lived assets, net totaled \$84.5 million, which includes \$79.9 million held in the U.S. and \$4.6 million held outside the U.S.

## 14 Commitments and Contingencies

In the ordinary course of business, we may be subject to various legal proceedings and claims, including employment disputes, patent claims, disputes over contract agreements and other commercial disputes. In some cases, claimants seek damages or other relief, such as royalty payments related to patents, which, if granted, could require significant expenditures. Although the outcome of any claim or litigation can never be certain, it is our opinion that the outcome of all contingencies of which we are currently aware will not materially affect our business, operations, financial condition or cash flows.

We have committed to invest up to an aggregate of \$7.9 million in two private equity funds, and we have contributed \$8.4 million as of December 31, 2017, of which \$7.7 million has been applied to these commitments.

We lease office space and equipment under operating leases which expire at various dates through 2025. As of December 31, 2017, future minimum rental payments under non-cancelable operating leases with original maturities of greater than 12 months are as follows:

<i>(In thousands)</i>	
2018	\$3,073
2019	927
2020	805
2021	793
Thereafter	2,907
<b>Total</b>	<b>\$8,505</b>

Rental expense was \$4.5 million, \$4.2 million and \$4.9 million for the years ended December 31, 2017, 2016 and 2015, respectively.

## 15 Earnings per Share

A summary of the calculation of basic and diluted earnings per share (EPS) for the years ended December 31, 2017, 2016 and 2015 is as follows:

<i>(In thousands, except for per share amounts)</i>	2017	2016	2015
<b>Numerator</b>			
Net Income	\$23,840	\$35,229	\$18,646
<b>Denominator</b>			
Weighted average number of shares—basic	48,153	48,724	51,145
Effect of dilutive securities:			
Stock options	406	170	81
Restricted stock and restricted stock units	140	55	41
<b>Weighted average number of shares—diluted</b>	<b>\$48,699</b>	<b>\$48,949</b>	<b>\$51,267</b>
Net income per share—basic	\$0.50	\$0.72	\$0.36
Net income per share—diluted	\$0.49	\$0.72	\$0.36

For each of the years ended December 31, 2017, 2016 and 2015, 3.2 million, 4.6 million and 6.1 million stock options were outstanding but were not included in the computation of that year's diluted EPS because the options' exercise prices were greater than the average market price of the common shares, therefore making them anti-dilutive under the treasury stock method.



## 16 Summarized Quarterly Financial Data (Unaudited)

The following table presents unaudited quarterly operating results for each of our last eight fiscal quarters. This information has been prepared on a basis consistent with our audited financial statements and includes all adjustments, consisting only of normal recurring adjustments, considered necessary for a fair presentation of the data.

### Unaudited Quarterly Operating Results

(In thousands, except for per share amounts)

Three Months Ended	March 31, 2017	June 30, 2017	September 30, 2017	December 31, 2017
Net sales	\$170,279	\$184,673	\$185,112	\$126,836
Gross profit	\$73,715	\$84,632	\$86,498	\$58,815
Operating income	\$7,032	\$16,448	\$18,318	\$(4,061)
Net income	\$6,651	\$12,401	\$15,898	\$(11,110)
Earnings per common share	\$0.14	\$0.26	\$0.33	\$(0.23)
Earnings per common share assuming dilution (1)	\$0.14	\$0.26	\$0.33	\$(0.23)
Three Months Ended	March 31, 2016	June 30, 2016	September 30, 2016	December 31, 2016
Net sales	\$142,204	\$162,701	\$168,890	\$162,986
Gross profit	\$65,794	\$78,955	\$75,808	\$70,787
Operating income	\$5,521	\$14,812	\$10,130	\$4,272
Net income	\$5,014	\$10,228	\$12,415	\$7,572
Earnings per common share	\$0.10	\$0.21	\$0.26	\$0.16
Earnings per common share assuming dilution (1)	\$0.10	\$0.21	\$0.26	\$0.16

(1) Assumes exercise of dilutive stock options calculated under the treasury stock method.

## 17 Subsequent Events

On January 16, 2018, the Board declared a quarterly cash dividend of \$0.09 per common share to be paid to shareholders of record at the close of business on January 31, 2018. The quarterly dividend payment was \$4.4 million and was paid on February 14, 2018. In July 2003, our Board of Directors elected to begin declaring quarterly dividends on our common stock considering the tax treatment of dividends and adequate levels of Company liquidity.

During the first quarter and as of February 23, 2018, we have repurchased 0.6 million shares of our common stock through open market purchases at an average cost of \$16.18 per share. We currently have the authority to purchase an additional 2.9 million shares of our common stock under the current plan approved by the Board of Directors.

In January 2018, we announced an early retirement incentive program for employees that met certain requirements. The estimated liability associated with this program ranges from \$3.6 to \$14.3 million.

# Directors and Executive Officers

**Thomas R. Stanton**

Chairman and Chief Executive Officer

**H. Fenwick Huss**

Director of the Company  
Willem Kooyker Dean of the Zicklin School  
of Business at Baruch College

**William L. Marks**

Director of the Company  
Former Chairman of the Board and Chief Executive  
Officer of Whitney Holding Corp. (the holding company  
for Whitney National Bank of New Orleans)

**Gregory McCray**

Director of the Company  
President of McCray Consulting

**Anthony J. Melone**

Director of the Company  
Former Executive Vice President and Chief Technology  
Officer for Verizon Communications

**Balan Nair**

Director of the Company  
President and Chief Executive Officer of  
Liberty Latin America

**Roy J. Nichols**

Director Emeritus  
Founder and former President of  
Nichols Research Corporation

**Jacqueline H. Rice**

Director of the Company  
Former Executive Vice President and Chief Risk and  
Compliance Officer for Target Corporation

**Kathryn A. Walker**

Director of the Company  
Managing Director for OpenAir Equity Partners

**Michael K. Foliano**

Senior Vice President  
Operations

**Kevin P. Heering**

Senior Vice President  
Services and Support

**Charles Marsh**

Senior Vice President  
Sales

**Roger D. Shannon**

Senior Vice President of Finance,  
Chief Financial Officer,  
Corporate Secretary and Treasurer

**Eduard Scheiterer**

Senior Vice President  
Research and Development

**James D. Wilson, Jr.**

Senior Vice President  
Technology and Strategy

**Transfer Agent**

American Stock Transfer and Trust Company  
New York, NY

**Independent Registered Public Accounting Firm**

PricewaterhouseCoopers LLP  
Birmingham, Alabama

**Special Counsel**

Dentons US LLP  
Atlanta, Georgia

**Form 10-K**

ADTRAN's 2017 Annual Report on Form 10-K  
(without exhibits) as filed with the Securities and  
Exchange Commission is available to stockholders  
without charge upon written request to:

Investor Relations  
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Huntsville, Alabama 35814-4000  
256 963-8220  
investorrelations@adtran.com (email)

**Annual Meeting**

The 2018 Annual Meeting of Stockholders will be held  
at ADTRAN corporate headquarters, 901 Explorer  
Boulevard, Huntsville, Alabama, on Wednesday,  
May 9, 2018, at 10:30 a.m. Central time.



## **Corporate Headquarters**

ADTRAN, Inc.  
901 Explorer Boulevard  
Huntsville, AL 35806  
USA  
P.O. Box 140000  
Huntsville, AL 35814-4000  
1 800 9ADTRAN  
1 256 963-8000  
1 256 963-8004 fax  
*investor.relations@adtran.com*  
*www.adtran.com*

## **International Offices**

ADTRAN Networks Pty. Ltd.  
Melbourne, Australia

ADTRAN Canada, Inc.  
Montreal, Canada

ADTRAN Oy  
Helsinki, Finland

ADTRAN GmbH  
Berlin, Greifswald,  
and Munich, Germany

ADTRAN M.E.P.E.  
Athens, Greece

ADTRAN Networks India Private Limited  
Hyderabad, India

ADTRAN Holdings Ltd.  
Tel Aviv, Israel

ADTRAN S.R.L.  
Milan, Italy

ADTRAN Networks Sdn. Bhd.  
Penang, Malaysia

ADTRAN Networks S.A. de C.V.  
Mexico City, Mexico

ADTRAN Networks & Services S. de R.L. de C.V.  
Mexico City, Mexico

ADTRAN Peru S.R.L.  
Lima, Peru

ADTRAN Sp. z.o.o.  
Warsaw, Poland

Saudi Arabian Branch of ADTRAN International, Inc.  
Riyadh, Saudi Arabia

ADTRAN s.r.o.  
Bratislava, Slovakia

ADTRAN Switzerland GmbH  
Zurich, Switzerland

ADTRAN GmbH Permanent Establishment  
Tunis, Tunisia

ADTRAN Europe Limited  
Basingstoke, Hampshire, United Kingdom