UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549

FORM 10-Q

(Mark one)

☑ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the quarterly period ended April 30, 2017

OR

o **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from__________to__________

Commission file number: 001-36250

Ciena Corporation

(Exact name of registrant as specified in its charter)

Delaware (State or other jurisdiction of incorporation or organization)	**23-2725311** (I.R.S. Employer Identification No.)
7035 Ridge Road, Hanover, MD (Address of Principal Executive Offices)	**21076** (Zip Code)

(410) 694-5700
(Registrant's telephone number, including area code)

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

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). YES ☑ NO o

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

Large accelerated filer ☑	Accelerated filer o	Non-accelerated filer o (Do not check if a smaller reporting company)	Smaller reporting company o
			Emerging growth company o

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

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

Indicate the number of shares outstanding of each of the issuer's classes of common stock, as of the latest practicable date:

Class	Outstanding at June 2, 2017
common stock, $0.01 par value	141,831,617

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PART I – FINANCIAL INFORMATION

Item 1. Financial Statements

CIENA CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share data)
(unaudited)

	Quarter Ended April 30, 2017	Quarter Ended April 30, 2016	Six Months Ended April 30, 2017	Six Months Ended April 30, 2016
Revenue:				
Products	$ 584,630	$ 523,978	$ 1,091,623	$ 981,567
Services	122,392	116,739	236,896	232,265
Total revenue	707,022	640,717	1,328,519	1,213,832
Cost of goods sold:				
Products	327,295	291,778	614,106	552,260
Services	61,487	65,846	122,388	127,029
Total cost of goods sold	388,782	357,624	736,494	679,289
Gross profit	318,240	283,093	592,025	534,543
Operating expenses:				
Research and development	121,623	114,603	238,492	222,649
Selling and marketing	88,551	86,668	173,553	169,146
General and administrative	34,990	35,203	70,854	66,345
Amortization of intangible assets	10,980	15,566	25,531	32,428
Acquisition and integration costs	—	2,285	—	3,584
Restructuring costs	4,276	535	6,671	919
Total operating expenses	260,420	254,860	515,101	495,071
Income from operations	57,820	28,233	76,924	39,472
Interest and other income (loss), net	(2,918)	967	(2,548)	(7,809)
Interest expense	(13,308)	(12,608)	(28,511)	(25,318)
Income before income taxes	41,594	16,592	45,865	6,345
Provision for income taxes	3,568	2,595	3,978	3,894
Net income	$ 38,026	$ 13,997	$ 41,887	$ 2,451
Basic net income per common share	$ 0.27	$ 0.10	$ 0.30	$ 0.02
Diluted net income per potential common share	$ 0.25	$ 0.10	$ 0.29	$ 0.02
Weighted average basic common shares outstanding	141,743	137,950	141,223	137,313
Weighted average dilutive potential common shares outstanding	165,273	138,889	147,842	138,693

The accompanying notes are an integral part of these Condensed Consolidated Financial Statements.

CIENA CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(in thousands)
(unaudited)

	Quarter Ended April 30,		Six Months Ended April 30,	
	2017	2016	2017	2016
Net income	$ 38,026	$ 13,997	$ 41,887	$ 2,451
Change in unrealized gain (loss) on available-for-sale securities, net of tax	(278)	234	(527)	256
Change in unrealized gain on foreign currency forward contracts, net of tax	(899)	3,984	526	1,464
Change in unrealized gain on forward starting interest rate swap, net of tax	405	423	4,897	94
Change in cumulative translation adjustments	(2,243)	7,516	(1,753)	4,693
Other comprehensive income	(3,015)	12,157	3,143	6,507
Total comprehensive income	$ 35,011	$ 26,154	$ 45,030	$ 8,958

The accompanying notes are an integral part of these Condensed Consolidated Financial Statements.

CIENA CORPORATION
CONDENSED CONSOLIDATED BALANCE SHEETS
(in thousands, except share data)
(unaudited)

	April 30, 2017	October 31, 2016
ASSETS		
Current assets:		
Cash and cash equivalents	$ 628,623	$ 777,615
Short-term investments	274,779	275,248
Accounts receivable, net	564,856	576,235
Inventories	287,073	211,251
Prepaid expenses and other	186,919	172,843
Total current assets	1,942,250	2,013,192
Long-term investments	89,852	90,172
Equipment, building, furniture and fixtures, net	299,792	288,406
Goodwill	266,773	266,974
Other intangible assets, net	113,245	146,711
Other long-term assets	65,191	68,120
Total assets	$ 2,777,103	$ 2,873,575
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 249,556	$ 235,942
Accrued liabilities and other short-term obligations	262,482	310,353
Deferred revenue	105,514	109,009
Current portion of long-term debt	189,221	236,241
Total current liabilities	806,773	891,545
Long-term deferred revenue	81,349	73,854
Other long-term obligations	113,254	124,394
Long-term debt, net	929,182	1,017,441
Total liabilities	$ 1,930,558	$ 2,107,234
Commitments and contingencies (Note 21)		
Stockholders' equity:		
Preferred stock – par value $0.01; 20,000,000 shares authorized; zero shares issued and outstanding	—	—
Common stock – par value $0.01; 290,000,000 shares authorized; 141,768,448 and 139,767,627 shares issued and outstanding	1,418	1,398
Additional paid-in capital	6,750,632	6,715,478
Accumulated other comprehensive loss	(21,186)	(24,329)
Accumulated deficit	(5,884,319)	(5,926,206)
Total stockholders' equity	846,545	766,341
Total liabilities and stockholders' equity	$ 2,777,103	$ 2,873,575

The accompanying notes are an integral part of these Condensed Consolidated Financial Statements.

CIENA CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)
(unaudited)

	Six Months Ended April 30,	
	2017	2016
Cash flows provided by operating activities:		
Net income	$ 41,887	$ 2,451
Adjustments to reconcile net income to net cash provided by (used in) operating activities:		
Depreciation of equipment, building, furniture and fixtures, and amortization of leasehold improvements	35,548	30,237
Share-based compensation costs	24,830	29,210
Amortization of intangible assets	33,466	40,488
Provision for inventory excess and obsolescence	19,623	20,104
Provision for warranty	2,347	9,563
Other	10,416	8,578
Changes in assets and liabilities:		
Accounts receivable	9,381	(4,865)
Inventories	(95,554)	(19,022)
Prepaid expenses and other	(15,054)	(7,670)
Accounts payable, accruals and other obligations	(24,974)	(29,400)
Deferred revenue	3,832	(3,992)
Net cash provided by operating activities	45,748	75,682
Cash flows used in investing activities:		
Payments for equipment, furniture, fixtures and intellectual property	(60,328)	(53,050)
Purchase of available for sale securities	(179,833)	(199,994)
Proceeds from maturities of available for sale securities	180,000	110,000
Settlement of foreign currency forward contracts, net	(2,965)	(4,834)
Acquisition of business, net of cash acquired	—	(32,000)
Net cash used in investing activities	(63,126)	(179,878)
Cash flows provided by (used in) financing activities:		
Proceeds from issuance of term loan, net	—	248,750
Payment of long-term debt	(47,296)	(15,264)
Payment for modification of term loans	(93,625)	—
Payment of debt issuance costs	—	(3,778)
Payment of capital lease obligations	(1,528)	(3,769)
Proceeds from issuance of common stock	10,345	9,968
Net cash provided by (used in) financing activities	(132,104)	235,907
Effect of exchange rate changes on cash and cash equivalents	490	(649)
Net increase (decrease) in cash and cash equivalents	(148,992)	131,062
Cash and cash equivalents at beginning of period	777,615	790,971
Cash and cash equivalents at end of period	$ 628,623	$ 922,033
Supplemental disclosure of cash flow information		
Cash paid during the period for interest	$ 23,439	$ 20,432
Cash paid during the period for income taxes, net	$ 11,379	$ 6,991
Non-cash investing activities		
Purchase of equipment in accounts payable	$ 3,818	$ 11,437
Equipment acquired under capital lease	$ —	$ 3,012
Building subject to capital lease	$ 20,695	$ 8,993
Construction in progress subject to build-to-suit lease	$ —	$ 21,606

The accompanying notes are an integral part of these Condensed Consolidated Financial Statements.

CIENA CORPORATION
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(unaudited)

(1) INTERIM FINANCIAL STATEMENTS

The interim financial statements included herein for Ciena Corporation and its wholly owned subsidiaries (“Ciena”) have been prepared by Ciena, without audit, pursuant to the rules and regulations of the U.S. Securities and Exchange Commission ("SEC"). In the opinion of management, the financial statements included in this report reflect all normal recurring adjustments that Ciena considers necessary for the fair statement of the results of operations for the interim periods covered and of the financial position of Ciena at the date of the interim balance sheets. Certain information and footnote disclosures normally included in the annual financial statements prepared in accordance with accounting principles generally accepted in the United States of America ("GAAP") have been condensed or omitted pursuant to such rules and regulations. The Condensed Consolidated Balance Sheet as of October 31, 2016 was derived from audited financial statements, but does not include all disclosures required by GAAP. However, Ciena believes that the disclosures are adequate to understand the information presented herein. The operating results for interim periods are not necessarily indicative of the operating results for the entire year. These financial statements should be read in conjunction with Ciena’s audited consolidated financial statements and the notes thereto included in Ciena’s annual report on Form 10-K for the fiscal year ended October 31, 2016.

Ciena has a 52 or 53-week fiscal year, with quarters ending on the Saturday nearest to the last day of January, April, July and October, respectively, of each year. Fiscal 2017 and 2016 are 52-week fiscal years. For purposes of financial statement presentation, each fiscal year is described as having ended on October 31, and the fiscal quarters are described as having ended on January 31, April 30 and July 31 of each fiscal year.

(2) SIGNIFICANT ACCOUNTING POLICIES

Business Combinations

Ciena records acquisitions using the purchase method of accounting. All of the assets acquired, liabilities assumed, contractual contingencies and contingent consideration are recognized at their fair value as of the acquisition date. The excess of the purchase price over the estimated fair values of the net tangible and net intangible assets acquired is recorded as goodwill. The application of the purchase method of accounting for business combinations requires management to make significant estimates and assumptions in the determination of the fair value of assets acquired and liabilities assumed in order to allocate purchase price consideration properly between assets that are depreciated and amortized from goodwill. These assumptions and estimates include a market participant's use of the asset and the appropriate discount rates for a market participant. Ciena's estimates are based on historical experience, information obtained from the management of the acquired companies and, when appropriate, include assistance from independent third-party appraisal firms. Significant assumptions and estimates can include, but are not limited to, the cash flows that an asset is expected to generate in the future, the appropriate weighted-average cost of capital, and the cost savings expected to be derived from acquiring an asset. These estimates are inherently uncertain and unpredictable. In addition, unanticipated events and circumstances may occur which may affect the accuracy or validity of such estimates.

Use of Estimates

The preparation of the financial statements and related disclosures in conformity with GAAP requires management to make estimates and judgments that affect the amounts reported in the condensed consolidated financial statements and accompanying notes. Estimates are used for selling prices for multiple element arrangements, shared-based compensation, convertible notes payable valuations, bad debts, valuation of inventories and investments, recoverability of intangible assets, other long-lived assets and goodwill, income taxes, warranty obligations, restructuring liabilities, derivatives, incentive compensation, contingencies and litigation. Ciena bases its estimates on historical experience and assumptions that it believes are reasonable. Actual results may differ materially from management’s estimates.

Cash and Cash Equivalents

Ciena considers all highly liquid investments purchased with original maturities of three months or less to be cash equivalents. Any restricted cash collateralizing letters of credit is included in either other current assets or other long-term assets depending upon the duration of the restriction.

Investments

Ciena's investments are classified as available-for-sale and are reported at fair value, with unrealized gains and losses recorded in accumulated other comprehensive income (loss). Ciena recognizes losses in the income statement when it determines that a decline in the fair value of any investment below its cost basis is other-than-temporary. In determining whether a decline in fair value is other-than-temporary, Ciena considers various factors, including market price (when available), investment ratings, the financial condition and near-term prospects of the investee, the length of time and the extent to which the fair value has been less than Ciena's cost basis, and Ciena's intent and ability to hold the investment until maturity or for a period of time sufficient to allow for any anticipated recovery in market value. Ciena considers all marketable debt securities that it expects to convert to cash within one year or less to be short-term investments, with all others considered to be long-term investments.

Ciena has minority equity investments in privately held technology companies that are classified in other long-term assets. These investments are carried at cost because Ciena owns less than 20% of the voting equity and does not have the ability to exercise significant influence over the companies. Ciena monitors these investments for impairment and makes appropriate reductions to the carrying value when necessary. As of April 30, 2017, the combined carrying value of these investments was $6.0 million. Ciena has not estimated the fair value of these cost method investments because determining the fair value is not practicable. Ciena has not evaluated these investments for impairment as there have not been any events or changes in circumstances that Ciena believes would have had a significant adverse effect on the fair value of these investments.

Inventories

Inventories are stated at the lower of cost or market, with cost computed using standard cost, which approximates actual cost, on a first-in, first-out basis. Ciena records a provision for excess and obsolete inventory when an impairment has been identified.

Segment Reporting

Ciena's chief operating decision maker, its chief executive officer, evaluates the Company's performance and allocates resources based on multiple factors, including measures of segment profit (loss). Operating segments are defined as components of an enterprise that engage in business activities that may earn revenue and incur expense, for which discrete financial information is available, and for which such information is evaluated regularly by the chief operating decision maker for purposes of allocating resources and assessing performance. Ciena considers the following to be its operating segments for reporting purposes: (i) Networking Platforms, (ii) Software and Software-Related Services, and (iii) Global Services. See Note 20 below.

Goodwill

Goodwill is the excess of the purchase price over the fair values assigned to the net assets acquired in a business combination. Ciena tests goodwill for impairment on an annual basis, which it has determined to be the last business day of fiscal September each year. Ciena also tests goodwill for impairment between annual tests if an event occurs or circumstances change that would, more likely than not, reduce the fair value of the reporting unit below its carrying value.

The first step in the process of assessing goodwill impairment is to compare the fair value of the reporting unit with the unit’s carrying amount, including goodwill. If this test indicates that the fair value is less than the carrying value, then step two as amended by ASU No. 2017-04, *Simplifying the Test for Goodwill Impairment,* adopted by Ciena in the first quarter of fiscal 2017, requires goodwill impairments to be measured on the basis of the fair value of the reporting unit relative to the reporting unit's carrying amount. A non-cash goodwill impairment charge would have the effect of decreasing earnings or increasing losses in such period. If Ciena is required to take a substantial impairment charge, its operating results would be materially adversely affected in such period.

Long-lived Assets

Long-lived assets include: equipment, building, furniture and fixtures; intangible assets; and maintenance spares. Ciena tests long-lived assets for impairment whenever triggering events or changes in circumstances indicate that the asset's carrying amount is not recoverable from its undiscounted cash flows. An impairment loss is measured as the amount by which the carrying amount of the asset or asset group exceeds its fair value. Ciena's long-lived assets are assigned to asset groups that represent the lowest level for which cash flows can be identified.

Equipment, Building, Furniture and Fixtures and Internal Use Software

Equipment, building, furniture and fixtures are recorded at cost. Depreciation and amortization are computed using the straight-line method over useful lives of two to five years for equipment and furniture and fixtures and the shorter of useful life or lease term for leasehold improvements.

Ciena establishes assets and liabilities for the estimated construction costs incurred under build-to-suit lease arrangements to the extent that Ciena is involved in the construction of structural improvements or takes construction risk prior to commencement of a lease. See Notes 10 and 13 below.

Qualifying internal use software and website development costs incurred during the application development stage, which consist primarily of outside services and purchased software license costs, are capitalized and amortized straight-line over the estimated useful lives of two to five years.

Intangible Assets

Ciena has recorded finite-lived intangible assets as a result of several acquisitions. Finite-lived intangible assets are carried at cost less accumulated amortization. Amortization is computed using the straight-line method over the expected economic lives of the respective assets, up to seven years, which approximates the use of intangible assets.

Ciena has recorded in-process research and development projects acquired as the result of an acquisition as indefinite-lived intangible assets. Upon completion of the projects, the assets will be amortized on a straight-line basis over the expected economic life of the asset, which will be determined on that date. Should the project be determined to be abandoned, and the asset developed has no alternative use, the full value of the asset will be charged to expense.

Maintenance Spares

Maintenance spares are recorded at cost. Spares usage cost is expensed ratably over four years.

Concentrations

Substantially all of Ciena's cash and cash equivalents are maintained at a small number of major U.S. financial institutions. The majority of Ciena's cash equivalents consist of money market funds. Deposits held with banks may exceed the amount of insurance provided on such deposits. Because these deposits generally may be redeemed upon demand, management believes that they bear minimal risk.

Historically, a significant percentage of Ciena's revenue has been concentrated among sales to a small number of large communications service providers. Consolidation among Ciena's customers has increased this concentration. Consequently, Ciena's accounts receivable are concentrated among these customers. See Note 20 below.

Additionally, Ciena's access to certain materials or components is dependent upon sole or limited source suppliers. The inability of any of these suppliers to fulfill Ciena's supply requirements, or significant changes in supply cost, could affect future results. Ciena relies on a small number of contract manufacturers to perform the majority of the manufacturing for its products. If Ciena cannot effectively manage these manufacturers or forecast future demand, or if these manufacturers fail to deliver products or components on time, Ciena's business and results of operations may suffer.

Revenue Recognition

Ciena recognizes revenue when all of the following criteria are met: persuasive evidence of an arrangement exists; delivery has occurred or services have been rendered; the price to the buyer is fixed or determinable; and collectibility is reasonably assured. Customer purchase agreements and customer purchase orders are generally used to determine the existence of an arrangement. Shipping documents and evidence of customer acceptance, when applicable, are used to verify delivery or services rendered. Ciena assesses whether the price is fixed or determinable based on the payment terms associated with the transaction and whether the sales price is subject to refund or adjustment. Ciena assesses collectibility based primarily on the creditworthiness of the customer as determined by credit checks and analysis, as well as the customer's payment history. Revenue for maintenance services is deferred and recognized ratably over the period during which the services are performed.

Shipping and handling fees billed to customers are included in revenue, with the associated expenses included in product cost of goods sold.

Software revenue is recognized when persuasive evidence of an arrangement exists, delivery has occurred, the fee is fixed or determinable, and collectibility is probable. In instances where final acceptance criteria of the software are specified by the customer, revenue is deferred until there are no uncertainties regarding customer acceptance.

Ciena limits the amount of revenue recognition for delivered elements to the amount that is not contingent on the future delivery of products or services, future performance obligations or subject to customer-specified return or refund privileges.

Revenue for multiple element arrangements is allocated to each unit of accounting based on the relative selling price of each delivered element, with revenue recognized for each delivered element when the revenue recognition criteria are met. Ciena determines the selling price for each deliverable based upon the selling price hierarchy for multiple-deliverable arrangements. Under this hierarchy, Ciena uses vendor-specific objective evidence ("VSOE") of selling price, if it exists, or third party evidence ("TPE") of selling price if VSOE does not exist. If neither VSOE nor TPE of selling price exists for a deliverable, Ciena uses its best estimate of selling price ("BESP") for that deliverable. For multiple element software arrangements where VSOE of undelivered maintenance does not exist, revenue for the entire arrangement is recognized over the maintenance term.

VSOE, when determinable, is established based on Ciena's pricing and discounting practices for the specific product or service when sold separately. In determining whether VSOE exists, Ciena requires that a substantial majority of the selling prices for a product or service fall within a reasonably narrow pricing range. Ciena has been unable to establish TPE of selling price because its go-to-market strategy differs from that of others in its markets, and the extent of customization and differentiated features and functions varies among comparable products or services from its peers. Ciena determines BESP based upon management-approved pricing guidelines, which consider multiple factors including the type of product or service, gross margin objectives, competitive and market conditions, and the go-to-market strategy, all of which can affect pricing practices.

Warranty Accruals

Ciena provides for the estimated costs to fulfill customer warranty obligations upon recognition of the related revenue. Estimated warranty costs include estimates for material costs, technical support labor costs and associated overhead. Warranty is included in cost of goods sold and is determined based upon actual warranty cost experience, estimates of component failure rates and management's industry experience. Ciena's sales contracts do not permit the right of return of the product by the customer after the product has been accepted.

Accounts Receivable, Net

Ciena's allowance for doubtful accounts is based on its assessment, on a specific identification basis, of the collectibility of customer accounts. Ciena performs ongoing credit evaluations of its customers and generally has not required collateral or other forms of security from them. In determining the appropriate balance for Ciena's allowance for doubtful accounts, management considers each individual customer account receivable in order to determine collectibility. In doing so, management considers creditworthiness, payment history, account activity and communication with the customer. If a customer's financial condition changes, Ciena may be required to record an allowance for doubtful accounts for that customer, which could negatively affect its results of operations.

Research and Development

Ciena charges all research and development costs to expense as incurred. Types of expense incurred in research and development include employee compensation, prototype equipment, consulting and third party services, depreciation, facility costs and information technology.

Advertising Costs

Ciena expenses all advertising costs as incurred.

Legal Costs

Ciena expenses legal costs associated with litigation as incurred.

Share-Based Compensation Expense

Ciena measures and recognizes compensation expense for share-based awards based on estimated fair values on the date of grant. Ciena estimates the fair value of each option-based award on the date of grant using the Black-Scholes option-pricing model. This model is affected by Ciena's stock price as well as estimates regarding a number of variables, including expected stock price volatility over the expected term of the award and projected employee stock option exercise behaviors. Ciena estimates the fair value of each restricted stock unit award based on the fair value of the underlying common stock on the date of grant. In each case, Ciena only recognizes expense in its Condensed Consolidated Statement of Operations for those stock options or restricted stock units that are expected ultimately to vest. Ciena recognizes the estimated fair value of performance-based awards, net of estimated forfeitures, as share-based expense over the performance period, using graded vesting, which considers each performance period or tranche separately, based upon Ciena's determination of whether it is probable that the performance targets will be achieved. At the end of each reporting period, Ciena reassesses the probability of achieving the performance targets and the performance period required to meet those targets, and the expense is adjusted accordingly. Ciena uses the straight-line method to record expense for share-based awards with only service-based vesting. See Note 19 below.

Income Taxes

Ciena accounts for income taxes using an asset and liability approach. This approach recognizes deferred tax assets and liabilities for the expected future tax consequences attributable to differences between the carrying amounts of assets and liabilities for financial reporting purposes and their respective tax bases, and for operating loss and tax credit carryforwards. In estimating future tax consequences, Ciena considers all expected future events other than the enactment of changes in tax laws or rates. Valuation allowances are provided if, based upon the weight of the available evidence, it is more likely than not that some or all of the deferred tax assets will not be realized.

In the ordinary course of business, transactions occur for which the ultimate outcome may be uncertain. In addition, tax authorities periodically audit Ciena's income tax returns. These audits examine significant tax filing positions, including the timing and amounts of deductions and the allocation of income tax expenses among tax jurisdictions. Ciena is currently under audit in India for 2012 through 2014 and in Canada for 2011 through 2013. Management does not expect the outcome of these audits to have a material adverse effect on Ciena's consolidated financial position, results of operations or cash flows. Ciena's major tax jurisdictions and the earliest open tax years are as follows: United States (2013), United Kingdom (2014), Canada (2011) India (2012) and Brazil (2012). Limited adjustments can be made to Federal U.S. tax returns in earlier years in order to reduce net operating loss carryforwards. Ciena classifies interest and penalties related to uncertain tax positions as a component of income tax expense.

Ciena has not provided for U.S. deferred income taxes on the cumulative unremitted earnings of its non-U.S. affiliates, as it plans to indefinitely reinvest cumulative unremitted foreign earnings outside the U.S., and it is not practicable to determine the unrecognized deferred income taxes. These cumulative unremitted foreign earnings relate to ongoing operations in foreign jurisdictions and are required to fund foreign operations, capital expenditures and future expansion requirements.

Ciena recognizes windfall tax benefits associated with the exercise of stock options or release of restricted stock units directly to stockholders' equity only when realized. A windfall tax benefit occurs when the actual tax benefit realized by Ciena upon an employee's disposition of a share-based award exceeds the deferred tax asset, if any, associated with the award that Ciena had recorded. When assessing whether a tax benefit relating to share-based compensation has been realized, Ciena follows the "with-and-without" method. Under the with-and-without method, the windfall is considered realized and recognized for financial statement purposes only when an incremental benefit is provided after considering all other tax benefits including Ciena's net operating losses. The with-and-without method results in the windfall from share-based compensation awards always being effectively the last tax benefit to be considered. Consequently, the windfall attributable to share-based compensation will not be considered realized in instances where Ciena's net operating loss carryover (that is unrelated to windfalls) is sufficient to offset the current year's taxable income before considering the effects of current-year windfalls.

Loss Contingencies

Ciena is subject to the possibility of various losses arising in the ordinary course of business. These may relate to disputes, litigation and other legal actions. Ciena considers the likelihood of loss or the incurrence of a liability, as well as Ciena's ability to estimate the amount of loss reasonably, in determining loss contingencies. An estimated loss contingency is accrued when it is probable that a liability has been incurred and the amount of loss can be reasonably estimated. Ciena regularly evaluates current information available to it in order to determine whether any accruals should be adjusted and whether new accruals are required.

Fair Value of Financial Instruments

The carrying value of Ciena's cash and cash equivalents, accounts receivable, accounts payable and accrued liabilities approximates fair market value due to the relatively short period of time to maturity. For information related to the fair value of Ciena's convertible notes and term loans, see Note 16 below.

Fair value for the measurement of financial assets and liabilities is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability. Ciena utilizes a valuation hierarchy for disclosure of the inputs for fair value measurement. This hierarchy prioritizes the inputs into three broad levels as follows:

- Level 1 inputs are unadjusted quoted prices in active markets for identical assets or liabilities;

- Level 2 inputs are quoted prices for identical or similar assets or liabilities in less active markets or model-derived valuations in which significant inputs are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the financial instrument; and

- Level 3 inputs are unobservable inputs based on Ciena's assumptions used to measure assets and liabilities at fair value.

By distinguishing between inputs that are observable in the marketplace, and therefore more objective, and those that are unobservable, and therefore more subjective, the hierarchy is designed to indicate the relative reliability of the fair value measurements. A financial asset's or liability's classification within the hierarchy is determined based on the lowest level input that is significant to the fair value measurement.

Restructuring

From time to time, Ciena takes actions to better align its workforce, facilities and operating costs with perceived market opportunities, business strategies and changes in market and business conditions. Ciena recognizes a liability for the cost associated with an exit or disposal activity in the period in which the liability is incurred, except for one-time employee termination benefits related to a service period, typically of more than 60 days, which are accrued over the service period. See Note 3 below.

Foreign Currency

Certain of Ciena's foreign branch offices and subsidiaries use the U.S. Dollar as their functional currency because Ciena Corporation, as the U.S. parent entity, exclusively funds the operations of these branch offices and subsidiaries. For those subsidiaries using the local currency as their functional currency, assets and liabilities are translated at exchange rates in effect at the balance sheet date, and the statement of operations is translated at a monthly average rate. Resulting translation adjustments are recorded directly to a separate component of stockholders' equity. Where the monetary assets and liabilities are transacted in a currency other than the entity's functional currency, re-measurement adjustments are recorded in interest and other income (loss), net on the Condensed Consolidated Statement of Operations. See Note 4 below.

Derivatives

From time to time, Ciena uses foreign currency forward contracts to reduce variability in certain forecasted non-U.S. Dollar denominated cash flows. Generally, these derivatives have maturities of 12 months or less. Ciena also has interest rate hedge arrangements to reduce variability in certain forecasted interest expense associated with its term loans. All of these derivatives are designated as cash flow hedges. At the inception of the cash flow hedge, and on an ongoing basis, Ciena assesses whether the derivative has been effective in offsetting changes in cash flows attributable to the hedged risk during the hedging period. The effective portion of the derivative's net gain or loss is initially reported as a component of accumulated other comprehensive income (loss), and, upon occurrence of the forecasted transaction, is subsequently reclassified to the line item in the Condensed Consolidated Statement of Operations to which the hedged transaction relates. Any net gain or loss associated with the ineffectiveness of the hedging instrument is reported in interest and other income (loss), net. To date, no ineffectiveness has occurred.

Ciena records derivative instruments in the Condensed Consolidated Statements of Cash Flows within operating, investing, or financing activities consistent with the cash flows of the hedged items.

From time to time, Ciena uses foreign currency forward contracts to hedge certain balance sheet exposures. These forward contracts are not designated as hedges for accounting purposes, and any net gain or loss associated with these derivatives is reported in interest and other income (loss), net on the Condensed Consolidated Statement of Operations.

See Notes 6 and 14 below.

Computation of Net Income (Loss) per Share

Ciena calculates basic earnings per share ("EPS") by dividing earnings attributable to common stock by the weighted average number of common shares outstanding for the period. Diluted EPS includes other potential dilutive shares that would be outstanding if securities or other contracts to issue common stock were exercised or converted into common stock. Ciena uses a dual presentation of basic and diluted EPS on the face of its income statement. A reconciliation of the numerator and denominator used for the basic and diluted EPS computations is set forth in Note 18 below.

Software Development Costs

Ciena develops software for sale to its customers. GAAP requires the capitalization of certain software development costs that are incurred subsequent to the date technological feasibility is established and prior to the date the product is generally available for sale. The capitalized cost is then amortized straight-line over the estimated life of the product. Ciena defines technological feasibility as being attained at the time a working model is completed. To date, the period between Ciena achieving technological feasibility and the general availability of such software has been short, and software development cost qualifying for capitalization has been insignificant. Accordingly, Ciena has not capitalized any software development costs.

Newly Issued Accounting Standards - Effective

In April 2015, Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2015-03, *Simplifying the Presentation of Debt Issuance Costs ("ASU 2015-03")*. ASU 2015-03 requires debt issuance costs related to a recognized debt liability to be presented in the balance sheet as a direct deduction from the carrying value of that debt liability, consistent with debt discounts. ASU 2015-03 is to be applied on a retrospective basis and represents a change in accounting principle. In August 2015, the FASB issued Accounting Standards Update No. 2015-15, *"Interest — Imputation of Interest (Subtopic 835-30): Presentation and Subsequent Measurement of Debt Issuance Costs Associated with Line-of-Credit Arrangements — Amendments to SEC Paragraphs Pursuant to Staff Announcement at June 18, 2015 EITF Meeting"* ("ASU 2015-15"), which clarifies the treatment of debt issuance costs from line-of-credit arrangements after the adoption of ASU 2015-03. In particular, ASU 2015-15 clarifies that the SEC staff would not object to an entity deferring and presenting debt issuance costs related to a line-of-credit arrangement as an asset and subsequently amortizing the deferred debt issuance costs ratably over the term of such arrangement, regardless of whether there are any outstanding borrowings on the line-of-credit arrangement. Ciena adopted these ASU's during the first quarter of fiscal 2017. The adoption of ASU 2015-03 resulted in the reclassification of unamortized debt issuance costs related to Ciena's convertible notes and term loans from other long-term assets to current portion of long-term debt and long-term debt, net in Ciena's Consolidated Balance sheets in the amount of $6.4 million at April 30, 2017 and $8.9 million at October 31, 2016. As permitted by ASU 2015-15, Ciena elected not to reclassify unamortized debt issuance costs associated with its ABL Credit Facility (described in Note 17 below) and continue to present such capitalized costs in other assets.

In January 2017, the FASB issued ASU No. 2017-04, *Simplifying the Test for Goodwill Impairment ("ASU 2017-04"),* which simplifies the accounting for goodwill impairments by eliminating step two from the goodwill impairment test. ASU 2017-04 requires goodwill impairments to be measured on the basis of the fair value of the reporting unit relative to the reporting unit's carrying amount rather than on the basis of the implied amount of goodwill relative to the goodwill balance of the reporting unit. ASU 2017-04 is effective for annual and interim impairment tests for periods beginning after December 15, 2021. Early adoption is allowed for annual and interim impairment tests occurring after January 1, 2017. Ciena elected to adopt ASU 2017-04 during the first quarter of fiscal 2017.

Newly Issued Accounting Standards - Not Yet Effective

In May 2014, FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers* (Topic 606), which provides guidance for revenue recognition. This ASU affects any entity that either enters into contracts with customers to transfer goods or services or enters into contracts for the transfer of non-financial assets. This ASU will supersede the revenue recognition requirements in Topic 605, Revenue Recognition, and most industry-specific guidance. This ASU also supersedes some cost guidance included in Subtopic 605-35, *Revenue Recognition-Construction-Type and Production-Type Contracts*. The standard will be effective for Ciena beginning in the first quarter of fiscal 2019. For multiple element software arrangements where VSOE of undelivered maintenance does not exist, Ciena currently recognizes revenue for the entire arrangement over the maintenance term. Ciena expects that the adoption of this ASU will require Ciena to determine the stand alone selling price for each of the elements at the contract inception and consequently Ciena expects certain software deliverables will be recognized at a point in time rather than over a period of time. Ciena is continuing to evaluate other possible impacts of the adoption of this ASU on its Consolidated Financial Statements and disclosures, as well as the transition method.

In February 2016, FASB issued ASU No. 2016-02, *Leases*, which requires an entity to recognize assets and liabilities on the balance sheet for the rights and obligations created by leased assets and to provide additional disclosures. ASU 2016-02 is effective for Ciena beginning in the first quarter of fiscal 2020. Under current GAAP, the majority of Ciena's leases for its properties are considered operating leases and Ciena expects that the adoption of this ASU will require these leases to be classified as financing leases and to be recognized as assets and liabilities on Ciena's balance sheet. Ciena is continuing to evaluate other possible impacts of the adoption of this ASU on its Consolidated Financial Statements and disclosures.

In March 2016, the FASB issued ASU No. 2016-09, *Improvements to Employee Share-Based Payment Accounting*, which provides guidance on several aspects of accounting for share-based payment transactions, including the accounting for income taxes, forfeitures, and statutory tax withholding requirements, as well as classification on the statement of cash flows. ASU 2016-09 is effective for Ciena beginning in the first quarter of fiscal 2018. Under the new guidance, Ciena would recognize all excess tax benefits previously unrecognized, along with any valuation allowance, on a modified retrospective basis as a cumulative-effect adjustment to retained earnings as of the date of adoption of this updated standard.

In January 2017, the FASB issued ASU No. 2017-1, *Business Combinations: Clarifying the Definition of a Business*, which clarifies the definition of a business with the objective of adding guidance to assist entities with evaluating whether transactions should be accounted for as acquisition or disposal of assets or businesses. The amendments in this update provide a screen to determine when a set of assets is not a business. The screen requires that when substantially all of the fair value of the gross assets acquired (or disposed of) is concentrated in a single identifiable asset or a group of similar identifiable assets, the set of assets is not a business. ASU 2017-01 is effective for Ciena beginning first quarter of fiscal 2018. Ciena will evaluate the effect of the update at the time of any future acquisition or disposal.

(3) RESTRUCTURING COSTS

Ciena has undertaken a number of restructuring activities intended to reduce expense and better align its workforce and costs with market opportunities, product development and business strategies. The following table sets forth the restructuring activity and balance of the restructuring liability accounts for the six months ended April 30, 2017 (in thousands):

	Workforce reduction	Consolidation of excess facilities	Total
Balance at October 31, 2016	$ 868	$ 1,970	$ 2,838
Additional liability recorded	2,369 (1)	4,302 (2)	6,671
Cash payments	(3,084)	(1,133)	(4,217)
Balance at April 30, 2017	$ 153	$ 5,139	$ 5,292
Current restructuring liabilities	$ 153	$ 4,928	$ 5,081
Non-current restructuring liabilities	$ —	$ 211	$ 211

(1) Reflects a global workforce reduction of approximately 50 employees during the first quarter of fiscal 2017 as part of a business optimization strategy to improve gross margin, constrain operating expense and redesign certain business processes and systems.

(2) Reflects unfavorable lease commitments and relocation costs incurred during the second quarter of fiscal 2017 in connection with the facility transition from Ciena's existing research and development center located at Lab 10 on the former Nortel Carling Campus to a new campus facility in Ottawa, Canada.

The following table sets forth the restructuring activity and balance of the restructuring liability accounts for the six months ended April 30, 2016 (in thousands):

	Workforce reduction	Consolidation of excess facilities	Total
Balance at October 31, 2015	$ 591	$ 688	$ 1,279
Additional liability recorded	929	—	929
Adjustment to previous estimates	—	(10)	(10)
Cash payments	(823)	(203)	(1,026)
Balance at April 30, 2016	$ 697	$ 475	$ 1,172
Current restructuring liabilities	$ 697	$ 309	$ 1,006
Non-current restructuring liabilities	$ —	$ 166	$ 166

(4) INTEREST AND OTHER INCOME (LOSS), NET

The components of interest and other income (loss), net, are as follows (in thousands):

	Quarter Ended April 30,		Six Months Ended April 30,	
	2017	2016	2017	2016
Interest income	$ 1,507	$ 982	$ 2,789	$ 1,668
Losses on non-hedge designated foreign currency forward contracts	(2,749)	(10,600)	(1,725)	(15,213)
Foreign currency exchange gain (loss)	1,292	10,506	(1,125)	6,130
Modification of term loan	(2,924)	—	(2,924)	—
Other	(44)	79	437	(394)
Interest and other income (loss), net	$ (2,918)	$ 967	$ (2,548)	$ (7,809)

Ciena Corporation, as the U.S. parent entity, uses the U.S. Dollar as its functional currency; however, some of its foreign branch offices and subsidiaries use the local currency as their functional currency. During the first six months of fiscal 2017

Ciena recorded $1.1 million in foreign currency exchange rate losses, and during the first six months of fiscal 2016, Ciena recorded $6.1 million in foreign currency exchange rate gains as a result of monetary assets and liabilities that were transacted in a currency other than the entity's functional currency, and the re-measurement adjustments were recorded in interest and other income (loss), net on the Condensed Consolidated Statement of Operations. From time to time, Ciena uses foreign currency forwards to hedge these balance sheet exposures. These forwards are not designated as hedges for accounting purposes and any net gain or loss associated with these derivatives is reported in interest and other income (loss), net on the Condensed Consolidated Statement of Operations. During the first six months of fiscal 2017 and fiscal 2016, Ciena recorded losses of $1.7 million and $15.2 million, respectively, from non-hedge designated foreign currency forward contracts.

(5) SHORT-TERM AND LONG-TERM INVESTMENTS

As of the dates indicated, investments are comprised of the following (in thousands):

	April 30, 2017			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
U.S. government obligations:				
Included in short-term investments	$ 255,042	$ —	(233)	$ 254,809
Included in long-term investments	89,987	—	(135)	89,852
	$ 345,029	$ —	$ (368)	$ 344,661
Commercial paper:				
Included in short-term investments	$ 19,970	—	—	$ 19,970
	$ 19,970	$ —	$ —	$ 19,970

	October 31, 2016			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
U.S. government obligations:				
Included in short-term investments	$ 260,125	$ 140	$ (6)	$ 260,259
Included in long-term investments	90,145	57	(30)	90,172
	$ 350,270	$ 197	$ (36)	$ 350,431
Commercial paper:				
Included in short-term investments	$ 14,989	—	—	$ 14,989
	$ 14,989	$ —	$ —	$ 14,989

The following table summarizes the final legal maturities of debt investments at April 30, 2017 (in thousands):

	Amortized Cost	Estimated Fair Value
Less than one year	$ 275,012	$ 274,779
Due in 1-2 years	89,987	89,852
	$ 364,999	$ 364,631

(6) FAIR VALUE MEASUREMENTS

As of the date indicated, the following table summarizes the assets and liabilities that are recorded at fair value on a recurring basis (in thousands):

	April 30, 2017			
	Level 1	Level 2	Level 3	Total
Assets:				
Money market funds	$ 474,476	$ —	$ —	$ 474,476
U.S. government obligations	—	344,661	—	344,661
Commercial paper	—	79,917	—	79,917
Foreign currency forward contracts	—	827	—	827
Total assets measured at fair value	$ 474,476	$ 425,405	$ —	$ 899,881
Liabilities:				
Foreign currency forward contracts	$ —	$ 1,811	$ —	$ 1,811
Forward starting interest rate swap	—	1,070	—	1,070
Total liabilities measured at fair value	$ —	$ 2,881	$ —	$ 2,881

	October 31, 2016			
	Level 1	Level 2	Level 3	Total
Assets:				
Money market funds	$ 625,277	$ —	$ —	$ 625,277
U.S. government obligations	—	350,431	—	350,431
Commercial paper	—	69,959	—	69,959
Foreign currency forward contracts	—	175	—	175
Total assets measured at fair value	$ 625,277	$ 420,565	$ —	$ 1,045,842
Liabilities:				
Foreign currency forward contracts	$ —	$ 1,396	$ —	$ 1,396
Forward starting interest rate swap	—	5,967	—	5,967
Total liabilities measured at fair value	$ —	$ 7,363	$ —	$ 7,363

As of the date indicated, the assets and liabilities above are presented on Ciena's Condensed Consolidated Balance Sheet as follows (in thousands):

	April 30, 2017			
	Level 1	Level 2	Level 3	Total
Assets:				
Cash equivalents	$ 474,476	$ 59,947	$ —	$ 534,423
Short-term investments	—	274,779	—	274,779
Prepaid expenses and other	—	827	—	827
Long-term investments	—	89,852	—	89,852
Total assets measured at fair value	$ 474,476	$ 425,405	$ —	$ 899,881
Liabilities:				
Accrued liabilities	$ —	$ 1,811	$ —	$ 1,811
Other long-term obligations	—	1,070	—	1,070
Total liabilities measured at fair value	$ —	$ 2,881	$ —	$ 2,881

	October 31, 2016			
	Level 1	Level 2	Level 3	Total
Assets:				
Cash equivalents	$ 625,277	$ 54,970	$ —	$ 680,247
Short-term investments	—	275,248	—	275,248
Prepaid expenses and other	—	175	—	175
Long-term investments	—	90,172	—	90,172
Total assets measured at fair value	$ 625,277	$ 420,565	$ —	$ 1,045,842
Liabilities:				
Accrued liabilities	$ —	$ 1,396	$ —	$ 1,396
Other long-term obligations	—	5,967	—	5,967
Total liabilities measured at fair value	$ —	$ 7,363	$ —	$ 7,363

Ciena did not have any transfers between Level 1 and Level 2 fair value measurements during the periods presented.

(7) ACCOUNTS RECEIVABLE

As of April 30, 2017, no single customer accounted for greater than 10.0% of Ciena's net accounts receivable. As of October 31, 2016, one customer accounted for 10.4% of Ciena's net accounts receivable. Ciena has not historically experienced a significant amount of bad debt expense. The allowance for doubtful accounts was $4.5 million and $4.0 million as of April 30, 2017 and October 31, 2016, respectively.

(8) INVENTORIES

As of the dates indicated, inventories are comprised of the following (in thousands):

	April 30, 2017	October 31, 2016
Raw materials	$ 43,905	$ 44,644
Work-in-process	12,859	12,852
Finished goods	204,376	156,402
Deferred cost of goods sold	85,164	59,856
	346,304	273,754
Provision for excess and obsolescence	(59,231)	(62,503)
	$ 287,073	$ 211,251

Ciena writes down its inventory for estimated obsolescence or unmarketable inventory by an amount equal to the difference between the cost of inventory and the estimated net realizable value based on assumptions about future demand and market conditions. During the first six months of fiscal 2017, Ciena recorded a provision for excess and obsolescence of $19.6 million, primarily related to a decrease in the forecasted demand for certain Networking Platforms products. Deductions from the provision for excess and obsolete inventory relate primarily to disposal activities.

(9) PREPAID EXPENSES AND OTHER

As of the dates indicated, prepaid expenses and other are comprised of the following (in thousands):

		April 30, 2017		October 31, 2016
Prepaid VAT and other taxes	$	86,572	$	77,474
Product demonstration equipment, net		48,897		42,259
Deferred deployment expense		23,482		19,138
Prepaid expenses		23,996		25,659
Other non-trade receivables		3,145		4,398
Financing receivable		—		3,740
Derivative assets		827		175
	$	186,919	$	172,843

Depreciation of product demonstration equipment was $4.9 million and $5.2 million for the first six months of fiscal 2017 and 2016, respectively.

(10) EQUIPMENT, BUILDING, FURNITURE AND FIXTURES

As of the dates indicated, equipment, building, furniture and fixtures are comprised of the following (in thousands):

		April 30, 2017		October 31, 2016
Equipment, furniture and fixtures	$	468,630	$	451,029
Building subject to capital lease		42,347		22,529
Construction in progress subject to build-to-suit lease		33,157		57,602
Leasehold improvements		78,136		60,011
		622,270		591,171
Accumulated depreciation and amortization		(322,478)		(302,765)
	$	299,792	$	288,406

Ciena capitalizes construction in progress and records a corresponding long-term liability for build-to-suit lease agreements where Ciena is considered the owner, for accounting purposes, during the construction period. On April 15, 2015, Ciena entered into a build-to-suit lease arrangement pursuant to which the landlord will construct, and Ciena will subsequently lease, two new office buildings at its new Ottawa, Canada campus. The landlord will construct the buildings and contribute up to a maximum of CAD$290.00 per rentable square foot in total construction costs plus certain allowances for tenant improvements, and Ciena will be responsible for any additional construction costs. As of the first day of Ciena's second quarter of fiscal 2017, occupancy of one of the office buildings was complete, and, as such, Ciena recorded a capital lease of $20.7 million for this building which will be depreciated over the lease term. This occupancy also reduced the build-to-suit construction in progress asset and the corresponding long-term liability. As of April 30, 2017, total costs remaining under this build-to-suit arrangement were $33.2 million. The remaining build-to-suit arrangement is expected to qualify as a capital lease. As a result, the facilities will be depreciated over the shorter of their useful lives or the lease term.

The total of the depreciation of equipment, furniture and fixtures and the amortization of leasehold improvements was $30.6 million and $24.8 million for the first six months of fiscal 2017 and 2016, respectively.

(11) OTHER INTANGIBLE ASSETS

As of the dates indicated, other intangible assets are comprised of the following (in thousands):

	April 30, 2017			October 31, 2016		
	Gross Intangible	Accumulated Amortization	Net Intangible	Gross Intangible	Accumulated Amortization	Net Intangible
Developed technology	$ 347,727	$ (267,663)	$ 80,064	$ 347,727	$ (248,128)	$ 99,599
In-process research and development	4,200	—	4,200	4,200	—	4,200
Patents and licenses	7,165	(6,410)	755	7,165	(6,285)	880
Customer relationships, covenants not to compete, outstanding purchase orders and contracts	358,648	(330,422)	28,226	358,647	(316,615)	42,032
Total other intangible assets	$ 717,740	$ (604,495)	$ 113,245	$ 717,739	$ (571,028)	$ 146,711

The aggregate amortization expense of intangible assets was $33.5 million and $40.5 million for the first six months of fiscal 2017 and 2016, respectively. Expected future amortization of intangible assets for the fiscal years indicated is as follows (in thousands):

Period ended October 31,	
2017 (remaining six months)	$ 11,895
2018	22,680
2019	22,133
2020	21,106
2021	18,172
Thereafter	13,059
	$ 109,045 (1)

(1) Does not include amortization of in-process research and development, as estimation of the timing of future amortization expense would be impractical.

(12) GOODWILL

The following table presents the goodwill allocated to Ciena's applicable reportable segments as of the dates indicated (in thousands):

	Balance at October 31, 2016	Acquisitions	Impairments	Translation	Balance at April 30, 2017
Software and Software-Related Services	$ 201,428	$ —	$ —	$ —	$ 201,428
Networking Platforms	65,546	—	—	(201)	65,345
Total	$ 266,974	$ —	$ —	$ (201)	$ 266,773

(13) OTHER BALANCE SHEET DETAILS

As of the dates indicated, other long-term assets are comprised of the following (in thousands):

	April 30, 2017	October 31, 2016
Maintenance spares, net	$ 48,447	$ 49,535
Deferred debt issuance costs, net (1)	1,202	1,363
Financing receivable	—	1,870
Other	15,542	15,352
	$ 65,191	$ 68,120

(1) As described in Note 2 above, in connection with Ciena's adoption of ASU 2015-03 effective January 31, 2017, deferred debt issuance costs associated with its convertible notes and term loans were retrospectively reclassified from other long-term assets to current portion of long-term debt and long-term debt, net on the Condensed Consolidated Balance Sheets. The deferred debt issuance costs reflected relate to Ciena's ABL Credit Facility (described in Note 17 below). The amortization of deferred debt issuance costs for Ciena's ABL Credit Facility is included in interest expense, and was $0.2 million and $0.3 million during the first six months of fiscal 2017 and 2016, respectively.

As of the dates indicated, accrued liabilities and other short-term obligations are comprised of the following (in thousands):

	April 30, 2017	October 31, 2016
Compensation, payroll related tax and benefits	$ 71,567	$ 106,687
Warranty	46,025	52,324
Vacation	40,317	36,112
Capital lease obligations	2,716	2,321
Interest payable	4,312	4,649
Other	97,545	108,260
	$ 262,482	$ 310,353

The following table summarizes the activity in Ciena’s accrued warranty for the fiscal periods indicated (in thousands):

Six months ended April 30,	Beginning Balance	Provisions	Settlements	Ending Balance
2016	$ 56,654	9,563	(10,196)	$ 56,021
2017	$ 52,324	2,347	(8,646)	$ 46,025

The decrease in warranty provisions during fiscal 2017 was primarily due to lower failure rates and reduced costs due to efficiencies.

As of the dates indicated, deferred revenue is comprised of the following (in thousands):

	April 30, 2017	October 31, 2016
Products	$ 49,909	$ 45,216
Services	136,954	137,647
	186,863	182,863
Less current portion	(105,514)	(109,009)
Long-term deferred revenue	$ 81,349	$ 73,854

As of the dates indicated, other long-term obligations are comprised of the following (in thousands):

	April 30, 2017	October 31, 2016
Construction liability	$ 33,157	$ 57,602
Capital lease obligations	42,197	24,298
Income tax liability	14,001	14,122
Deferred tenant allowance	8,663	9,164
Straight-line rent	7,277	6,406
Forward starting interest rate swap	1,070	5,967
Other	6,889	6,835
	$ 113,254	$ 124,394

Ciena capitalizes construction in progress and records a corresponding long-term liability for build-to-suit lease agreements where Ciena is considered the owner during the construction period for accounting purposes. As of the first day of Ciena's second quarter of fiscal 2017, occupancy of one office building was complete, and, as such, Ciena recorded a capital lease for this building which will be depreciated over the lease term. This occupancy also reduced the build-to-suit construction in progress asset and the corresponding long-term liability. See Note 10 for more details regarding this arrangement.

The following is a schedule by fiscal year of future minimum lease payments under capital leases and the present value of minimum lease payments as of April 30, 2017 (in thousands):

Period ended October 31,	
2017 (remaining six months)	$ 2,966
2018	5,796
2019	5,378
2020	4,399
2021	4,292
Thereafter	51,284
Net minimum capital lease payments	74,115
Less: Amount representing interest	(29,202)
Present value of minimum lease payments	44,913
Less: Current portion of present value of minimum lease payments	(2,716)
Long-term portion of present value of minimum lease payments	$ 42,197

(14) DERIVATIVE INSTRUMENTS

Foreign Currency Derivatives

As of April 30, 2017 and October 31, 2016, Ciena had forward contracts in place to reduce the variability in its Canadian Dollar and Indian Rupee denominated expense, which principally related to its research and development activities. The notional amount of these contracts was approximately $55.7 million and $107.6 million as of April 30, 2017 and October 31, 2016, respectively. These foreign exchange contracts have maturities of 12 months or less and have been designated as cash flow hedges.

During the first six months of fiscal 2017 and fiscal 2016, in order to hedge certain balance sheet exposures, Ciena entered into forward contracts to mitigate risk due to volatility in the Brazilian Real, Canadian Dollar and Mexican Peso. The notional amount of these contracts was approximately $62.0 million and $59.6 million as of April 30, 2017 and October 31, 2016, respectively. These foreign exchange contracts have maturities of 12 months or less and have not been designated as hedges for accounting purposes.

Interest Rate Derivatives

Ciena is exposed to floating rates of LIBOR interest on its term loan borrowings (see Note 16 below) and has hedged such risk by entering into floating to fixed interest rate swap arrangements ("interest rate swaps"). During the second quarter of fiscal 2017, Ciena refinanced its existing 2019 and 2021 Term Loans into a new 2022 Term Loan, thereby reducing the aggregate outstanding principal to $400 million and extending the maturity to January 2022 (see Note 16 below). In order to align its interest rate hedges to the reduced 2022 Term Loan principal value and later maturity date, Ciena also reduced the total outstanding value of its interest rate swaps, as described below, and entered into new forward starting interest rate swaps in January 2017 and February 2017, respectively. The interest rate swaps, as adjusted, fix 98%, 82% and 77% of the principal value of the 2022 Term Loan from February 2017 through July 2018, July 2018 through June 2020, and June 2020 through January 2021, respectively. The fixed rate on the amounts hedged during these periods will be 4.25%, 4.25% and 4.51%, respectively. The total notional amount of these interest rate swaps in effect as of April 30, 2017 was $391.6 million.

During fiscal 2014, Ciena entered into interest rate swaps that fixed the interest rate under the 2019 Term Loan (as defined in Note 16) at 5.004% for the period commencing on July 20, 2015 through July 19, 2018. The total notional amount of these derivatives as of October 31, 2016 was $244.4 million. In May 2016, Ciena entered into interest rate swaps that fixed the total interest rate under the 2021 Term Loan (as defined in Note 16) at 4.62% to 4.87%, depending on the applicable margin, for the period commencing on June 20, 2016 through June 22, 2020. The total notional amount of these derivatives as of October 31, 2016 was $248.8 million.

Ciena expects the variable rate payments to be received under the terms of the interest rate swaps to exactly offset the forecasted variable rate payments on the equivalent notional amounts of the term loans. These derivative contracts have been designated as cash flow hedges.

Other information regarding Ciena's derivatives is immaterial for separate financial statement presentation. See Note 4 and Note 6 above.

(15) ACCUMULATED OTHER COMPREHENSIVE INCOME

The following table summarizes the changes in accumulated balances of other comprehensive income ("AOCI") for the six months ended April 30, 2017:

	Unrealized Gain/(Loss) on Marketable Securities	Unrealized Gain/(Loss) on Foreign Currency Contracts	Unrealized Gain/(Loss) on Forward Starting Interest Rate Swap	Cumulative Foreign Currency Translation Adjustment	Total
Balance at October 31, 2016	$ 139	$ (1,091)	$ (5,967)	$ (17,410)	$ (24,329)
Other comprehensive income (loss) before reclassifications	(527)	4,897	(815)	(1,753)	1,802
Amounts reclassified from AOCI	—	—	1,341	—	1,341
Balance at April 30, 2017	$ (388)	$ 3,806	$ (5,441)	$ (19,163)	$ (21,186)

The following table summarizes the changes in AOCI for the six months ended April 30, 2016:

	Unrealized Gain/(Loss) on Marketable Securities	Unrealized Gain/(Loss) on Foreign Currency Contracts	Unrealized Gain/(Loss) on Forward Starting Interest Rate Swap	Cumulative Foreign Currency Translation Adjustment	Total
Balance at October 31, 2015	$ (78)	$ (268)	$ (5,522)	$ (16,258)	$ (22,126)
Other comprehensive income (loss) before reclassifications	256	760	(1,478)	4,693	4,231
Amounts reclassified from AOCI	—	704	1,572	—	2,276
Balance at April 30, 2016	$ 178	$ 1,196	$ (5,428)	$ (11,565)	$ (15,619)

All amounts reclassified from AOCI related to settlement (gains) losses on foreign currency forward contracts designated as cash flow hedges impacted research and development expense on the Condensed Consolidated Statements of Operations. All amounts reclassified from AOCI related to settlement (gains) losses on forward starting interest rate swaps designated as cash flow hedges impacted interest and other income (loss), net on the Condensed Consolidated Statements of Operations.

(16) SHORT-TERM AND LONG-TERM DEBT

Outstanding Term Loan Payable

The net carrying amount of Ciena's term loans were comprised of the following for the fiscal periods indicated (in thousands):

	April 30, 2017	October 31, 2016
Term Loan Payable due July 15, 2019	$ —	$ 241,359
Term Loan Payable due April 25, 2021	—	244,944
Term Loan Payable due January 30, 2022	393,377	—
	$ 393,377	$ 486,303

The term loan balances in the table above reflect Ciena's adoption of ASU 2015-03, as described in Note 2 above. Deferred debt issuance costs that were deducted from the carrying amounts of the term loans totaled $3.5 million at April 30, 2017 and $4.9 million at October 31, 2016. Deferred debt issuance costs are amortized using the straight-line method, which approximates the effect of the effective interest rate method, through the maturity of the term loans. The amortization of deferred debt issuance costs for these term loans are included in interest expense, and was $0.5 million and $0.4 million during the first six months of fiscal 2017 and 2016, respectively. The carrying amounts of the term loans listed above are also net of any unamortized discounts.

2022 Term Loan

On January 30, 2017, Ciena, as borrower, and Ciena Communications, Inc. and Ciena Government Solutions, Inc., as guarantors, entered into an Omnibus Refinancing Amendment to the Credit Agreement, Security Agreement and Pledge Agreement with the lenders party thereto and the administrative agent (the “Refinancing Agreement”), pursuant to which Ciena refinanced its existing 2019 Term Loan and 2021 Term Loan (as described under "Prior Term Loans" below) into a single term loan with an aggregate principal amount of $400 million maturing on January 30, 2022 (the “2022 Term Loan”). In connection with the transaction, Ciena received a loan in the amount of $399.5 million, net of original discount, from the 2022 Term Loan and repaid $493.1 million of outstanding principal under the 2019 Term Loan and 2021 Term Loan. The 2022 Term Loan requires Ciena to make installment payments of approximately $1 million on a quarterly basis. This arrangement was accounted for as a modification of debt and, as such, $2.9 million of debt issuance costs associated with the 2022 Term Loan were expensed and the aggregate balance of $3.5 million of debt issuance costs and approximately $1.7 million of original discount from the 2019 Term Loan and the 2021 Term Loan, and approximately $0.5 million of original discount from the 2022 Term Loan, are included in the carrying value of the 2022 Term Loan. See table below.

The Refinancing Agreement amends the Term Loan Credit Agreement (as defined below) and provides that the 2022 Term Loan will, among other things:

- be subject to mandatory prepayment on the same basis as under the Term Loan Credit Agreement;
- bear interest, at Ciena’s election, at a per annum rate equal to (a) LIBOR (subject to a floor of 0.75%) plus an applicable margin of 2.50%, or (b) a base rate (subject to a floor of 1.75%) plus an applicable margin of 1.50%; and
- be repayable at any time at Ciena's election, provided that repayment of the 2022 Term Loan with proceeds of certain indebtedness prior to July 30, 2017 will require a prepayment premium of 1% of the aggregate principal amount of such prepayment.

Except as amended by the Refinancing Agreement, the remaining terms of the Term Loan Credit Agreement remain in full force and effect.

The principal balance, unamortized discount, deferred debt issuance costs and net carrying value of the liability components of our 2022 Term Loan were as follows as of April 30, 2017 (in thousands):

	Principal Balance	Unamortized Discount	Deferred Debt Issuance Costs	Net Carrying Amount
Term Loan Payable due January 30, 2022	$ 399,000	$ (2,153)	$ (3,470)	$393,377

The following table sets forth the carrying value and the estimated fair values of Ciena's term loan (in thousands):

	April 30, 2017	
	Carrying Value	Fair Value(2)
Term Loan Payable due January 30, 2022(1)	$ 393,377	$ 401,494

(1) Includes unamortized debt discount and debt issuance costs.

(2) Ciena's term loan is categorized as Level 2 in the fair value hierarchy. Ciena estimated the fair value of its term loan using a market approach based upon observable inputs, such as current market transactions involving comparable securities.

Prior Term Loans

On July 15, 2014, Ciena entered into a Term Loan Credit Agreement (the "Term Loan Credit Agreement") providing for senior secured term loans in an aggregate principal amount of $250 million (the “2019 Term Loan”) with a maturity date of July 15, 2019. The 2019 Term Loan required Ciena to make installment payments of approximately $0.6 million on a quarterly basis.

On April 25, 2016, Ciena entered into an Incremental Joinder and Amendment Agreement (the “Incremental Term Loan Credit Agreement”) that amended the Term Loan Credit Agreement. The Incremental Term Loan Credit Agreement provided for a new tranche of senior secured term loans under the Term Loan Credit Agreement in an aggregate principal amount of $250 million (the “2021 Term Loan”). The 2021 Term Loan required Ciena to make installment payments of approximately $0.6 million on a quarterly basis.

Outstanding Convertible Notes Payable

The net carrying amount of Ciena's outstanding convertible notes payable was comprised of the following for the fiscal periods indicated (in thousands):

	April 30, 2017	October 31, 2016
0.875% Convertible Senior Notes due June 15, 2017	$ 185,221	$ 231,240
3.75% Convertible Senior Notes due October 15, 2018	348,248	347,630
4.0% Convertible Senior Notes due December 15, 2020	191,557	188,509
	$ 725,026	$ 767,379

The convertible notes payable balances in the table above reflects Ciena's adoption of ASU 2015-03, as described in Note 2 above. Deferred debt issuance costs that were deducted from the carrying amounts of the convertible notes payable totaled $2.9 million at April 30, 2017 and $3.9 million at October 31, 2016. Deferred debt issuance costs are amortized using the straight-line method, which approximates the effect of the effective interest rate method, through the maturity of the convertible notes payable. The amortization of deferred debt issuance costs is included in interest expense, and was $1.0 million and $1.4 million during the first six months of fiscal 2017 and 2016, respectively. The carrying amounts of the convertible notes payable listed above are also net of any unamortized discounts.

The principal balance, unamortized discount, deferred debt issuance costs and net carrying value of the liability and equity components of our Ciena's outstanding issues of convertible notes were as follows as of April 30, 2017 (in thousands):

	Liability Component				Equity Component
	Principal Balance	Unamortized Discount	Deferred Debt Issuance Costs	Net Carrying Amount	Net Carrying Amount
0.875% Convertible Senior Notes due June 15, 2017	$ 185,258	$ —	$ (37)	$185,221	$ —
3.75% Convertible Senior Notes due October 15, 2018	$ 350,000	$ —	$ (1,752)	$348,248	$ —
4.0% Convertible Senior Notes due December 15, 2020	$ 203,093	$ (10,428)	$ (1,108)	$191,557	$ 43,131

The following table sets forth, in thousands, the carrying value and the estimated fair value of Ciena's outstanding issues of convertible notes as of April 30, 2017:

	April 30, 2017	
	Carrying Value (1)	Fair Value(2)
0.875% Convertible Senior Notes due June 15, 2017	$ 185,221	$ 185,085
3.75% Convertible Senior Notes due October 15, 2018	348,248	449,313
4.0% Convertible Senior Notes due December 15, 2020	191,557	254,925
	$ 725,026	$ 889,323

(1) Includes unamortized debt discount, accretion of principal and debt issuance costs.

(2) The convertible notes are categorized as Level 2 in the fair value hierarchy. Ciena estimated the fair value of its outstanding convertible notes using a market approach based upon observable inputs, such as current market transactions involving comparable securities.

(17) ABL CREDIT FACILITY

Ciena Corporation and certain of its subsidiaries are parties to a senior secured asset-based revolving credit facility (the "ABL Credit Facility"). Ciena principally uses the ABL Credit Facility to support the issuance of letters of credit that arise in the ordinary course of its business and thereby to reduce its use of cash required to collateralize these instruments.

As of April 30, 2017, letters of credit totaling $72.4 million were collateralized by the ABL Credit Facility. There were no borrowings outstanding under the ABL Credit Facility as of April 30, 2017.

(18) EARNINGS PER SHARE CALCULATION

The following table (in thousands except per share amounts) is a reconciliation of the numerator and denominator of the basic net income per common share ("Basic EPS") and the diluted net income per potential common share ("Diluted EPS"). Basic EPS is computed using the weighted average number of common shares outstanding. Diluted EPS is computed using the weighted average number of the following, in each case, to the extent the effect is not anti-dilutive: (i) common shares outstanding; (ii) shares issuable upon vesting of restricted stock units; (iii) shares issuable under Ciena's employee stock purchase plan and upon exercise of outstanding stock options, using the treasury stock method; and (iv) shares underlying Ciena's outstanding convertible notes.

	Quarter Ended April 30,		Six Months Ended April 30,	
Numerator	2017	2016	2017	2016
Net income	$ 38,026	$ 13,997	$ 41,887	$ 2,451
Add: Interest expense associated with 0.875% Convertible Senior Notes due 2017	495	—	1,097	—
Add: Interest expense associated with 3.75% convertible senior notes due 2018	3,588	—	—	—
Net income used to calculate Diluted EPS	$ 42,109	$ 13,997	$ 42,984	$ 2,451

Denominator	Quarter Ended April 30, 2017	Quarter Ended April 30, 2016	Six Months Ended April 30, 2017	Six Months Ended April 30, 2016
Basic weighted average shares outstanding	141,743	137,950	141,223	137,313
Add: Shares underlying outstanding stock options and restricted stock units and issuable under employee stock purchase plan	1,317	939	1,409	1,380
Add: Shares underlying 0.875% Convertible Senior Notes due 2017	4,857	—	5,210	—
Add: Shares underlying 3.75% convertible senior notes due 2018	17,356	—	—	—
Dilutive weighted average shares outstanding	165,273	138,889	147,842	138,693

EPS	Quarter Ended April 30, 2017	Quarter Ended April 30, 2016	Six Months Ended April 30, 2017	Six Months Ended April 30, 2016
Basic EPS	$ 0.27	$ 0.10	$ 0.30	$ 0.02
Diluted EPS	$ 0.25	$ 0.10	$ 0.29	$ 0.02

The following table summarizes the weighted average shares excluded from the calculation of the denominator for Diluted EPS due to their anti-dilutive effect for the periods indicated (in thousands):

	Quarter Ended April 30, 2017	Quarter Ended April 30, 2016	Six Months Ended April 30, 2017	Six Months Ended April 30, 2016
Shares underlying stock options and restricted stock units	725	2,439	1,141	2,092
0.875% Convertible Senior Notes due June 15, 2017	—	12,583	—	12,748
3.75% Convertible Senior Notes due October 15, 2018	—	17,356	17,356	17,356
4.0% Convertible Senior Notes due December 15, 2020	9,198	9,198	9,198	9,198
Total shares excluded due to anti-dilutive effect	9,923	41,576	27,695	41,394

(19) SHARE-BASED COMPENSATION EXPENSE

Ciena has outstanding equity awards issued under its 2008 Omnibus Incentive Plan (the "2008 Plan"), certain legacy equity plans, equity plans assumed as a result of previous acquisitions, and its 2017 Omnibus Incentive Plan (the "2017 Plan"), which was approved by Ciena's stockholders on March 23, 2017. All equity awards granted on or after March 23, 2017 are made exclusively from the 2017 Plan. Ciena also makes shares of its common stock available for purchase under its Amended and Restated 2003 Employee Stock Purchase Plan (the "ESPP"). Each of the 2017 Plan and the ESPP are described below.

2017 Plan

The 2017 Plan has a ten year term and authorizes the issuance of awards including stock options, restricted stock units (RSUs), restricted stock, unrestricted stock, stock appreciation rights (SARs) and other equity and/or cash performance incentive awards to employees, directors and consultants of Ciena. Subject to certain restrictions, the Compensation Committee of the Board of Directors has broad discretion to establish the terms and conditions for awards under the 2017 Plan, including the number of shares, vesting conditions, and the required service or performance criteria. Options and SARs have a maximum term of ten years, and their exercise price may not be less than 100% of fair market value on the date of grant. Repricing of stock options and SARs is prohibited without stockholder approval. Certain change in control transactions may cause awards granted under the 2017 Plan to vest, unless the awards are continued or substituted for in connection with the transaction.

The 2017 Plan authorizes and reserves 8.9 million shares for issuance. In addition, any shares that remained available for issuance under the 2008 Plan as of March 23, 2017 were added to the 2017 Plan and are available for issuance thereunder. The number of shares available under the 2017 Plan will also be increased from time to time by: (i) the number of shares subject to outstanding awards granted under Ciena's prior equity compensation plans that are forfeited, expire or are canceled without delivery of common stock following the effective date of the 2017 Plan, and (ii) the number of shares subject to awards assumed or substituted in connection with the acquisition of another company. As of April 30, 2017, approximately 10.5 million shares remained available for issuance under the 2017 Plan.

Stock Options

Ciena did not grant any stock options during the first six months of fiscal 2017 or fiscal 2016. Outstanding stock option awards granted to employees in prior periods or assumed as a result of acquisitions are generally subject to service-based vesting conditions and vest incrementally over a four-year period. The following table is a summary of Ciena's stock option activity for the period indicated (shares in thousands):

	Shares Underlying Options Outstanding	Weighted Average Exercise Price
Balance at October 31, 2016	1,387	$ 26.90
Exercised	(167)	—
Canceled	(225)	—
Balance at April 30, 2017	995	$ 29.55

The total intrinsic value of options exercised during the first six months of fiscal 2017 and fiscal 2016 was $2.4 million and $2.5 million, respectively.

The following table summarizes information with respect to stock options outstanding at April 30, 2017, based on Ciena's closing stock price on the last trading day of Ciena's second fiscal quarter of 2017 (shares and intrinsic value in thousands):

	Options Outstanding at April 30, 2017				Vested Options at April 30, 2017			
Range of Exercise Price	Number of Underlying Shares	Weighted Average Remaining Contractual Life (Years)	Weighted Average Exercise Price	Aggregate Intrinsic Value	Number of Underlying Shares	Weighted Average Remaining Contractual Life (Years)	Weighted Average Exercise Price	Aggregate Intrinsic Value
$ 1.88 — $ 10.18	83	2.67	$ 8.16	$ 1,229	82	2.61	$ 8.14	$ 1,216
$ 11.34 — $ 17.24	207	4.91	13.42	1,964	198	4.80	13.34	1,893
$ 17.50 — $ 30.46	145	1.97	25.66	167	135	1.55	26.20	121
$ 31.93 — $ 37.10	323	1.85	35.19	—	323	1.85	35.19	—
$ 37.82 — $ 55.63	237	4.07	45.89	—	231	4.02	45.91	—
$ 1.88 — $ 55.63	995	3.10	$ 29.55	$ 3,360	969	2.99	$ 29.73	$ 3,230

Assumptions for Option-Based Awards

Ciena recognizes the fair value of service-based options as share-based compensation expense on a straight-line basis over the requisite service period.

Restricted Stock Units

A restricted stock unit is a stock award that entitles the holder to receive shares of Ciena common stock as the unit vests. Ciena's outstanding restricted stock unit awards are subject to service-based vesting conditions and/or performance-based vesting conditions. Awards subject to service-based conditions typically vest in increments over a three or four-year period. However, the 2017 Plan permits Ciena to grant service-based stock awards with a minimum one-year vesting period. Awards with performance-based vesting conditions require the achievement of certain operational, financial or other performance criteria or targets as a condition of vesting, or the acceleration of vesting, of such awards. Ciena recognizes the estimated fair value of performance-based awards, net of estimated forfeitures, as share-based compensation expense over the performance period, using graded vesting, which considers each performance period or tranche separately, based upon Ciena's determination of whether it is probable that the performance targets will be achieved. At the end of each reporting period, Ciena reassesses the probability of achieving the performance targets and the performance period required to meet those targets.

The following table is a summary of Ciena's restricted stock unit activity for the period indicated, with the aggregate fair value of the balance outstanding at the end of each period, based on Ciena's closing stock price on the last trading day of the relevant period (shares and aggregate fair value in thousands):

	Restricted Stock Units Outstanding	Weighted Average Grant Date Fair Value Per Share	Aggregate Fair Value
Balance at October 31, 2016	4,280	$ 19.96	$ 83,511
Granted	2,092		
Vested	(1,306)		
Canceled or forfeited	(433)		
Balance at April 30, 2017	4,633	$ 21.22	$ 106,143

The total fair value of restricted stock units that vested and were converted into common stock during the first six months of fiscal 2017 and fiscal 2016 was $31.9 million and $33.0 million, respectively. The weighted average fair value of each restricted stock unit granted by Ciena during the first six months of fiscal 2017 and fiscal 2016 was $23.22 and $19.73 respectively.

Assumptions for Restricted Stock Unit Awards

The fair value of each restricted stock unit award is based on the closing price on the date of grant. Share-based expense for service-based restricted stock unit awards is recognized, net of estimated forfeitures, ratably over the vesting period on a straight-line basis.

Share-based expense for performance-based restricted stock unit awards, net of estimated forfeitures, is recognized ratably over the performance period based upon Ciena's determination of whether it is probable that the performance targets will be achieved. At the end of each reporting period, Ciena reassesses the probability of achieving the performance targets and the performance period required to meet those targets. The estimation of whether the performance targets will be achieved involves judgment, and the estimate of expense is revised periodically based on the probability of achieving the performance targets. Revisions are reflected in the period in which the estimate is changed. If any performance goals are not met, no compensation cost is ultimately recognized against that goal, and to the extent previously recognized, compensation expense is reversed.

Because share-based compensation expense is recognized only for those awards that are ultimately expected to vest, the amount of share-based compensation expense recognized reflects a reduction for estimated forfeitures. Ciena estimates forfeitures at the time of grant and revises those estimates in subsequent periods based upon new or changed information.

Amended and Restated Employee Stock Purchase Plan (ESPP)

Under the ESPP, eligible employees may enroll in a 12-month offer period that begins in December and June of each year. Each offer period includes two six-month purchase periods. Employees may purchase a limited number of shares of Ciena common stock at 85% of the fair market value on either the day immediately preceding the offer date or the purchase date, whichever is lower. The ESPP is considered compensatory for purposes of share-based compensation expense. Pursuant to the ESPP's “evergreen” provision, on December 31 of each year, the number of shares available under the ESPP increases by up to approximately 0.6 million shares, provided that the total number of shares available at that time shall not exceed 8.2 million shares. Unless earlier terminated, the ESPP will terminate on January 24, 2023.

During the first six months of fiscal 2017, Ciena issued 0.5 million shares under the ESPP. At April 30, 2017, 5.9 million shares remained available for issuance under the ESPP.

Share-Based Compensation Expense for Periods Reported

The following table summarizes share-based compensation expense for the periods indicated (in thousands):

	Quarter Ended April 30,		Six Months Ended April 30,	
	2017	2016	2017	2016
Product costs	$ 708	$ 629	$ 1,269	$ 1,200
Service costs	679	693	1,307	1,285
Share-based compensation expense included in cost of sales	1,387	1,322	2,576	2,485
Research and development	3,653	3,791	6,862	7,219
Sales and marketing	3,513	3,923	6,386	8,658
General and administrative	3,417	4,968	8,870	10,097
Acquisition and integration costs	—	697	—	714
Share-based compensation expense included in operating expense	10,583	13,379	22,118	26,688
Share-based compensation expense capitalized in inventory, net	35	32	136	37
Total share-based compensation	$ 12,005	$ 14,733	$ 24,830	$ 29,210

As of April 30, 2017, total unrecognized share-based compensation expense was approximately $84.6 million: (i) $0.3 million, which relates to unvested stock options and is expected to be recognized over a weighted-average period of 1.2 years; and (ii) $84.3 million,which relates to unvested restricted stock units and is expected to be recognized over a weighted-average period of 1.5 years.

(20) SEGMENTS AND ENTITY WIDE DISCLOSURES

Segment Reporting

Ciena’s internal organizational structure and the management of its business are grouped into the following operating segments:

- *Networking Platforms* reflects sales of Ciena’s Converged Packet Optical, Packet Networking and Optical Transport product lines.
    - Converged Packet Optical — includes the 6500 Packet-Optical Platform and the 5430 Reconfigurable Switching System, which feature Ciena's WaveLogic coherent optical processors. Products also include the Waveserver stackable interconnect system, the family of CoreDirector® Multiservice Optical Switches and the OTN configuration for the 5410 Reconfigurable Switching System. This product line also includes sales of the Z-Series Packet-Optical Platform.
    - Packet Networking — includes the 3000 family of service delivery switches and service aggregation switches and the 5000 family of service aggregation switches. This product line also includes the 8700 Packetwave Platform and the Ethernet packet configuration for the 5410 Service Aggregation Switch.
    - Optical Transport — includes the 4200 Advanced Services Platform, 5100/5200 Advanced Services Platform, Common Photonic Layer (CPL) and 6100 Multiservice Optical Platform. Ciena's Optical Transport products have either been previously discontinued, or are expected to be discontinued during fiscal 2017, reflecting network operators' transition toward next-generation converged network architectures.

  The Networking Platforms segment also includes sales of operating system software and enhanced software features embedded in each of the product lines above. Revenue from this segment is included in product revenue on the Condensed Consolidated Statement of Operations.
- *Software and Software-Related Services* reflects sales of Ciena’s network virtualization, management, control and orchestration software solutions and software-related services, including subscription, installation, support, and consulting services.
    - This segment includes Ciena’s element and network management solutions and planning tools, including the OneControl Unified Management System, ON-Center® Network & Service Management Suite, Ethernet Services Manager, Optical Suite Release and Planet Operate. As Ciena seeks adoption of its Blue Planet software platform and transitions features, functionality and customers to this platform, Ciena expects revenue declines for its other element and network management solutions.
    - This segment includes Ciena’s Blue Planet network virtualization, service orchestration and network management software platform. Ciena's Blue Planet platform includes multi-domain service orchestration (MDSO), network function virtualization (NFV), management and orchestration (NFV MANO), and Ciena's manage, control and plan (MCP) solution, SDN Multilayer Controller and V-WAN application.

  Revenue from the software platforms portion of this segment is included in product revenue on the Condensed Consolidated Statement of Operations. Revenue from software-related services is included in services revenue on the Condensed Consolidated Statement of Operations.
- *Global Services* reflects sales of a broad range of Ciena’s services for consulting and network design, installation and deployment, maintenance support and training activities. Revenue from this segment is included in services revenue on the Condensed Consolidated Statement of Operations.

Ciena's long-lived assets, including equipment, building, furniture and fixtures, finite-lived intangible assets and maintenance spares, are not reviewed by the chief operating decision maker for purposes of evaluating performance and allocating resources. As of April 30, 2017, equipment, building, furniture and fixtures, net totaled $299.8 million primarily supporting asset groups within Ciena's Networking Platforms and Software and Software-Related Services segments and supporting Ciena's unallocated selling and general and administrative activities. As of April 30, 2017, $43.1 million of Ciena's intangible assets, net were assigned to asset groups within Ciena's Networking Platforms segment and $70.1 million of Ciena's intangible assets, net were assigned to asset groups within Ciena's Software and Software-Related Services segment. As of April 30, 2017, all of the maintenance spares, net, totaling $48.4 million, were assigned to asset groups within Ciena's Global Services segment.

Segment Revenue

The table below (in thousands) sets forth Ciena’s segment revenue for the respective periods:

	Quarter Ended April 30,		Six Months Ended April 30,	
	2017	2016	2017	2016
Revenue:				
Networking Platforms				
Converged Packet Optical	$ 502,131	$ 435,173	$ 914,783	$ 824,341
Packet Networking	66,326	68,582	138,520	116,779
Optical Transport	3,030	8,451	8,128	20,596
Total Networking Platforms	571,487	512,206	1,061,431	961,716
Software and Software-Related Services				
Software Platforms	13,143	11,772	30,192	19,851
Software-Related Services	24,573	18,701	46,904	36,048
Total Software and Software-Related Services	37,716	30,473	77,096	55,899
Global Services				
Maintenance Support and Training	58,241	57,069	113,231	113,127
Installation and Deployment	28,695	30,232	56,614	61,072
Consulting and Network Design	10,883	10,737	20,147	22,018
Total Global Services	97,819	98,038	189,992	196,217
Consolidated revenue	$ 707,022	$ 640,717	$ 1,328,519	$ 1,213,832

Segment Profit (Loss)

Segment profit (loss) is determined based on internal performance measures used by the chief executive officer to assess the performance of each operating segment in a given period. In connection with that assessment, the chief executive officer excludes the following items: selling and marketing costs; general and administrative costs; amortization of intangible assets; acquisition and integration costs; restructuring costs; interest and other income (loss), net; interest expense; and provisions for income taxes.

The table below (in thousands) sets forth Ciena’s segment profit (loss) and the reconciliation to consolidated net income (loss) during the respective periods indicated:

	Quarter Ended April 30,		Six Months Ended April 30,	
	2017	2016	2017	2016
Segment profit (loss):				
Networking Platforms	$ 150,464	$ 132,606	$ 264,210	$ 239,588
Software and Software-Related Services	4,551	192	12,252	(3,382)
Global Services	41,602	35,692	77,071	75,688
Total segment profit	196,617	168,490	353,533	311,894
Less: Non-performance operating expenses				
Selling and marketing	88,551	86,668	173,553	169,146
General and administrative	34,990	35,203	70,854	66,345
Amortization of intangible assets	10,980	15,566	25,531	32,428
Acquisition and integration costs	—	2,285	—	3,584
Restructuring costs	4,276	535	6,671	919
Add: Other non-performance financial items				
Interest expense and other income (loss), net	(16,226)	(11,641)	(31,059)	(33,127)
Less: Provision for income taxes	3,568	2,595	3,978	3,894
Consolidated net income	$ 38,026	$ 13,997	$ 41,887	$ 2,451

Entity Wide Reporting

Ciena's operating segments each engage in business across four geographic regions: North America; Europe, Middle East and Africa ("EMEA"); Asia Pacific ("APAC"); and Caribbean and Latin America ("CALA"). North America includes only activities in the United States and Canada. The following table reflects Ciena's geographic distribution of revenue principally based on the relevant location for Ciena's delivery of products and performance of services. For the periods below, Ciena's geographic distribution of revenue was as follows (in thousands):

	Quarter Ended April 30,		Six Months Ended April 30,	
	2017	2016	2017	2016
North America	$ 424,373	$ 395,505	$ 830,301	$ 788,209
EMEA	105,776	96,175	197,319	176,897
CALA	33,971	57,896	69,117	101,706
APAC	142,902	91,141	231,782	147,020
Total	$ 707,022	$ 640,717	$ 1,328,519	$ 1,213,832

North America includes $392.0 million and $367.1 million of United States revenue for fiscal quarters ended April 30, 2017 and 2016, respectively. For the six months ended April 30, 2017 and 2016, United States revenue was $771.7 million and $732.3 million, respectively. No other country accounted for 10% or more of total revenue for the periods presented above.

The following table reflects Ciena's geographic distribution of equipment, building, furniture and fixtures, net, with any country accounting for at least 10% of total equipment, building, furniture and fixtures, net, specifically identified. Equipment, building, furniture and fixtures, net, attributable to geographic regions outside of the United States and Canada are reflected as "Other International." For the periods below, Ciena's geographic distribution of equipment, building, furniture and fixtures was as follows (in thousands):

	April 30, 2017	October 31, 2016
United States	$ 99,694	$ 103,018
Canada	188,804	173,885
Other International	11,294	11,503
Total	$ 299,792	$ 288,406

For the periods below, one customer accounted for at least 10% of Ciena's revenue, as follows (in thousands):

	Quarter Ended April 30,		Six Months Ended April 30,	
	2017	2016	2017	2016
AT&T	$ 107,532	$ 116,014	$ 203,969	$ 242,614

AT&T purchased products and services from each of Ciena's operating segments.

(21) COMMITMENTS AND CONTINGENCIES

Foreign Tax Contingencies

Ciena is subject to various tax liabilities arising in the ordinary course of business. Ciena does not expect that the ultimate settlement of these liabilities will have a material effect on its results of operations, financial position or cash flows.

Litigation

From May 15 through June 3, 2015, five separate putative class action lawsuits in connection with Ciena's then-pending acquisition of Cyan, Inc. ("Cyan") were filed in the Court of Chancery of the State of Delaware. On June 23, 2015, each of these lawsuits was consolidated into a single case captioned In Re Cyan, Inc. Shareholder Litigation, Consol. C.A. No. 11027-CB. On July 9, 2015, the plaintiffs filed a verified amended class action complaint, which named as defendants Ciena, a Ciena subsidiary created solely for the purpose of effecting the acquisition ("Merger Sub"), and the members of Cyan's board of directors. On August 5, 2015, the defendants filed motions to dismiss the amended complaint. On October 1, 2015, the plaintiffs filed a second amended complaint which named as defendants the members of Cyan's board of directors. Cyan, Ciena, and Merger Sub were not named as defendants. On July 15, 2016, the plaintiffs filed a third amended complaint, which generally alleges that the Cyan board members breached their fiduciary duties by engaging in a conflicted and unfair sales process, failing to maximize stockholder value in the acquisition, taking steps to preclude competitive bidding, and failing to disclose material information necessary for stockholders to make an informed decision regarding the acquisition. The third amended complaint seeks (i) a declaration that the plaintiffs are entitled to a quasi-appraisal remedy, (ii) rescissory damages, (iii) recovery through an accounting of all damages caused as a result of the alleged breaches of fiduciary duties, (iv) compensatory damages, and (v) costs including attorneys' fees and experts' fees. On August 5, 2016, the defendants filed a motion to dismiss the third amended complaint. On May 11, 2017, the Court of Chancery granted the defendants' motion to dismiss the third amended complaint with prejudice.

As a result of the acquisition of Cyan in August 2015, Ciena became a defendant in a securities class action lawsuit. On April 1, 2014, a purported stockholder class action lawsuit was filed in the Superior Court of California, County of San Francisco, against Cyan, the members of Cyan's board of directors, Cyan's former Chief Financial Officer, and the underwriters of Cyan's initial public offering. On April 30, 2014, a substantially similar lawsuit was filed in the same court against the same defendants. The two cases have been consolidated as Beaver County Employees Retirement Fund, et al. v. Cyan, Inc. et al., Case No. CGC-14-538355. The consolidated complaint alleges violations of federal securities laws on behalf of a purported class consisting of purchasers of Cyan's common stock pursuant or traceable to the registration statement and prospectus for Cyan's initial public offering in April 2013, and seeks unspecified compensatory damages and other relief. On May 19, 2015, the proposed class was certified. On August 25, 2015, the defendants filed a motion for judgment on the pleadings based on an alleged lack of subject matter jurisdiction over the case, which motion was denied on October 23, 2015. On May 24, 2016, the defendants filed a petition for a writ of certiorari on the jurisdiction issue with the United States Supreme Court, to which the plaintiffs filed a brief in opposition. On November 18, 2016, the parties each filed motions for summary judgment. Ciena believes that the consolidated lawsuit is without merit and intends to defend it vigorously.

On May 29, 2008, Graywire, LLC filed a complaint in the United States District Court for the Northern District of Georgia against Ciena and four other defendants, alleging, among other things, that certain of the parties' products infringe U.S. Patent 6,542,673 (the "'673 Patent"), relating to an identifier system and components for optical assemblies. The complaint seeks injunctive relief and damages. In July 2009, upon request of Ciena and certain other defendants, the U.S. Patent and Trademark Office ("PTO") granted the defendants' *inter partes* application for reexamination with respect to certain claims of the '673 Patent, and the district court granted the defendants' motion to stay the case pending reexamination of all of the patents-in-suit. In December 2010, the PTO confirmed the validity of some claims and rejected the validity of other claims of the '673 Patent, to which Ciena and other defendants filed an appeal. On March 16, 2012, the PTO on appeal rejected multiple claims of the '673 Patent, including the two claims on which Ciena is alleged to infringe. Subsequently, the plaintiff requested a reopening of the prosecution of the '673 Patent, which request was denied by the PTO on April 29, 2013. Thereafter, on May 28, 2013, the plaintiff filed an amendment with the PTO in which it canceled the claims of the '673 Patent on which Ciena is alleged to infringe. The case currently remains stayed, and there can be no assurance as to whether or when the stay will be lifted.

In addition to the matters described above, Ciena is subject to various legal proceedings and claims arising in the ordinary course of business, including claims against third parties that may involve contractual indemnification obligations on the part of Ciena. Ciena does not expect that the ultimate costs to resolve these matters will have a material effect on its results of operations, financial position or cash flows.

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations

This quarterly report contains statements that discuss future events or expectations, projections of results of operations or financial condition, changes in the markets for our products and services, trends in our business, business prospects and strategies and other "forward-looking" information. In some cases, you can identify "forward-looking statements" by words like "may," "will," "should," "expects," "plans," "anticipates," "believes," "estimates," "predicts," "intends," "potential," "projects," "targets," or "continue" or the negative of those words and other comparable words. These statements may relate to, among other things, adoption of next-generation network technology and software programmability and control of networks; our competitive landscape; market conditions and growth opportunities; factors impacting our industry; factors impacting the businesses of network operators and their network architectures; our corporate strategy, including our research and development, supply chain and go-to-market initiatives; efforts to increase application of our solutions in customer networks and to increase the reach of our business into new or growing customer and geographic markets; our backlog and seasonality in our business; expectations for our financial results, revenue, gross margin, operating expense and key operating measures in future periods; the adequacy of our sources of liquidity to satisfy our working capital needs, capital expenditures, and other liquidity requirements; business initiatives including real estate and IT transitions or initiatives; and market risks associated with financial instruments and foreign currency exchange rates. These statements are subject to known and unknown risks, uncertainties and other factors, and actual events or results may differ materially due to factors such as:

- *our ability to execute our business and growth strategies;*
- *fluctuations in our revenue and operating results and our financial results generally;*
- *the loss of any of our large customers, a significant reduction in their spending, or a material change in their networking or procurement strategies;*
- *the competitive environment in which we operate;*
- *market acceptance of products and services currently under development and delays in product or software development;*
- *lengthy sales cycles and onerous contract terms with communications service providers, Web-scale providers and other large customers;*
- *product performance problems and undetected errors;*
- *our ability to diversify our customer base beyond our traditional customers and broaden the application for our solutions in communications networks;*
- *the level of growth in network traffic and bandwidth consumption and corresponding level of investment in network infrastructures by network operators;*
- *the international scale of our operations and fluctuations in currency exchange rates;*
- *our ability to forecast accurately demand for our products for purposes of inventory purchase practices;*
- *the impact of pricing pressure and price erosion that we regularly encounter in our markets;*
- *our ability to enforce our intellectual property rights, and costs we may incur in response to intellectual property right infringement claims made against us;*
- *the continued availability on commercially reasonable terms of software and other technology under third party licenses;*
- *failure to maintain the security of confidential, proprietary or otherwise sensitive business information or systems or to protect against cyber security attacks;*
- *the performance of our third party contract manufacturers;*
- *changes or disruption in components or supplies provided by third parties, including sole and limited source suppliers;*
- *our ability to manage effectively our relationships with third party service partners and distributors;*
- *unanticipated risks and additional obligations in connection with our resale of complementary products or technology of other companies;*
- *our new distribution relationships under which we will make available certain technology as a component;*
- *our exposure to the credit risks of our customers and our ability to collect receivables;*
- *modification or disruption of our internal business processes and information systems;*
- *the effect of our outstanding indebtedness on our liquidity and business;*
- *fluctuations in our stock price and our ability to access the capital markets to raise capital;*
- *unanticipated expenses or disruptions to our operations caused by facilities transitions or restructuring activities;*
- *inability to attract and retain experienced and qualified personnel;*
- *disruptions to our operations caused by strategic acquisitions and investments or the inability to achieve the expected benefits and synergies of newly-acquired businesses;*
- *our ability to grow our software business and address networking strategies including software-defined networking and network function virtualization;*

- *changes in, and the impact of, government regulations, including with respect to: the communications industry generally; the business of our customers; the use, import or export of products; and the environment, potential climate change and other social initiatives;*
- *future legislation or executive action in the U.S. relating to tax policy or trade regulation;*
- *impairment charges caused by the write-down of goodwill or long-lived assets;*
- *our ability to maintain effective internal controls over financial reporting and liabilities that result from the inability to comply with corporate governance requirements; and*
- *adverse results in litigation matters.*

These are only some of the factors that may affect the forward-looking statements contained in this quarterly report. For a discussion identifying additional important factors that could cause actual results to vary materially from those anticipated in the forward-looking statements, see "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Risk Factors" in this quarterly report. You should review these risk factors for a more complete understanding of the risks associated with an investment in our securities. For a more complete understanding of the risks associated with an investment in Ciena's securities, you should review these risk factors and the rest of this quarterly report in combination with the more detailed description of our business and management's discussion and analysis of financial condition and risk factors described in our annual report on Form 10-K, which we filed with the Securities and Exchange Commission ("SEC") on December 21, 2016. However, we operate in a very competitive and rapidly changing environment and new risks and uncertainties emerge, are identified or become apparent from time to time. It is not possible for us to predict all risks and uncertainties that could have an impact on the forward-looking statements contained in this quarterly report. You should be aware that the forward-looking statements contained in this quarterly report are based on our current views and assumptions. We undertake no obligation to revise or update any forward-looking statements made in this quarterly report to reflect events or circumstances after the date hereof or to reflect new information or the occurrence of unanticipated events, except as required by law. The forward-looking statements in this quarterly report are intended to be subject to protection afforded by the safe harbor for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995.

Overview

We are a network strategy and technology company, providing solutions that enable a wide range of network operators to adopt next-generation communication architectures and to deliver a broad array of services relied upon by enterprise and consumer end users. We provide equipment, software and services that support the transport, switching, aggregation, service delivery and management of voice, video and data traffic on communications networks. Our high-capacity hardware and network management and control software solutions enable open, multi-vendor, programmable networks that improve automation, reduce network complexity and flexibly support changing service requirements. Our solutions yield business and operational value for our customers by enabling them to support new applications, introduce new revenue-generating services and reduce network complexity and expense.

Our Converged Packet Optical, Packet Networking and Optical Transport products are used by a diverse set of customers and market segments, including communications service providers, cable and multiservice operators, Web-scale providers, submarine network operators, governments, enterprises, research and education (R&E) institutions, and other emerging network operators. These products, which provide functionality from the network core to network access points, allow network operators to scale capacity, increase transmission speeds, allocate traffic and adapt dynamically to changing end-user service demands. In addition to our portfolio of high-capacity hardware platforms, we offer network management and control software platforms designed to simplify the creation, automation and delivery of services across multi-vendor and multi-domain network environments. Our software solutions are oriented around our modular Blue Planet software platform for multi-domain service orchestration, network function virtualization, and network management and control. To complement our hardware and software solutions, we offer a broad range of transformation and automation services that help our customers design, optimize, integrate, deploy, manage and maintain their networks.

Our quarterly reports on Form 10-Q, annual reports on Form 10-K, and current reports on Form 8-K filed with the SEC are available through the SEC's website at www.sec.gov or free of charge on our website as soon as reasonably practicable after we file these documents. We routinely post the reports above, recent news and announcements, financial results and other information about Ciena that is important to investors in the "Investors" section of our website at www.ciena.com. Investors are encouraged to review the "Investors" section of our website because, as with the other disclosure channels that we use, from time to time we may post material information on that site that is not otherwise disseminated by us.

Market Opportunity

The markets in which we sell our communications networking solutions have been subject to significant changes in recent years, including rapid growth in network traffic, evolving cloud-based service offerings, changes in the type of customers building communications networks, and heightened end-user service demands. These conditions have placed significant demands on networks, challenged the business models of network operators, and altered the overall competitive landscape of network operators. Existing and emerging network operators are competing to distinguish their service offerings and rapidly introduce differentiated, revenue-generating services, while managing the costs of their networks and seeking to ensure a profitable business model. These dynamics are driving convergence of network features, functions and layers, virtualization of certain network functions, and solutions that leverage increased software-based network control and programmability. We believe that these dynamics, and the need to adapt to rapidly changing business and network demands, will cause network operators to adopt or evolve their networks to be more open, programmable and automated.

Competitive Landscape

The markets in which we compete are characterized by rapidly advancing technologies, frequent introduction of new networking solutions and aggressive selling and pricing efforts to gain or retain market share. The markets for our solutions are both highly competitive and fragmented, as we regularly compete with number of large, multi-national vendors with greater financial, operational and marketing resources, and significantly broader product offerings. Our sales of Converged Packet Optical solutions face an intense competitive environment as we and our competitors introduce new, higher-capacity, higher-speed network solutions with improved reach, spectral efficiency, automation, power consumption and cost per bit. We expect the competitive landscape in which we operate to continue to broaden and to remain challenging and dynamic. As we have expanded our solutions offerings to include our 8700 Packetwave Platform and Waveserver DCI platform, our solutions have become increasingly competitive with IP router vendors, data center switch providers, and other IT suppliers or integrators. Separately, as we seek increased customer adoption of our Blue Planet software platform, we expect to compete more directly with additional software vendors and information technology vendors or integrators of these solutions.

In addition to the above dynamics, many network operators are continuing to consider a variety of "consumption models," or approaches to the design and procurement of their network infrastructure. While broader adoption of the consumption models involving disaggregation in the procurement of hardware and software remains uncertain, we expect that the potential for different models will require us and other system vendors to assess and possibly broaden our existing commercial models over time. We may also face competition from component vendors, including those in our supply chain, who develop networking products based on off-the-shelf or commoditized hardware technology, referred to as "white box" hardware. Further, some of our competitors are not vertically integrated in their packet optical supply chain and therefore sell a set of networking solutions that rely upon coherent modem technology developed by and procured from third party "merchant" providers. In connection with consumption models involving greater disaggregation, the continued use of such third party modem technology by these competitors and/or the availability of such technology in the market may increase overall pricing pressure in this space and may negatively impact our ability to derive higher gross margins for Converged Packet Optical solutions.

Given this dynamic competitive landscape and the market-based price erosion for our products that we regularly encounter, we expect that, in order to achieve sustained revenue growth, we will be required to continue to increase our volume of product shipments, continue to diversify our business and customer base, introduce new solutions that address evolving service and network demands, and accommodate multiple consumption models. In addition, in order to maintain incumbency with key customers and to secure new opportunities, we are often required to agree to aggressive pricing, incur significant costs early in network deployment, or make significant commercial concessions. These terms have adversely affected our results of operations in the past, have contributed to fluctuations in our financial results, and may do so again in the future.

Strategy

Our corporate strategy to capitalize on the evolving market dynamics described above to drive the profitable growth of our business includes the following initiatives:

Promote Choice and Openness through our OP^{n} Philosophy. We previously introduced our OP^{n} Architecture as a focused approach to next-generation networks through scalability, programmability and network level applications. Today, OP^{n} has evolved and expanded from an architecture into our governing philosophy and broader belief system, which is rooted in enabling choice in the market through openness. Choice is an increasingly important element of our customers' efforts to keep pace with bandwidth demands and emerging service offerings, the shift to more automated and programmable networks, and the need to manage network costs. We believe that the best way to enable choice for our customers is by developing and providing network technologies and strategies that facilitate openness through innovation, virtualization, automation and collaboration. We also believe that we are well-positioned in this regard to offer an expansive range of choice to the market.

Our OP^n belief system shapes the operation of our business in a number of ways. It guides our research and development strategy and solutions offerings, including our focus on coherent modem leadership, packet-optical convergence, and on multi-vendor network orchestration, management and control through our Blue Planet software platform. By embracing design principles that leverage open application programming interfaces (APIs), including those found in our Waveserver platform, we believe we facilitate openness and choice. By offering collaborative tools and environments, including our Emulation Cloud and DevOps Toolkit, we enable the development, testing and customization of services and applications. Our OP^n belief system also influences our go-to-market approach, as we expect to partner increasingly with an ecosystem of solutions vendors and virtual network function providers, and to integrate services and applications across multi-vendor and multi-domain networks. We intend to offer solutions and pursue opportunities across a range of customer consumption models in order to drive the evolution of next-generation network infrastructures and accelerate the realization of our OP^n philosophy.

Extend Technology Leadership and Expand Application of our Solutions. Our product development strategy is focused on maintaining our leading technology offerings and expanding our role and the application of our solutions in customer networks. Our research and development efforts seek to advance and extend our coherent modem technology leadership, including our WaveLogic coherent optical processor and high-speed indium phosphide and silicon photonics technologies (HSPC) acquired from TeraXion during fiscal 2016. We are also focused on introducing terabit per second and greater transmission speeds, and expanding the high-capacity and operationally-efficient service delivery capabilities in our Packet Networking and Converged Packet Optical products for access and metro networks, data center interconnect, submarine networks, and other WAN applications. In addition, we are seeking to increase software programmability of networks and to enable network operators to automate and accelerate the creation and delivery of new, cloud-based services. These efforts include investments in our Blue Planet software platform — which is designed to automate, orchestrate, and manage physical network resources and virtualized services across data centers and the WAN — and its integration across our portfolio and with additional third party network resources.

As part of our strategy to expand the application of our solutions and capitalize on the evolving market dynamics and different consumption models described above, on March 20, 2017, we announced global distribution relationships with leading component vendors Lumentum, NeoPhotonics and Oclaro. Through this new distribution channel, we intend to supply our WaveLogic Ai coherent optical technology for use as a component of a Ciena-designed optical module to be manufactured, marketed and sold by the component vendors. Once these modules are available, Lumentum, NeoPhotonics and Oclaro will each have the ability to sell such modules to customers on a non-exclusive basis. We believe that potential customers for optical modules through this distribution channel may include a variety of market participants, including certain of our customers, other system vendors, and network operators or vendors who plan to build or use “white box” hardware. In addition, we intend to work together with these component vendors to contribute to the establishment of specifications, both independently and within relevant industry forums, for 400G pluggable technology solutions focused on data center interconnect requirements for greater scale and power efficiency and lower cost. We believe that this distribution channel will further our efforts to continue to diversify our business and expand our addressable market to include new geographies and market segments, while enabling greater choice for network operators in offering an alternative to “merchant” modems. No revenue was generated through this distribution channel in the second quarter of fiscal 2017. We expect the results of operations related to this distribution channel to be reflected within our Networking Platforms segment.

Increase Diversification of our Business. The continued diversification of our business is a key element of our strategy to address the dynamic environment of our industry. We believe this diversification positions us to continue to grow our business and to better withstand potential slowdowns adversely affecting particular geographies, markets, customer segments and applications. We intend to pursue initiatives that broaden sales to existing customers across our solutions portfolio and also to secure additional relationships with a diverse set of network operators in high-growth customer segments and geographies.

Our sales and marketing efforts seek to promote increased sales to existing customers, particularly through opportunities that expand our role or the application of our solutions within their network and business. We are pursuing opportunities to increase adoption of our packet access and aggregation solutions, and to secure market share of our Blue Planet software platform, including within our existing customer base. We are also focused on opportunities to support metro aggregation, data center interconnect, managed services offerings, cloud-based services, submarine networks, business Ethernet services and mobile backhaul. We intend to leverage our existing customer relationships to increase sales and promote the adoption of our solutions as our customers scale and evolve their networks.

We also intend to target important growth markets, including key customer market segments and geographies. Our go-to-market strategy is focused on further diversifying our customer base by penetrating additional internet content providers, data center operators and other emerging network operators that form the “Web-scale” marketplace. We are also focused on securing additional customers within our traditional base of communications service providers, particularly in higher growth markets, including our Asia-Pacific region and India. We intend to use our direct and indirect sales channels to target, and to expand our sales with, several other market verticals, including cable and multiservice operators, submarine network operators, enterprise customers and in the government and R&E markets. For example, we intend to gain greater reach providing network solutions to submarine network operators, particularly in the new cable build market, in part through our recently announced supply partnership with TE SubCom. To leverage the geographic reach of our direct sales resources and expand sales into key geographies, we have pursued channel and distribution opportunities, including our strategic relationship with Ericsson, that enable sales through third parties, including service providers, systems integrators and value-added resellers.

Optimize Business to Yield Operating Leverage. We regularly pursue initiatives to improve our operating margin, constrain operating expense and promote efficiency of our business processes and systems. These initiatives include portfolio optimization and engineering efforts to drive improved efficiencies in the design and development of our solutions and supply chain initiatives to ensure that our product cost model remains ahead of the price erosion that we regularly encounter in our markets. We are also focused on ensuring an efficient supply chain, including efforts to vertically integrate where prudent, reduce our material and overhead costs and improve inventory management and logistics. Our initiatives also include the recent upgrade of our company-wide enterprise resource planning platform, as well as contemporaneous efforts to improve automation of key business processes and systems. We seek to leverage these initiatives to promote the profitable growth of our business and to drive additional operating leverage.

Term Loan Refinancing

On January 30, 2017, Ciena, as borrower, and Ciena Communications, Inc. and Ciena Government Solutions, Inc., as guarantors, entered into an Omnibus Refinancing Amendment to the Credit Agreement, Security Agreement and Pledge Agreement with the lenders party thereto and the administrative agent (the “Refinancing Agreement”), pursuant to which Ciena refinanced its existing term loan in the aggregate principal amount of $250 million, maturing on July 15, 2019 (the "2019 Term Loan") and its existing term loan in the aggregate principal amount of $250 million, maturing on April 25, 2021 (the "2021 Term Loan") into a single term loan with an aggregate principal amount of $400 million maturing on January 30, 2022 (the “2022 Term Loan”). In connection with the transaction, Ciena received a loan in the amount of $399.5 million, net of original discount, from the 2022 Term Loan and repaid $493.1 million of outstanding principal under the 2019 Term Loan and 2021 Term Loan. As a result, we used $93.6 million in cash, representing the original discount on the 2022 Term Loan and the repayment of $93.1 million of the outstanding principal under the 2019 Term Loan and 2021 Term Loan. The remaining balances under the 2019 Term Loan and 2021 Term Loan were refinanced and replaced by the 2022 Term Loan. The 2022 Term Loan requires Ciena to make installment payments of approximately $1 million on a quarterly basis. This arrangement was accounted for as a modification of debt. See Note 16 to our Condensed Consolidated Financial Statements included in Item 1 of Part I of this quarterly report for more information relating to our term loan refinancing.

Maturity of 0.875% Convertible Senior Notes due June 15, 2017

Our $185.3 million in aggregate principal amount outstanding in 0.875% convertible senior notes will mature on June 15, 2017. Subject to the conversion rights of the holders thereof, we expect to repay any then remaining amount outstanding in cash at maturity.

Financial Results for Second Quarter of Fiscal 2017 and Sequential Comparison

Revenue for the second quarter of fiscal 2017 was $707.0 million, representing a sequential increase of 13.8% from $621.5 million in the first quarter of fiscal 2017, during which we typically experience seasonal reductions in revenue. Revenue-related details reflecting sequential changes from the first quarter of fiscal 2017 include:

- Product revenue for the second quarter of fiscal 2017 increased by $77.6 million, primarily reflecting revenue increases in Converged Packet Optical within our Networking Platforms segment.
- Service revenue for the second quarter of fiscal 2017 increased by $7.9 million.
- North America revenue for the second quarter of fiscal 2017 was $424.4 million, an increase from $405.9 million in the first quarter of fiscal 2017. This primarily reflects revenue increases of $20.8 million within our Networking Platforms segment and $2.2 million within our Global Services segment. These increases were partially offset by a revenue decrease of $4.5 million within our Software and Software-Related Services segment.
- Europe, Middle East and Africa ("EMEA") revenue for the second quarter of fiscal 2017 was $105.8 million, an increase from $91.5 million in the first quarter of fiscal 2017. This primarily reflects revenue increases of $10.4 million within our Networking Platforms segment, $2.6 million within our Global Services segment and $1.2 million within our Software and Software-Related Services segment.

- Caribbean and Latin America ("CALA") revenue for the second quarter of fiscal 2017 was $33.9 million, a decrease from $35.2 million in the first quarter of fiscal 2017. This primarily reflects revenue decreases of $1.9 million within our Global Services segment, partially offset by a revenue increase of $1.0 million within our Networking Platforms segment.
- Asia Pacific ("APAC") revenue for the second quarter of fiscal 2017 was $142.9 million, an increase from $88.9 million in the first quarter of fiscal 2017. This primarily reflects revenue increases of $49.5 million within our Networking Platforms segment, $2.7 million within our Global Services segment and $1.8 million within our Software and Software-Related Services segment.
- For the second quarter of fiscal 2017, AT&T accounted for 15.2% of total revenue. AT&T accounted for 15.5% of total revenue and Verizon accounted for 11.8% in the first quarter of fiscal 2017.

Gross margin for the second quarter of fiscal 2017 was 45.0%, an increase from 44.1% in the first quarter of fiscal 2017. Improved gross margin for the second quarter of fiscal 2017 primarily reflects product cost reductions and lower warranty expense, partially offset by market-based price erosion and an increased provision for excess and obsolete inventory.

Operating expense was $260.4 million for the second quarter of fiscal 2017, an increase from $254.7 million in the first quarter of fiscal 2017. Second quarter fiscal 2017 operating expense primarily reflects increases of $4.8 million in research and development expense and $3.5 million in selling and marketing expense, partially offset by a decrease of $3.6 million in amortization of intangibles expense.

Income from operations for the second quarter of fiscal 2017 was $57.8 million, compared to income from operations of $19.1 million during the first quarter of fiscal 2017. Our net income for the second quarter of fiscal 2017 was $38.0 million, or $0.25 per diluted common share, compared to a net income of $3.9 million or $0.03 per diluted common share, for the first quarter of fiscal 2017.

We generated cash from operations of $72.0 million during the second quarter of fiscal 2017, compared to $26.3 million of cash used by operations during the first quarter of fiscal 2017. As of April 30, 2017, we had $628.6 million in cash and cash equivalents, $274.8 million of short-term investments in U.S. treasury securities and commercial paper and $89.9 million of long-term investments in U.S. treasury securities. This compares to $693.9 million in cash and cash equivalents, $250.1 million of short-term investments in U.S. treasury securities and commercial paper and $109.9 million of long-term investments in U.S. treasury securities, at January 31, 2017.

As of April 30, 2017, we had 5,663 employees, which reflects an increase from 5,555 at October 31, 2016 and an increase from 5,418 at April 30, 2016.

Consolidated Results of Operations

Operating Segments

Ciena has the following operating segments for reporting purposes: (i) Networking Platforms, (ii) Software and Software-Related Services, and (iii) Global Services. See Note 20 to our Condensed Consolidated Financial Statements included in Item 1 of Part I of this report.

Quarter ended April 30, 2017 compared to the quarter ended April 30, 2016

Revenue

During the second quarter of fiscal 2017, approximately 19.0% of our revenue was non-U.S. Dollar denominated, including sales in Euro, Canadian Dollar, Japanese Yen, British Pound, Argentina Peso, and Brazilian Real. During the second quarter of fiscal 2017 as compared to the second quarter of fiscal 2016, the U.S. Dollar fluctuated against these currencies. Consequently, our revenue reported in U.S. Dollars on a constant currency basis was slightly reduced by approximately $2.7 million, or 0.4%, as compared to the second quarter of fiscal 2016. The table below (in thousands, except percentage data) sets forth the changes in our operating segment revenue for the periods indicated:

	Quarter Ended April 30,				Increase	
	2017	%*	2016	%*	(decrease)	%**
Revenue:						
Networking Platforms						
Converged Packet Optical	$ 502,131	71.0	$ 435,173	67.9	$ 66,958	15.4
Packet Networking	66,326	9.4	68,582	10.7	(2,256)	(3.3)
Optical Transport	3,030	0.4	8,451	1.3	(5,421)	(64.1)
Total Networking Platforms	571,487	80.8	512,206	79.9	59,281	11.6
Software and Software-Related Services						
Software Platforms	13,143	1.9	11,772	1.9	1,371	11.6
Software-Related Services	24,573	3.5	18,701	2.9	5,872	31.4
Total Software and Software-Related Services	37,716	5.4	30,473	4.8	7,243	23.8
Global Services						
Maintenance Support and Training	58,241	8.2	57,069	8.9	1,172	2.1
Installation and Deployment	28,695	4.1	30,232	4.7	(1,537)	(5.1)
Consulting and Network Design	10,883	1.5	10,737	1.7	146	1.4
Total Global Services	97,819	13.8	98,038	15.3	(219)	(0.2)
Consolidated revenue	$ 707,022	100.0	$ 640,717	100.0	$ 66,305	10.3

* Denotes % of total revenue

** Denotes % change from 2016 to 2017

- **Networking Platforms segment revenue** increased, primarily reflecting a product line sales increase of $67.0 million of our Converged Packet Optical products, partially offset by decreases of $5.4 million in sales of our Optical Transport products and $2.3 million in sales of our Packet Networking products.
  - Converged Packet Optical sales reflect increases of $33.9 million of our 6500 Packet-Optical Platform, $18.5 million of our 5430 Reconfigurable Switching System, $18.3 million of our Waveserver stackable interconnect system and $3.7 million of our OTN configuration for the 5410 Reconfigurable Switching System. These increases were partially offset by sales decreases of $5.9 million of our Z-Series Packet-Optical Platform and $1.5 million of our CoreDirector® Multiservice Optical Switches.

- Packet Networking sales primarily reflects a decrease of $4.1 million of our 8700 Packetwave Platform, partially offset by a sales increase of $1.8 million of our 3000 and 5000 families of service delivery and aggregation switches.
- Optical Transport sales have continued to experience significant declines, as expected. Our Optical Transport products have either been previously discontinued, or are expected to be discontinued, reflecting network operators' transition toward next-generation converged network architectures addressed by solutions within our Converged Packet Optical product line.

- **Software and Software-Related Services segment revenue** increased, primarily reflecting sales increases of $5.9 million in software-related services and $1.4 million of our software platforms. The increase in software-related services is primarily due to sales increases of $4.2 million of software subscription services and $1.5 million of services supporting our Blue Planet software platform and advance software applications. The increase in software platform sales primarily reflects an increase of $1.1 million in sales of our OneControl Unified Management System.
- **Global Services segment revenue** decreased slightly, primarily reflecting a sales decrease of $1.5 million of our installation and deployment services offset by a sales increase of $1.2 million of our maintenance support and training.

Our operating segments each engage in business and operations across four geographic regions: North America; EMEA; CALA; and APAC. Results for North America include only activities in the United States and Canada. Part of our business and growth strategy is to continue to diversify our customer base and secure additional communications service provider customers outside of North America, including in high-growth geographies such as India. We believe that this is an important part of our strategy, and that it is required for continued revenue growth. The following table reflects our geographic distribution of revenue principally based on the relevant location for our delivery of products and performance of services. Our revenue, particularly when considered by geographic distribution, can fluctuate significantly and the timing of revenue recognition for large network projects, particularly outside of North America, can result in large variations in geographic revenue results in any particular quarter. The table below (in thousands, except percentage data) sets forth the changes in geographic distribution of revenue for the periods indicated:

	Quarter Ended April 30,				Increase	
	2017	%*	2016	%*	(decrease)	%**
North America	$ 424,373	60.0	$ 395,505	61.7	$ 28,868	7.3
EMEA	105,776	15.0	96,175	15.0	9,601	10.0
CALA	33,971	4.8	57,896	9.0	(23,925)	(41.3)
APAC	142,902	20.2	91,141	14.3	51,761	56.8
Total	$ 707,022	100.0	$ 640,717	100.0	$ 66,305	10.3

* Denotes % of total revenue

** Denotes % change from 2016 to 2017

- **North America revenue** primarily reflects increases of $27.2 million within our Networking Platforms segment and $2.9 million within our Software and Software-Related Services segment, partially offset by a revenue decrease of $1.2 million within our Global Services segment. The revenue increase within our Networking Platforms segment primarily reflects a product line increase of $31.0 million of Converged Packet Optical sales, partially offset by product line decreases of $2.7 million of Packet Networking sales and $1.1 million in Optical Transport sales. The revenue increase within Converged Packet Optical primarily reflects increases of $15.2 million in sales of our Waveserver stackable interconnect system and $13.3 million in sales of our 6500 Packet-Optical Platform. The revenue increase for our Waveserver stackable interconnect system primarily reflects increased sales to Web-scale providers. The revenue increase for our 6500 Packet-Optical Platform primarily reflects increased sales to communications service providers, partially offset by decreases in sales to AT&T and to a certain cable and multiservice operator who was acquired during the third quarter of 2016. The increase within our Software and Software-Related Services segment primarily reflects a sales increase of $3.3 million of our software subscription services.
- **EMEA revenue** primarily reflects increases of $10.9 million within our Networking Platforms segment and $1.7 million within our Software and Software-Related Services segment, partially offset by a revenue decrease of $3.0 million within our Global Services segment. Our Networking Platforms segment revenue primarily reflects a product line increase of $9.6 million in Converged Packet Optical sales, primarily due to increases of $6.4 million of sales for

our 6500 Packet-Optical Platform to certain communications service providers and $3.1 million of sales of our Waveserver stackable interconnect system to Web-scale providers and communications service providers.

- **CALA revenue** primarily reflects a decrease of $24.4 million within our Networking Platforms segment. The revenue decrease within our Networking Platforms segment primarily reflects product line decreases of $23.1 million of Converged Packet Optical sales and $1.6 million in Optical Transport sales. The revenue decrease within Converged Packet Optical primarily reflects decreases of $12.2 million in sales of our 5430 Reconfigurable Switching System and $9.4 million in sales of our 6500 Packet-Optical Platform. The decrease in CALA revenue primarily relates to decreased sales to certain communications service providers in Brazil.
- **APAC revenue** primarily reflects increases of $45.6 million within our Networking Platforms segment, $3.5 million within our Global Services segment and $2.6 million within our Software and Software-Related Services segment. The revenue increase within our Networking Platforms segment primarily reflects a product line increase of $49.5 million of Converged Packet Optical sales, partially offset by product line decreases of $2.9 million of Packet Networking sales and $1.0 million in Optical Transport sales. The revenue increase within Converged Packet Optical reflects an increase of $25.3 million in sales of our 5430 Reconfigurable Switching System, primarily due to increased sales to Reliance Jio Infocomm, a communications service provider in India. In addition, this product line reflects a revenue increase of $23.6 million in sales of our 6500 Packet-Optical Platform, primarily related to sales through our strategic relationship with Ericsson in Australia, communication service providers, Web-scale providers and submarine network operators in Singapore, and sales to Reliance Jio Infocomm in India. APAC revenue has increased meaningfully in recent periods reflecting in part significant revenue growth in India, where we have benefited from initiatives to gain subscribers and unprecedented subscriber growth and related network projects. Changes in spending and the timing of revenue recognition for large network projects in this region can result in significant variations in revenue results in any particular quarter.

Cost of Goods Sold and Gross Profit

Product cost of goods sold consists primarily of amounts paid to third party contract manufacturers, component costs, employee-related costs and overhead, shipping and logistics costs associated with manufacturing-related operations, warranty and other contractual obligations, royalties, license fees, amortization of intangible assets, cost of excess and obsolete inventory and, when applicable, estimated losses on committed customer contracts.

Services cost of goods sold consists primarily of direct and third party costs associated with our provision of services including installation, deployment, maintenance support, consulting and training activities and, when applicable, estimated losses on committed customer contracts. The majority of these costs relate to personnel, including employee and third party contractor-related costs.

Our gross profit as a percentage of revenue, or “gross margin,” has improved in recent fiscal years, from 41.4% in fiscal 2014 to 44.7% in fiscal 2016. However, gross margin, particularly when viewed on a quarterly basis, can fluctuate due to a number of factors. Our gross margin remains highly dependent upon on our continued ability to drive product cost reductions relative to the price erosion that we regularly encounter in our markets. Moreover, to retain or secure key customers, we may agree to pricing or other unfavorable commercial terms that adversely affect our gross margin. Our success in taking share and winning new business can result in additional costs associated with the early stages of network deployments, including an increased concentration of lower margin “common” equipment sales and installation services, as compared to higher margin products including channel cards, software services and maintenance services. Gross margin can also be impacted by changes in expense for excess and obsolete inventory and warranty obligations and our revenue concentration within a particular segment, product line, geography, or customer.

Service gross margin can be affected by the mix of customers and services, particularly the mix between deployment and maintenance services, geographic mix and the timing and extent of any investments in internal resources to support this business.

The tables below (in thousands, except percentage data) set forth the changes in revenue, cost of goods sold and gross profit for the periods indicated:

	Quarter Ended April 30,				Increase	
	2017	%*	2016	%*	(decrease)	%**
Total revenue	$ 707,022	100.0	$ 640,717	100.0	$ 66,305	10.3
Total cost of goods sold	388,782	55.0	357,624	55.8	31,158	8.7
Gross profit	$ 318,240	45.0	$ 283,093	44.2	$ 35,147	12.4

* Denotes % of total revenue

** Denotes % change from 2016 to 2017

	Quarter Ended April 30,				Increase	
	2017	%*	2016	%*	(decrease)	%**
Product revenue	$ 584,630	100.0	$ 523,978	100.0	$ 60,652	11.6
Product cost of goods sold	327,295	56.0	291,778	55.7	35,517	12.2
Product gross profit	$ 257,335	44.0	$ 232,200	44.3	$ 25,135	10.8

* Denotes % of product revenue

** Denotes % change from 2016 to 2017

	Quarter Ended April 30,				Increase	
	2017	%*	2016	%*	(decrease)	%**
Service revenue	$ 122,392	100.0	$ 116,739	100.0	$ 5,653	4.8
Service cost of goods sold	61,487	50.2	65,846	56.4	(4,359)	(6.6)
Service gross profit	$ 60,905	49.8	$ 50,893	43.6	$ 10,012	19.7

* Denotes % of services revenue

** Denotes % change from 2016 to 2017

- **Gross profit as a percentage of revenue** reflects improved services gross profit partially offset by reduced product gross profit.
- **Gross profit on products as a percentage of product revenue** decreased slightly as a result of market-based price erosion partially offset by product cost reductions, lower warranty expense and improved manufacturing efficiencies.
- **Gross profit on services as a percentage of services revenue** increased primarily due to sales of higher margin software subscription services and improved margin on installation and professional services.

Operating Expense

We expect operating expense to increase in fiscal 2017 from the level reported for fiscal 2016 in order to fund our research and development initiatives, to provide for investments in the re-engineering of company-wide enterprise resource planning platforms, and to fund the transition of key facilities. In particular, the development of our new facilities and the transition of our operations in Ottawa, Canada and Gurgaon, India will require significant effort, time and cost.

Operating expense consists of the component elements described below.

Research and development expense primarily consists of salaries and related employee expense (including share-based compensation expense), prototype costs relating to design, development, testing of our products, depreciation expense and third-party consulting costs.

Selling and marketing expense primarily consists of salaries, commissions and related employee expense (including share-based compensation expense), and sales and marketing support expense, including travel, demonstration units, trade show expense and third-party consulting costs.

General and administrative expense primarily consists of salaries and related employee expense (including share-based compensation expense), and costs for third-party consulting and other services.

Amortization of intangible assets primarily reflects the amortization of purchased technology and customer relationships from our acquisitions.

Acquisition and integration costs consist of expenses for financial, legal and accounting advisors and severance and other employee-related costs, associated with our acquisition of Cyan on August 3, 2015 and our acquisition of the HSPC assets from TeraXion and its wholly-owned subsidiary on February 1, 2016.

Restructuring costs primarily reflect actions Ciena has taken to better align our workforce, facilities and operating costs with perceived market opportunities, business strategies and changes in market and business conditions.

The table below (in thousands, except percentage data) sets forth the changes in operating expense for the periods indicated:

	Quarter Ended April 30,				Increase	
	2017	%*	2016	%*	(decrease)	%**
Research and development	$ 121,623	17.2	$ 114,603	17.9	$ 7,020	6.1
Selling and marketing	88,551	12.5	86,668	13.5	1,883	2.2
General and administrative	34,990	4.9	35,203	5.5	(213)	(0.6)
Amortization of intangible assets	10,980	1.6	15,566	2.4	(4,586)	(29.5)
Acquisition and integration costs	—	—	2,285	0.4	(2,285)	(100.0)
Restructuring costs	4,276	0.6	535	0.1	3,741	699.3
Total operating expenses	$ 260,420	36.8	$ 254,860	39.8	$ 5,560	2.2

* Denotes % of total revenue

** Denotes % change from 2016 to 2017

- **Research and development expense** increased by $7.0 million. This change reflects increases of $4.0 million in employee and compensation costs and $3.0 million in facilities and information technology costs.
- **Selling and marketing expense** increased by $1.9 million, primarily reflecting increases of $0.6 million in employee and compensation costs and $0.6 million in facilities and information technology costs.
- **General and administrative expense** remained relatively unchanged.
- **Amortization of intangible assets** decreased due to certain intangible assets having reached the end of their economic lives.
- **Acquisition and integration costs** incurred during fiscal 2016 reflects expense for financial, legal and accounting advisors and severance and other employee compensation costs, related to our acquisition of Cyan on August 3, 2015 and our acquisition of certain HSPC assets of TeraXion and its wholly-owned subsidiary on February 1, 2016.
- **Restructuring costs** increased primarily reflecting unfavorable lease commitments and relocation costs incurred in connection with the facility transition from our existing research and development center located at Lab 10 on the former Nortel Carling Campus to a new campus facility in Ottawa, Canada.

Other items

The table below (in thousands, except percentage data) sets forth the changes in other items for the periods indicated:

	Quarter Ended April 30,				Increase	
	2017	%*	2016	%*	(decrease)	%**
Interest and other income (loss), net	$ (2,918)	(0.4)	$ 967	0.2	$ (3,885)	401.8
Interest expense	$ 13,308	1.9	$ 12,608	2.0	$ 700	5.6
Provision for income taxes	$ 3,568	0.5	$ 2,595	0.4	$ 973	37.5

* Denotes % of total revenue

** Denotes % change from 2016 to 2017

- **Interest and other income (loss), net** primarily reflects $2.9 million in debt modification expenses related to the 2022 Term Loan that was entered into in the second quarter of fiscal 2017. For additional information about our term loans, see Note 16 to our Condensed Consolidated Financial Statements included in Item 1 of Part I of this report.
- **Interest expense** increased primarily due to the 2022 Term Loan that was entered into in the second quarter of fiscal 2017 and the 2021 Term Loan that was entered into in the second quarter of fiscal 2016. For additional information about our term loans, see Note 16 to our Condensed Consolidated Financial Statements included in Item 1 of Part I of this report.
- **Provision for income taxes** increased primarily due to foreign and state tax expense.

Six months ended April 30, 2017 compared to the six months ended April 30, 2016

Revenue

During the first six months of fiscal 2017, approximately 18.7% of our revenue was non-U.S. Dollar denominated, including sales in Euro, Canadian Dollar, Japanese Yen, Brazilian Real, British Pound and Argentina Peso. During the first six months of fiscal 2017 as compared to the first six months of fiscal 2016, the U.S. Dollar fluctuated against these currencies. Consequently, our revenue reported in U.S. Dollars on a constant currency basis was slightly reduced by approximately $4.9 million or 0.4%. The table below (in thousands, except percentage data) sets forth the changes in our operating segment revenue for the periods indicated:

	Six Months Ended April 30,				Increase	
	2017	%*	2016	%*	(decrease)	%**
Revenue:						
Networking Platforms						
Converged Packet Optical	$ 914,783	68.9	$ 824,341	68.0	$ 90,442	11.0
Packet Networking	138,520	10.4	116,779	9.6	21,741	18.6
Optical Transport	8,128	0.6	20,596	1.7	(12,468)	(60.5)
Total Networking Platforms	1,061,431	79.9	961,716	79.3	99,715	10.4
Software and Software-Related Services						
Software Platforms	30,192	2.3	19,851	1.6	10,341	52.1
Software-Related Services	46,904	3.5	36,048	3.0	10,856	30.1
Total Software and Software-Related Services	77,096	5.8	55,899	4.6	21,197	37.9
Global Services						
Maintenance Support and Training	113,231	8.5	113,127	9.3	104	0.1
Installation and Deployment	56,614	4.3	61,072	5.0	(4,458)	(7.3)
Consulting and Network Design	20,147	1.5	22,018	1.8	(1,871)	(8.5)
Total Global Services	189,992	14.3	196,217	16.1	(6,225)	(3.2)
Consolidated revenue	$ 1,328,519	100.0	$ 1,213,832	100.0	$ 114,687	9.4

* Denotes % of total revenue

** Denotes % change from 2016 to 2017

- **Networking Platforms segment revenue** increased, primarily reflecting product line sales increases of $90.5 million of our Converged Packet Optical products and $21.7 million of our Packet Networking products, partially offset by a decrease of $12.5 million in sales of our Optical Transport products.

- Converged Packet Optical sales primarily reflect increases of $66.3 million of our 6500 Packet-Optical Platform, $30.7 million of our Waveserver stackable interconnect system, $13.6 million of our 5430 Reconfigurable Switching System and $3.8 million of our OTN configuration for the 5410 Reconfigurable Switching System. These increases were partially offset by sales decreases of $18.0 million of our Z-Series Packet-Optical Platform and $5.8 million of our CoreDirector® Multiservice Optical Switches.
- Packet Networking sales primarily reflect increases of $20.5 million of our 3000 and 5000 families of service delivery and aggregation switches and $1.0 million of our 8700 Packetwave Platform.
- Optical Transport sales have continued to experience significant declines, as expected. Our Optical Transport products have either been previously discontinued, or are expected to be discontinued, reflecting network operators' transition toward next-generation converged network architectures addressed by solutions within our Converged Packet Optical product line.

- **Software and Software-Related Services segment revenue** increased, primarily reflecting sales increases of $10.9 million in software-related services and $10.3 million of our software platforms. The increase in software-related services is primarily due to sales increases of $7.3 million of software subscription services, $2.4 million of services supporting our Blue Planet software platform and advance software applications and $1.1 million of software-enabled services. The increase in software platform sales reflects increases of $6.9 million in sales of our Blue Planet software platform and advanced software applications and $3.4 million in sales of our other legacy software platforms.
- **Global Services segment revenue** decreased, primarily reflecting sales decreases of $4.5 million of our installation and deployment services and $1.9 million of our consulting and network design services.

The table below (in thousands, except percentage data) sets forth the changes in geographic distribution of revenue for the periods indicated:

	Six Months Ended April 30,				Increase	
	2017	%*	2016	%*	(decrease)	%**
North America	$ 830,301	62.5	$ 788,209	64.9	$ 42,092	5.3
EMEA	197,319	14.9	176,897	14.6	20,422	11.5
CALA	69,117	5.2	101,706	8.4	(32,589)	(32.0)
APAC	231,782	17.4	147,020	12.1	84,762	57.7
Total	$ 1,328,519	100.0	$ 1,213,832	100.0	$ 114,687	9.4

* Denotes % of total revenue

** Denotes % change from 2016 to 2017

- **North America revenue** primarily reflects increases of $33.3 million within our Networking Platforms segment and$15.5 million within our Software and Software-Related Services segment, partially offset by a revenue decrease of $6.7 million within our Global Services segment. The revenue increase within our Networking Platforms segment primarily reflects product line increases of $25.6 million of Converged Packet Optical sales and $10.6 million of Packet Networking sales, partially offset by a product line decrease of $2.9 million in Optical Transport sales. The revenue increase within Converged Packet Optical sales primarily reflects increases of $26.1 million in sales of our Waveserver stackable interconnect system and $12.7 million in sales of our 6500 Packet-Optical Platform, partially offset by a decrease of $16.7 million in sales of our Z-Series Packet-Optical Platform. The revenue increase for our Waveserver stackable interconnect system primarily reflects increased sales to Web-scale providers. The revenue increase for our 6500 Packet-Optical Platform primarily reflecting increased sales to service providers, partially offset by decreases in sales to AT&T and to a certain cable and multiservice operator who was acquired during the third quarter of 2016. The revenue increase within Packet Networking primarily reflects an increase of $12.2 million in sales of our 3000 and 5000 families of service delivery and aggregation switches to AT&T and other communication service providers. The revenue increase within our Software and Software-Related Services segment primarily reflects sales increases of $6.5 million of our software subscription services, $4.3 million in sales of our Blue Planet software platform, $2.4 million of our other legacy software platforms and $2.3 million of other software related services.
- **EMEA revenue** primarily reflects increases of $22.9 million within our Networking Platforms segment and $2.5 million within our Software and Software-Related Services segment, partially offset by a revenue decrease of $5.0 million within our Global Services segment. Our Networking Platforms segment revenue reflects a product line

increase of $22.8 million in Converged Packet Optical sales, primarily due to increased sales of the 6500 Packet-Optical Platform to certain communication service providers.

- **CALA revenue** primarily reflects a decrease of $35.2 million within our Networking Platforms segment partially offset by a revenue increase of $2.4 million within our Global Services segment. The revenue decrease within our Networking Platforms segment primarily reflects product line decreases of $33.3 million of Converged Packet Optical sales and $3.3 million in Optical Transport sales partially offset by a product line increase of $1.4 million of Packet Networking sales. The revenue decrease within Converged Packet Optical primarily reflects decreases of $15.9 million in sales of our 6500 Packet-Optical Platform and $15.2 million in sales of our 5430 Reconfigurable Switching System. The decrease in CALA revenue primarily relates to decreased sales in Brazil and Mexico.
- **APAC revenue** primarily reflects increases of $78.7 million within our Networking Platforms segment, $3.1 million within our Global Services segment and $2.9 million within our Software and Software-Related Services segment. The revenue increase within our Networking Platforms segment primarily reflects product line increases of $75.5 million of Converged Packet Optical sales and $4.9 million of Packet Networking sales, partially offset by a product line decrease of $1.7 million in Optical Transport sales. The revenue increase within Converged Packet Optical reflects an increase of $48.3 million in sales of our 6500 Packet-Optical Platform primarily due to increased sales to Reliance Jio Infocomm in India, sales through our strategic relationship with Ericsson in Australia, communication service providers, Web-scale providers and submarine network operators in Singapore and communication service providers in Japan. The revenue increase within Converged Packet Optical also reflects an increase of $26.4 million of our 5430 Reconfigurable Switching System sales primarily due to increased sales to Reliance Jio Infocomm in India. The timing of revenue recognition for large network projects in this region can result in significant variations in revenue results in any particular quarter.

Cost of Goods Sold and Gross Profit

The tables below (in thousands, except percentage data) set forth the changes in revenue, cost of goods sold and gross profit for the periods indicated:

	Six Months Ended April 30,				Increase	
	2017	%*	2016	%*	(decrease)	%**
Total revenue	$ 1,328,519	100.0	$ 1,213,832	100.0	$ 114,687	9.4
Total cost of goods sold	736,494	55.4	679,289	56.0	57,205	8.4
Gross profit	$ 592,025	44.6	$ 534,543	44.0	$ 57,482	10.8

* Denotes % of total revenue

** Denotes % change from 2016 to 2017

	Six Months Ended April 30,				Increase	
	2017	%*	2016	%*	(decrease)	%**
Product revenue	$ 1,091,623	100.0	$ 981,567	100.0	$ 110,056	11.2
Product cost of goods sold	614,106	56.3	552,260	56.3	61,846	11.2
Product gross profit	$ 477,517	43.7	$ 429,307	43.7	$ 48,210	11.2

* Denotes % of product revenue

** Denotes % change from 2016 to 2017

	Six Months Ended April 30,				Increase	
	2017	%*	2016	%*	(decrease)	%**
Service revenue	$ 236,896	100.0	$ 232,265	100.0	$ 4,631	2.0
Service cost of goods sold	122,388	51.7	127,029	54.7	(4,641)	(3.7)
Service gross profit	$ 114,508	48.3	$ 105,236	45.3	$ 9,272	8.8

* Denotes % of services revenue

** Denotes % change from 2016 to 2017

- **Gross profit as a percentage of revenue** reflects improved services gross profit.
- **Gross profit on products as a percentage of product revenue** reflects a lower warranty provision and product cost reductions offset by market-based price erosion.
- **Gross profit on services as a percentage of services revenue** increased primarily due to sales of higher margin software subscription services and improved margin on installation and professional services.

Operating Expense

The table below (in thousands, except percentage data) sets forth the changes in operating expense for the periods indicated:

	Six Months Ended April 30,				Increase	
	2017	%*	2016	%*	(decrease)	%**
Research and development	$ 238,492	18.0	$ 222,649	18.3	$ 15,843	7.1
Selling and marketing	173,553	13.1	169,146	13.9	4,407	2.6
General and administrative	70,854	5.3	66,345	5.5	4,509	6.8
Amortization of intangible assets	25,531	1.9	32,428	2.7	(6,897)	(21.3)
Acquisition and integration costs	—	—	3,584	0.3	(3,584)	(100.0)
Restructuring costs	6,671	0.5	919	0.1	5,752	625.9
Total operating expenses	$ 515,101	38.8	$ 495,071	40.8	$ 20,030	4.0

* Denotes % of total revenue

** Denotes % change from 2016 to 2017

- **Research and development expense** was adversely affected by $2.0 million as a result of foreign exchange rates, net of hedging, primarily due to a weaker U.S. Dollar in relation to the Canadian Dollar. Including the effect of foreign exchange rates, research and development expenses increased by $15.8 million. This change primarily reflects increases of $8.7 million in employee and compensation costs and $8.1 million in facilities and information technology costs.
- **Selling and marketing expense** increased by $4.4 million, primarily reflecting increases of $1.7 million in employee and compensation costs, $1.2 million in facilities and information technology costs and $1.0 million in selling and marketing related costs.
- **General and administrative expense** increased by $4.5 million, primarily reflecting increases $2.3 million for professional services and legal fees and $1.1 million for facilities and information technology costs.
- **Amortization of intangible assets** decreased due to certain intangible assets having reached the end of their economic lives.
- **Acquisition and integration costs** incurred during fiscal 2016 reflects expense for financial, legal and accounting advisors and severance and other employee compensation costs, related to our acquisition of Cyan on August 3, 2015 and our acquisition of certain HSPC assets of TeraXion and its wholly-owned subsidiary on February 1, 2016.
- **Restructuring costs** increased primarily reflecting unfavorable lease commitments and relocation costs incurred in connection with the facility transition from our existing research and development center located at Lab 10 on the former Nortel Carling Campus to a new campus facility in Ottawa, Canada. Also contributing to the increase was a global workforce reduction of approximately 50 employees in the first quarter of fiscal 2017 as part of our business optimization strategy to improve our gross margin, constrain operating expense and redesign certain business processes, systems, and resources.

Other items

The table below (in thousands, except percentage data) sets forth the changes in other items for the periods indicated:

	Six Months Ended April 30,				Increase	
	2017	%*	2016	%*	(decrease)	%**
Interest and other income (loss), net	$ (2,548)	(0.2)	$ (7,809)	(0.6)	$ 5,261	67.4
Interest expense	$ 28,511	2.1	$ 25,318	2.1	$ 3,193	12.6
Provision for income taxes	$ 3,978	0.3	$ 3,894	0.3	$ 84	2.2

* Denotes % of total revenue

** Denotes % change from 2016 to 2017

- **Interest and other income (loss), net** primarily reflects the improved impact of foreign exchange rates on assets and liabilities denominated in a currency other than the relevant functional currency, net of hedging activity, partially offset by $2.9 million in debt modification expenses related to the 2022 Term Loan that was entered into in the second quarter of fiscal 2017. For additional information about our term loans, see Note 16 to our Condensed Consolidated Financial Statements included in Item 1 of Part I of this report.
- **Interest expense** increased primarily due to the 2022 Term Loan that was entered into in the second quarter of fiscal 2017 and the 2021 Term Loan that was entered into in the second quarter of fiscal 2016. For additional information about our term loans, see Note 16 to our Condensed Consolidated Financial Statements included in Item 1 of Part I of this report.
- **Provision for income taxes** slightly increased primarily due to increased state tax expense.

Segment Profit (Loss)

The table below (in thousands, except percentage data) sets forth the changes in our segment profit for the respective periods:

	Quarter Ended April 30,			
	2017	2016	Increase (decrease)	%*
Segment profit:				
Networking Platforms	$ 150,464	$ 132,606	$ 17,858	13.5
Software and Software-Related Services	$ 4,551	$ 192	$ 4,359	(2,270.3)
Global Services	$ 41,602	$ 35,692	$ 5,910	16.6

* Denotes % change from 2016 to 2017

- **Networking Platforms segment profit** increased, primarily due to higher sales volume, as described above, resulting in increased gross profits, partially offset by increased research and development costs. Research and development costs primarily reflect increased expenses relating to the continued development of our coherent modem technology, including our WaveLogic Ai coherent optical chipset, and relocation costs as a result of the facility transition from our existing research and development center located at Lab 10 on the former Nortel Carling Campus to a new campus facility in Ottawa, Canada.
- **Software and Software-Related Services segment profit** increased primarily due to higher sales volume, as described above, resulting in increased gross profits, partially offset by increased research and development costs. Research and development costs primarily reflect increased expense relating to the continued development of our Blue Planet software platform.
- **Global Services segment profit** increased, primarily due to improved gross margin on installation and deployment services and consulting and network design services.

The table below (in thousands, except percentage data) sets forth the changes in our segment profit (loss) for the respective periods:

	Six Months Ended April 30,			
	2017	2016	Increase (decrease)	%*
Segment profit (loss):				
Networking Platforms	$ 264,210	$ 239,588	$ 24,622	10.3
Software and Software-Related Services	$ 12,252	$ (3,382)	$ 15,634	462.3
Global Services	$ 77,071	$ 75,688	$ 1,383	1.8

* Denotes % change from 2016 to 2017

- **Networking Platforms segment profit** increased, primarily due to higher sales volume, as described above, partially offset by increased research and development costs and reduced gross margin. The reduced gross margin primarily reflects market-based price erosion partially offset by product cost reductions and lower warranty expense. Research and development costs primarily reflect increased expenses relating to the continued development of our coherent modem technology, including our WaveLogic Ai coherent optical chipset, and relocation costs as a result of the facility transition from our existing research and development center located at Lab 10 on the former Nortel Carling Campus to a new campus facility in Ottawa, Canada.
- **Software and Software-Related Services segment profit** reflects higher sales volume, as described above, and improved gross margin, partially offset by increased research and development costs. Research and development costs primarily reflect increased expenses relating to the continued development of our Blue Planet software platform.
- **Global Services segment profit** increased, primarily due to improved gross margin, as described above, partially offset by lower sales volume.

Liquidity and Capital Resources

For the six months ended April 30, 2017, we generated $45.7 million in cash to fund our operating needs, as our net income (adjusted for non-cash charges) of $168.1 million exceeded our working capital requirements of $122.4 million. The increase in working capital was primarily driven by inventory increases of $95.6 million. For additional details, see the discussion below entitled “Cash from Operations.”

Despite our cash generated from operations, our total cash, cash equivalents and investments decreased by $149.8 million during the first six months of fiscal 2017. This decrease principally reflects the refinancing of our existing 2019 Term Loan and 2021 Term Loan into a new 2022 Term Loan, which reflects the receipt of a loan in the amount of $399.5 million, net of original discount, from the 2022 Term Loan and the payment of $493.1 million toward the aggregate principal amount outstanding of the 2019 Term Loan and 2021 Term Loan. As a result, we used $93.6 million in cash, representing the original discount on the 2022 Term Loan and the repayment of $93.1 million of the outstanding principal under the 2019 Term Loan and 2021 Term Loan. The remaining balances under the 2019 Term Loan and 2021 Term Loan were refinanced and replaced by the 2022 Term Loan. See Note 16 to our Condensed Consolidated Financial Statements included in Item 1 of Part I of this report for information relating to this refinancing transaction. The decrease also reflects cash used in investing activities for capital expenditures totaling $60.3 million, use of cash to fund the repurchase of $46.3 million in outstanding 0.875% Convertible Senior Notes due June 15, 2017, and our settlement of certain foreign currency forward contracts of $3.0 million. Proceeds from the issuance of equity under our employee stock purchase plans provided approximately $10.3 million in cash during the period. The following table sets forth changes in our cash and cash equivalents and investments in marketable debt securities (in thousands):

	April 30, 2017	October 31, 2016	Increase (decrease)
Cash and cash equivalents	$ 628,623	$ 777,615	$ (148,992)
Short-term investments in marketable debt securities	274,779	275,248	(469)
Long-term investments in marketable debt securities	89,852	90,172	(320)
Total cash and cash equivalents and investments in marketable debt securities	$ 993,254	$ 1,143,035	$ (149,781)

Our principal sources of liquidity on hand include our cash and investments, which as of April 30, 2017 totaled $993.3 million, as well as our ABL Credit Facility. Ciena and certain of its subsidiaries are parties to a senior secured asset-based revolving credit facility (the “ABL Credit Facility”) providing for a total commitment of $250 million with a maturity date of

December 31, 2020. We principally use the ABL Credit Facility to support the issuance of letters of credit that arise in the ordinary course of our business and thereby to reduce our use of cash required to collateralize these instruments. As of April 30, 2017, letters of credit totaling $72.4 million were collateralized by our ABL Credit Facility. There were no borrowings outstanding under the ABL Credit Facility as of April 30, 2017.

The amount of cash, cash equivalents and short-term investments held by our foreign subsidiaries was $53.1 million as of April 30, 2017. Given this amount, we do not believe that there are significant amounts held by foreign subsidiaries in which we consider earnings to be permanently reinvested, that may not be available for U.S. operations. In the event such funds held by our foreign subsidiaries were repatriated, we believe that any resulting tax implications would not be material.

We regularly evaluate our liquidity position, debt obligations, and anticipated cash needs to fund our operating or investment plans and may consider capital raising and other market opportunities that may be available to us. We regularly evaluate alternatives to manage our capital structure and reduce our debt and may continue to opportunistically repurchase our outstanding convertible notes.

Based on past performance and current expectations, we believe that cash from operations, cash and investments and other sources of liquidity, including our ABL Credit Facility, will satisfy our working capital needs, capital expenditures, the repayment at maturity of the remaining $185.3 million in aggregate principal remaining outstanding on our 0.875% convertible senior notes due June 15, 2017, and other liquidity requirements associated with our operations through at least the next 12 months.

Cash from Operations

The following sections set forth the components of our $45.7 million of cash generated operating activities during the first six months of fiscal 2017:

Net income (adjusted for non-cash charges)

The following table sets forth our net income (adjusted for non-cash charges) during the period (in thousands):

	Six months ended April 30, 2017
Net income	$ 41,887
Adjustments for non-cash charges:	
Depreciation of equipment, building, furniture and fixtures, and amortization of leasehold improvements	35,548
Share-based compensation costs	24,830
Amortization of intangible assets	33,466
Provision for inventory excess and obsolescence	19,623
Provision for warranty	2,347
Other	10,416
Net income (adjusted for non-cash charges)	$ 168,117

Working Capital

We used $122.4 million of cash for working capital during the period. The following tables set forth the major components of the cash used in working capital (in thousands):

	Six months ended April 30, 2017
Cash provided by accounts receivable	$ 9,381
Cash used in inventories	(95,554)
Cash used in prepaid expenses and other	(15,054)
Cash used in accounts payable, accruals and other obligations	(24,974)
Cash provided by deferred revenue	3,832
Total cash used for working capital	$ (122,369)

As compared to the end of fiscal 2016:

- The $9.4 million of cash provided by accounts receivable during the first six months of fiscal 2017 reflects increased sales volume and improved collections as of the end of the second quarter of fiscal 2017;

- The $95.6 million of cash used in inventory during the first six months of fiscal 2017 primarily reflects increases in finished goods to meet customer delivery schedules and deferred costs of sales awaiting customer acceptance;

- Cash used in prepaid expense and other during the first six months of fiscal 2017 was $15.1 million, primarily reflecting higher prepaid value added taxes and product demonstration equipment;

- The $25.0 million of cash used in accounts payable, accruals and other obligations during the first six months of fiscal 2017 primarily reflects the timing of bonus payments to employees under our annual cash incentive compensation plan; and

- The $3.8 million of cash provided by deferred revenue during the first six months of fiscal 2017 represents an increase in advanced payments received from customers prior to revenue recognition.

Our days sales outstanding (DSOs) for the first six months of fiscal 2017 were 77 days and our inventory turns for the first six months of fiscal 2017 were 4.3.

Cash Paid for Interest

The following tables set forth the cash paid for interest during the period (in thousands):

		Six months ended April 30, 2017
0.875% Convertible Senior Notes due June 15, 2017(1)	$	1,013
3.75% Convertible Senior Notes, due October 15, 2018(2)		6,562
4.0% Convertible Senior Notes, due December 15, 2020(3)		3,750
Term Loan due July 15, 2019(4)		2,342
Term Loan due April 25, 2021(5)		2,702
Term Loan due January 30, 2022 (6)		2,983
Interest rate swaps(7)		2,058
ABL Credit Facility(8)		813
Capital leases		1,216
Cash paid during period	$	23,439

(1) Interest on our outstanding 0.875% Convertible Senior Notes, due June 15, 2017, is payable on June 15 and December 15 of each year.

(2) Interest on our outstanding 3.75% Convertible Senior Notes, due October 15, 2018, is payable on April 15 and October 15 of each year.

(3) Interest on our outstanding 4.0% Convertible Senior Notes, due December 15, 2020, is payable on June 15 and December 15 of each year.

(4) Interest on the 2019 Term Loan was payable periodically based on the underlying market index rate selected for borrowing. The 2019 Term Loan bore interest at LIBOR plus a spread of 3.00% subject to a minimum LIBOR rate of 0.75%. On the first day of our second quarter of fiscal 2017, we refinanced and replaced this term loan with the 2022 Term Loan. See Note 16 to our Condensed Consolidated Financial Statements included in Item 1 of Part I of this report for more information.

(5) Interest on the 2021 Term Loan was payable periodically based on the underlying market index rate selected for borrowing. The 2021 Term Loan bore interest at LIBOR plus a spread of 3.25% to 3.50% subject to a minimum LIBOR rate of 0.75%. On the first day of our second quarter of fiscal 2017, we refinanced and replaced this term loan with the 2022 Term Loan. See Note 16 to our Condensed Consolidated Financial Statements included in Item 1 of Part I of this report for more information.

(6) Interest on the 2022 Term Loan is payable periodically based on the underlying market index rate selected for borrowing. The 2022 Term Loan bears interest at LIBOR plus a spread of 2.5% subject to a minimum LIBOR rate of 0.75%. As of the end of the second quarter of fiscal 2017 the interest rate on the 2022 Term Loan was 3.49%.

(7) Prior to the term loan refinancing, payments on our interest rate swaps were variable and effectively fixed the total interest rate under the 2019 Term Loan at 5.004% from July 20, 2015 through July 19, 2018 and the 2021 Term Loan

at 4.62% to 4.87%, depending on applicable margin, from June 20, 2016 through June 22, 2020. In connection with the refinancing of the 2019 and 2021 Term Loans into the 2022 Term Loan, in order to align our interest rate hedges to the reduced 2022 Term Loan principal value and later maturity date, we reduced the total outstanding value of our interest rate swaps and also entered into new forward starting interest rate swaps in January 2017 and February 2017, respectively. The interest rate swaps, as adjusted, fix 98%, 82% and 77% of the principal value of the 2022 Term Loan from February 2017 through July 2018, July 2018 through June 2020 and June 2020 through January 2021, respectively. The fixed rate on the amounts hedged during the periods described above will be 4.25%, 4.25% and 4.51%, respectively.

(8) During the first six months of fiscal 2017, we utilized the ABL Credit Facility to collateralize certain standby letters of credit and paid $0.8 million in commitment fees, interest expense and other administrative charges relating to our ABL Credit Facility.

For additional information about our convertible notes and term loans (including the refinancing of our 2019 and 2021 Term Loans into the 2022 Term Loan), ABL Credit Facility and interest rate swaps, see Notes 14, 16 and 17 to our Condensed Consolidated Financial Statements included in Item 1 of Part I of this report.

Contractual Obligations

The following is a summary of our future minimum payments under contractual obligations as of April 30, 2017 (in thousands):

	Total	Less than one year	One to three years	Three to five years	Thereafter
Principal due at maturity on convertible notes [1]	$ 752,385	$ 185,258	$ 350,000	$ 217,127	$ —
Principal due on Term Loan due January 30, 2022 [2]	399,000	4,000	8,000	8,000	379,000
Interest due on convertible notes	50,498	21,436	21,562	7,500	—
Interest due on Term Loan due January 30, 2022 [2]	66,082	14,081	27,778	24,223	—
Payments due under interest rate swaps [2]	10,643	2,984	5,032	2,627	—
Operating leases [3]	143,135	16,843	47,780	33,527	44,985
Purchase obligations [4]	280,645	280,645	—	—	—
Capital leases— equipment	4,015	1,759	2,256	—	—
Capital leases— buildings [5]	118,679	7,041	14,143	14,507	82,988
Other obligations	2,340	1,015	1,325	—	—
Total [6]	$ 1,827,422	$ 535,062	$ 477,876	$ 307,511	$ 506,973

(1) Includes the accretion of the principal amount on our outstanding 4.0% Convertible Senior Notes, due December 15, 2020 payable at maturity at a rate of 1.85% per year compounded semi-annually, commencing December 27, 2012.

(2) Interest on the 2022 Term Loan and payments due under the interest rate swaps is variable and calculated using the rate in effect on the balance sheet date. For additional information about our term loans and the interest rate swaps, see Notes 14 and 16 to our Condensed Consolidated Financial Statements included in Item 1 of Part I of this report.

(3) Does not include variable insurance, taxes, maintenance and other costs required by the applicable operating lease. These costs are not expected to have a material future impact.

(4) Purchase obligations relate to purchase order commitments to our contract manufacturers and component suppliers for inventory. In certain instances, we are permitted to cancel, reschedule or adjust these orders. Consequently, only a portion of the amount reported above relates to firm, non-cancelable and unconditional obligations.

(5) This represents the total minimum lease payments due for all buildings that are subject to capital lease accounting, as well as buildings that are expected to be recorded as capital leases upon the commencement of the lease term. Payment timing is based on the expected commencement of the lease term. Does not include variable insurance, taxes, maintenance and other costs required by the applicable capital lease. These costs are not expected to have a material future impact.

(6) As of April 30, 2017, we also had approximately $14.0 million of other long-term obligations in our Condensed Consolidated Balance Sheet for unrecognized tax positions that are not included in this table because the timing of any cash settlement with the respective tax authority, if any, cannot be reasonably estimated.

Some of our commercial commitments, including some of the future minimum payments in operating leases set forth above and certain commitments to customers, are secured by standby letters of credit collateralized under our ABL Credit Facility or restricted cash. Restricted cash balances are included in other current assets or other long-term assets depending upon the duration of the underlying letter of credit obligation. The following is a summary of our commercial commitments secured by standby letters of credit by commitment expiration date as of April 30, 2017 (in thousands):

	Total	Less than one year	One to three years	Three to five years	Thereafter
Standby letters of credit	$ 77,681	$ 36,511	$ 18,455	$ 12,542	$ 10,173

Off-Balance Sheet Arrangements

We do not engage in any off-balance sheet financing arrangements. In particular, we do not have any equity interests in so-called limited purpose entities, which include special purpose entities (SPEs) and structured finance entities.

Critical Accounting Policies and Estimates

The preparation of our consolidated financial statements requires that we make estimates and judgments that affect the reported amounts of assets, liabilities, revenue and expense, and related disclosure of contingent assets and liabilities. By their nature, these estimates and judgments are subject to an inherent degree of uncertainty. On an ongoing basis, we reevaluate our estimates, including those related to share-based compensation, bad debts, inventories, intangible and other long-lived assets, goodwill, income taxes, warranty obligations, restructuring, derivatives and hedging, and contingencies and litigation. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances. Among other things, these estimates form the basis for judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. To the extent that there are material differences between our estimates and actual results, our consolidated financial statements will be affected.

We believe that the following critical accounting policies reflect those areas where significant judgments and estimates are used in the preparation of our consolidated financial statements.

Revenue Recognition

We recognize revenue when all of the following criteria are met: persuasive evidence of an arrangement exists; delivery has occurred or services have been rendered; the price to the buyer is fixed or determinable; and collectibility is reasonably assured. Customer purchase agreements and customer purchase orders are generally used to determine the existence of an arrangement. Shipping documents and evidence of customer acceptance, when applicable, are used to verify delivery or services rendered. We assess whether the price is fixed or determinable based on the payment terms associated with the transaction and whether the sales price is subject to refund or adjustment. We assess collectibility based primarily on the creditworthiness of the customer as determined by credit checks and analysis, as well as the customer's payment history. Revenue for maintenance services is deferred and recognized ratably over the period during which the services are to be performed. Shipping and handling fees billed to customers are included in revenue, with the associated expenses included in product cost of goods sold.

Software revenue is recognized when persuasive evidence of an arrangement exists, delivery has occurred, the fee is fixed or determinable, and collectibility is probable. In instances where final acceptance criteria of the software are specified by the customer, revenue is deferred until there are no uncertainties regarding customer acceptance.

We limit the amount of revenue recognition for delivered elements to the amount that is not contingent on the future delivery of products or services, future performance obligations or subject to customer-specified return or refund privileges.

Revenue for multiple element arrangements is allocated to each unit of accounting based on the relative selling price of each delivered element, with revenue recognized for each delivered element when the revenue recognition criteria are met. We determine the selling price for each deliverable based upon the selling price hierarchy for multiple-deliverable arrangements. Under this hierarchy, we use vendor-specific objective evidence ("VSOE") of selling price, if it exists, or third party evidence ("TPE") of selling price if VSOE does not exist. If neither VSOE nor TPE of selling price exists for a deliverable, we use our best estimate of selling price ("BESP") for that deliverable. For multiple element software arrangements where VSOE of undelivered maintenance does not exist, revenue for the entire arrangement is recognized over the maintenance term.

VSOE, when determinable, is established based on our pricing and discounting practices for the specific product or service when sold separately. In determining whether VSOE exists, we require that a substantial majority of the selling prices for a product or service fall within a reasonably narrow pricing range. We have generally been unable to establish TPE of selling price because our go-to-market strategy differs from that of others in our markets, and the extent of customization and differentiated features and functions varies among comparable products or services from our peers. We determine BESP based upon management-approved pricing guidelines, which consider multiple factors including the type of product or service, gross margin objectives, competitive and market conditions, and the go-to-market strategy, all of which can affect pricing practices.

Our total deferred revenue for products was $49.9 million and $45.2 million as of April 30, 2017 and October 31, 2016, respectively. Our services revenue is deferred and recognized ratably over the period during which the services are to be performed. Our total deferred revenue for services was $137.0 million and $137.7 million as of April 30, 2017 and October 31, 2016, respectively.

Share-Based Compensation

We estimate the fair value of our restricted stock unit awards based on the fair value of our common stock on the date of grant. Our outstanding restricted stock unit awards are subject to service-based vesting conditions and/or performance-based vesting conditions. We recognize the estimated fair value of service-based awards, net of estimated forfeitures, as share-based expense ratably over the vesting period on a straight-line basis. Awards with performance-based vesting conditions require the achievement of certain financial or other performance criteria or targets as a condition to the vesting, or acceleration of vesting. We recognize the estimated fair value of performance-based awards, net of estimated forfeitures, as share-based expense over the performance period, using graded vesting, which considers each performance period or tranche separately, based upon our determination of whether it is probable that the performance targets will be achieved. At the end of each reporting period, we reassess the probability of achieving the performance targets and the performance period required to meet those targets, and the expense is adjusted accordingly. Determining whether the performance targets will be achieved involves judgment, and the estimate of expense may be revised periodically based on changes in the probability of achieving the performance targets. Revisions are reflected in the period in which the estimate is changed. If any performance goals are not met, no compensation cost is ultimately recognized against that goal and, to the extent previously recognized, compensation cost is reversed.

Because share-based compensation expense is based on awards that are ultimately expected to vest, the amount of expense takes into account estimated forfeitures. We estimate forfeitures at the time of grant and revise these estimates, if necessary, in subsequent periods if actual forfeitures differ from those estimates. Changes in these estimates and assumptions can materially affect the measurement of estimated fair value of our share-based compensation. See Note 19 to our Condensed Consolidated Financial Statements in Item 1 of Part I of this report for information regarding our assumptions related to share-based compensation and the amount of share-based compensation expense we incurred for the periods covered in this report. As of April 30, 2017, total unrecognized compensation expense was $84.6 million: (i) $0.3 million, which relates to unvested stock options and is expected to be recognized over a weighted-average period of 1.2 years; and (ii) $84.3 million which relates to unvested restricted stock units and is expected to be recognized over a weighted-average period of 1.5 years.

We recognize windfall tax benefits associated with the exercise of stock options or release of restricted stock units directly to stockholders' equity only when realized. A windfall tax benefit occurs when the actual tax benefit realized by us upon an employee's disposition of a share-based award exceeds the deferred tax asset, if any, associated with the award that we had recorded. When assessing whether a tax benefit relating to share-based compensation has been realized, we follow the "with-and-without" method. Under the with-and-without method, the windfall is considered realized and recognized for financial statement purposes only when an incremental benefit is provided after considering all other tax benefits including our net operating losses. The with-and-without method results in the windfall from share-based compensation awards always being effectively the last tax benefit to be considered. Consequently, the windfall attributable to share-based compensation will not be considered realized in instances where our net operating loss carryover (that is unrelated to windfalls) is sufficient to offset the current year's taxable income before considering the effects of current-year windfalls.

Incentive Compensation Expense

We provide incentive-based compensation opportunities to employees through cash incentive awards and, as described in "Share-Based Compensation" above, performance-based equity awards. The expense associated with these awards is reflected as a component of employee-related expense within our operating expense and costs of goods sold, as applicable.

For fiscal 2017, the Compensation Committee has approved an annual cash incentive arrangement generally applicable to full-time employees excluding commissioned salespersons, with the aggregate amount of any awards payable dependent upon the achievement of certain financial and operational goals for fiscal 2017. Given that the awards are generally contingent upon achieving annual objectives, the payment of cash incentive awards is not expected to be made until after fiscal year-end results are finalized. As a result, the expense that we accrue for cash incentive compensation in any interim period in fiscal 2017 is based upon estimates of expected financial results for the year and expected performance against relevant operating objectives. Because assessing actual performance against many of these objectives cannot generally occur until at or near fiscal year-end, determining the amount of expense that we incur in our interim financial statements for incentive compensation involves the judgment of management. Amounts accrued are subject to change in future interim periods if actual future financial results or operational performance are better or worse than expected. We incurred an aggregate of $29.5 million of expense in the first six months of fiscal 2017 associated with our cash incentive bonus plan for fiscal 2017.

Reserve for Inventory Obsolescence

We make estimates about future customer demand for our products when establishing the appropriate reserve for excess and obsolete inventory. We write down inventory that has become obsolete or unmarketable by an amount equal to the difference between the cost of inventory and the estimated market value based on assumptions about future demand and market conditions. Inventory write downs are a component of our product cost of goods sold. Upon recognition of the write down, a new lower cost basis for that inventory is established, and subsequent changes in facts and circumstances do not result in the restoration or increase in that newly established cost basis. In an effort to limit our exposure to delivery delays and to satisfy customer needs we purchase inventory based on forecasted sales across our product lines. In addition, part of our research and development strategy is to promote the convergence of similar features and functionalities across our product lines. Each of these practices exposes us to the risk that our customers will not order products for which we have forecasted sales, or will purchase less than we have forecasted. Historically, we have experienced write downs due to changes in our strategic direction, discontinuance of a product and declines in market conditions. We recorded charges for excess and obsolete inventory of $19.6 million and $20.1 million in the first six months of fiscal 2017 and 2016, respectively. The charges in fiscal 2017 primarily were related to a decrease in the forecasted demand for certain Networking Platform products. Our inventory net of allowance for excess and obsolescence was $287.1 million and $211.3 million as of April 30, 2017 and October 31, 2016, respectively.

Allowance for Doubtful Accounts Receivable

Our allowance for doubtful accounts receivable is based on management's assessment, on a specific identification basis, of the collectibility of customer accounts. We perform ongoing credit evaluations of our customers and generally have not required collateral or other forms of security from customers. In determining the appropriate balance for our allowance for doubtful accounts receivable, management considers each individual customer account receivable in order to determine collectibility. In doing so, we consider creditworthiness, payment history, account activity and communication with such customer. If a customer's financial condition changes, or if actual defaults are higher than our historical experience, we may be required to take a charge for an allowance for doubtful accounts receivable which could have an adverse impact on our results of operations. Our accounts receivable, net of allowance for doubtful accounts, was $564.9 million and $576.2 million as of April 30, 2017 and October 31, 2016, respectively. Our allowance for doubtful accounts was $4.5 million and $4.0 million as of April 30, 2017 and October 31, 2016, respectively.

Goodwill

Our goodwill was generated from the acquisition of Cyan during fiscal 2015 and the acquisition of the HSPC assets from TeraXion during fiscal 2016, and is primarily related to expected synergies. Goodwill is the excess of the purchase price over the fair values assigned to the net assets acquired in a business combination. We test goodwill for impairment on an annual basis, which we have determined to be the last business day of fiscal September each year. We also test goodwill for impairment between annual tests if an event occurs or circumstances change that would, more likely than not, reduce the fair value of the reporting unit below its carrying value.

The first step in the process of assessing goodwill impairment is to compare the fair value of the reporting unit with the unit’s carrying amount, including goodwill. If this test indicates that the fair value is less than the carrying value, then step two as amended by ASU No. 2017-04, which we adopted in the first quarter in fiscal 2017, requires goodwill impairments to be measured on the basis of the fair value of the reporting unit relative to the reporting unit's carrying amount. A non-cash goodwill impairment charge would have the effect of decreasing earnings or increasing losses in such period. If we are required to take a substantial impairment charge, our operating results would be materially adversely affected in such period. As of April 30, 2017 and October 31, 2016, the goodwill balance was $266.8 million and $267.0 million, respectively.

Long-lived Assets

Our long-lived assets include: equipment, building, furniture and fixtures; finite-lived intangible assets; in-process research and development; and maintenance spares. As of April 30, 2017 and October 31, 2016, these assets totaled $461.5 million and $484.7 million, net, respectively. We test long-lived assets for impairment whenever events or changes in circumstances indicate that the assets' carrying amount is not recoverable from its undiscounted cash flows. Our long-lived assets are assigned to asset groups which represent the lowest level for which we identify cash flows. We measure impairment loss as the amount by which the carrying amount of the asset or asset group exceeds its fair value.

Deferred Tax Valuation Allowance

We provide a valuation allowance for our deferred tax assets in excess of deferred tax liabilities because we have concluded that it is more likely than not that such deferred tax assets will ultimately not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income (including the reversals of deferred tax liabilities) during the periods in which those deferred tax assets will become deductible. We assess available positive and negative evidence regarding our ability to realize our deferred tax assets and record a valuation allowance when it is more likely than not that deferred tax assets will not be realized. To form a conclusion, management considers our recent financial results and trends and makes judgments and estimates related to projections of profitability, the timing and extent of the use of net operating loss carryforwards, and tax planning strategies. At April 30, 2017, we were not in a three-year cumulative loss position. However, management determined that a valuation allowance is still necessary, due to, among other things, the relatively low level of cumulative pre-tax income during this period — cumulative 12-quarter profit was only recently achieved in the second half of fiscal 2016 — and our lengthy history of operating losses. We will continue to evaluate future financial performance to determine whether such profitability is both sustainable and significant enough to provide sufficient evidence to support reversal of all or a portion of the valuation allowance. Any future release of valuation allowance may be recorded as a tax benefit increasing net income or as an adjustment to paid-in capital, based on tax ordering requirements. The valuation allowance balance at April 30, 2017 was $1.5 billion.

Warranty

Our liability for product warranties, included in other accrued liabilities, was $46.0 million and $52.3 million as of April 30, 2017 and October 31, 2016, respectively. Our products are generally covered by a warranty for periods ranging from one to five years. We accrue for warranty costs as part of our cost of goods sold based on associated material costs, technical support labor costs and associated overhead. Material cost is estimated based primarily upon historical trends in the volume of product returns within the warranty period and the cost to repair or replace the equipment. Technical support labor cost is estimated based primarily upon historical trends and the cost to support the customer cases within the warranty period. The provision for product warranties was $2.3 million and $9.6 million for the first six months of fiscal 2017 and 2016, respectively. See Note 13 to the Condensed Consolidated Financial Statements included in Item 1 of Part I of this report. The provision for warranty claims may fluctuate on a quarterly basis depending upon the mix of products and customers in that period. If actual product failure rates, material replacement costs, service or labor costs differ from our estimates, revisions to the estimated warranty provision would be required. An increase in warranty claims or the related costs associated with satisfying our warranty obligations could increase our cost of sales and negatively affect our gross margin.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

The following discussion about our market risk disclosures involves forward-looking statements. Actual results could differ materially from those projected in the forward-looking statements. We are exposed to market risk related to changes in interest rates and foreign currency exchange rates.

Interest Rate Sensitivity. We currently hold investments in U.S. government obligations and commercial paper with varying maturities. See Notes 5 and 6 to our Condensed Consolidated Financial Statements included in Item 1 of Part I of this report for information relating to investments and fair value. These investments are sensitive to interest rate movements, and their fair value will decline as interest rates rise and increase as interest rates decline. We estimate that a 100 basis point (1.0%) increase in interest rates across the yield curve from rates in effect as of the balance sheet date would cause a $2.6 million decline in value.

Our earnings and cash flows from operations would be exposed to changes in interest rates because of the floating rate of interest in our 2022 Term Loan if such loan was not hedged using floating to fixed rate interest rate swaps. See Note 14 to our Condensed Consolidated Financial Statements included in Item 1 of Part I of this report. The 2022 Term Loan bears interest at LIBOR plus a spread of 2.5%, subject to a minimum LIBOR rate of 0.75%. We have entered into interest rate swap arrangements ("interest rate swaps") that hedge 77% to 98% of the 2022 Term Loan principal value through January 2021. As such, a 100 basis point (1.0%) increase in the LIBOR rate as of our most recent LIBOR rate setting would have an immaterial impact in annualized interest expense on our 2022 Term Loan as recognized in our Condensed Consolidated Financial Statements.

Foreign Currency Exchange Risk. As a global concern, our business and results of operations are exposed to and can be impacted by movements in foreign currency exchange rates. For example, the announcement of the United Kingdom (UK) referendum in which voters approved an exit from the European Union (EU), commonly referred to as "Brexit," has previously caused, and may continue to cause, significant volatility in currency exchange rate fluctuations. Due to our global sales presence, some of our sales transactions and revenue are non-U.S. Dollar denominated, with the Canadian Dollar, Euro and Brazilian Real being our most significant foreign currency revenue exposures. If the U.S. Dollar strengthens against these currencies, our revenue for these transactions reported in U.S. Dollars would decline. For our U.S. Dollar denominated sales, an increase in the value of the U.S. Dollar would increase the real costs of our products to customers in markets outside the United States, which could impact our competitive position. During the first six months of fiscal 2017, approximately 18.7% of revenue was non-U.S. Dollar denominated. During the first six months of fiscal 2017 as compared to the first six months of fiscal 2016, the U.S. Dollar strengthened against the Argentina Peso, Euro and British Pound, primarily offset by weakening against the Brazilian Real, consequently, our revenue reported in U.S. Dollars was slightly reduced by approximately $4.9 million or 0.4%. As they relate to costs of goods sold, employee-related and facilities costs associated with certain manufacturing-related operations in Canada represent our primary exposure to foreign currency exchange risk.

With regard to operating expense, our primary exposure to foreign currency exchange risk relates to the Canadian Dollar, British Pound, Euro, Indian Rupee and Brazilian Real. During the first six months of fiscal 2017, approximately 52% of our operating expense was non-U.S. Dollar denominated. If these or other currencies strengthen, costs reported in U.S. Dollars will increase. During the first six months of fiscal 2017, research and development expense was adversely affected by approximately $2.0 million, net of hedging, primarily due to the weakening of the U.S. Dollar in relation to the Canadian Dollar in comparison to the first six months of fiscal 2016.

From time to time, we use foreign currency forward contracts to reduce variability in certain forecasted non-U.S. Dollar denominated cash flows. Generally, these derivatives have maturities of 12 months or less and are designated as cash flow hedges. At the inception of the cash flow hedge, and on an ongoing basis, we assess whether the forward contract has been effective in offsetting changes in cash flows attributable to the hedged risk during the hedging period. The effective portion of the derivative's net gain or loss is initially reported as a component of accumulated other comprehensive income (loss) and, upon the occurrence of the forecasted transaction, is subsequently reclassified to the line item in the Condensed Consolidated Statement of Operations to which the hedged transaction relates. Any net gain or loss associated with the ineffectiveness of the hedging instrument is reported in interest and other income (loss), net.

Ciena Corporation, as the U.S. parent entity, uses the U.S. Dollar as its functional currency; however, some of our foreign branch offices and subsidiaries use the local currency as their functional currency. During the first six months of fiscal 2017, we recorded $1.1 million in foreign currency exchange losses, as a result of monetary assets and liabilities that were transacted in a currency other than the entity's functional currency, and the re-measurement adjustments were recorded in interest and other income (loss), net on the Condensed Consolidated Statement of Operations. From time to time, we use foreign currency forwards to hedge these balance sheet exposures. These forwards are not designated as hedges for accounting purposes and any net gain or loss associated with these derivatives is reported in interest and other income (loss), net on the Condensed Consolidated Statement of Operations. During first six months of fiscal 2017, we recorded losses of $1.7 million from these derivatives. See Note 2, Note 4 and Note 14 to our Condensed Consolidated Financial Statements included in Item 1 of Part I of this report.

Convertible Notes Outstanding. The fair market value of each of our outstanding issues of convertible notes is subject to interest rate and market price risk due to the convertible feature of the notes and other factors. Generally the fair market value of fixed interest rate debt will increase as interest rates fall and decrease as interest rates rise. The fair market value of the notes may also increase as the market price of our stock rises or due to increased volatility in our stock price, and decrease as the market price of our stock falls or due to decreased volatility in our stock price. Interest rate and market value changes affect the fair market value of the notes, and may affect the prices at which we would be able to repurchase such notes were we to do so. These changes do not impact our financial position, cash flows or results of operations. For additional information on the fair value of our outstanding notes, see Note 16 to our Condensed Consolidated Financial Statements included in Item 1 of Part I of this report.

Item 4. Controls and Procedures

Disclosure Controls and Procedures

As of the end of the period covered by this report, we carried out an evaluation under the supervision and with the participation of management, including our Chief Executive Officer and Chief Financial Officer, of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended). Based upon this evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of the end of the period covered by this report.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act of 1934, as amended) during the most recently completed fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II — OTHER INFORMATION

Item 1. Legal Proceedings

From May 15 through June 3, 2015, five separate putative class action lawsuits in connection with Ciena’s then-pending acquisition of Cyan, Inc. (“Cyan”) were filed in the Court of Chancery of the State of Delaware. On June 23, 2015, each of these lawsuits was consolidated into a single case captioned In Re Cyan, Inc. Shareholder Litigation, Consol. C.A. No. 11027-CB. On July 9, 2015, the plaintiffs filed a verified amended class action complaint, which named as defendants Ciena, a Ciena subsidiary created solely for the purpose of effecting the acquisition (“Merger Sub”), and the members of Cyan’s board of directors. On August 5, 2015, the defendants filed motions to dismiss the amended complaint. On October 1, 2015, the plaintiffs filed a second amended complaint which named as defendants the members of Cyan’s board of directors. Cyan, Ciena, and Merger Sub were not named as defendants. On July 15, 2016, the plaintiffs filed a third amended complaint, which generally alleges that the Cyan board members breached their fiduciary duties by engaging in a conflicted and unfair sales process, failing to maximize stockholder value in the acquisition, taking steps to preclude competitive bidding, and failing to disclose material information necessary for stockholders to make an informed decision regarding the acquisition. The third amended complaint seeks (i) a declaration that the plaintiffs are entitled to a quasi-appraisal remedy, (ii) rescissory damages, (iii) recovery through an accounting of all damages caused as a result of the alleged breaches of fiduciary duties, (iv) compensatory damages, and (v) costs including attorneys’ fees and experts’ fees. On August 5, 2016, the defendants filed a motion to dismiss the third amended complaint. On May 11, 2017, the Court of Chancery granted the defendants' motion to dismiss the third amended complaint with prejudice.

As a result of our acquisition of Cyan in August 2015, we became a defendant in a securities class action lawsuit. On April 1, 2014, a purported stockholder class action lawsuit was filed in the Superior Court of California, County of San Francisco, against Cyan, the members of Cyan’s board of directors, Cyan’s former Chief Financial Officer, and the underwriters of Cyan’s initial public offering. On April 30, 2014, a substantially similar lawsuit was filed in the same court against the same defendants. The two cases have been consolidated as Beaver County Employees Retirement Fund, et al. v. Cyan, Inc. et al., Case No. CGC-14-538355. The consolidated complaint alleges violations of federal securities laws on behalf of a purported class consisting of purchasers of Cyan’s common stock pursuant or traceable to the registration statement and prospectus for Cyan’s initial public offering in April 2013, and seeks unspecified compensatory damages and other relief. On May 19, 2015, the proposed class was certified. On August 25, 2015, the defendants filed a motion for judgment on the pleadings based on an alleged lack of subject matter jurisdiction over the case, which motion was denied on October 23, 2015. On May 24, 2016, the defendants filed a petition for a writ of certiorari on the jurisdiction issue with the United States Supreme Court, to which the plaintiffs filed a brief in opposition. On November 18, 2016, the parties each filed motions for summary judgment. We believe that the consolidated lawsuit is without merit and intend to defend it vigorously.

On May 29, 2008, Graywire, LLC filed a complaint in the United States District Court for the Northern District of Georgia against Ciena and four other defendants, alleging, among other things, that certain of the parties’ products infringe U.S. Patent 6,542,673 (the “’673 Patent”), relating to an identifier system and components for optical assemblies. The complaint seeks injunctive relief and damages. In July 2009, upon request of Ciena and certain other defendants, the U.S. Patent and Trademark Office (“PTO”) granted the defendants’ inter partes application for reexamination with respect to certain claims of the ‘673 Patent, and the district court granted the defendants’ motion to stay the case pending reexamination of all of the patents-in-suit. In December 2010, the PTO confirmed the validity of some claims and rejected the validity of other claims of the ‘673 Patent, to which Ciena and other defendants filed an appeal. On March 16, 2012, the PTO on appeal rejected multiple claims of the ‘673 Patent, including the two claims on which Ciena is alleged to infringe. Subsequently, the plaintiff requested a reopening of the prosecution of the ‘673 Patent, which request was denied by the PTO on April 29, 2013. Thereafter, on May 28, 2013, the plaintiff filed an amendment with the PTO in which it canceled the claims of the ‘673 Patent on which Ciena is alleged to infringe. The case currently remains stayed, and there can be no assurance as to whether or when the stay will be lifted.

In addition to the matters described above, we are subject to various legal proceedings and claims arising in the ordinary course of business, including claims against third parties that may involve contractual indemnification obligations on the part of Ciena. We do not expect that the ultimate costs to resolve these matters will have a material effect on our results of operations, financial position or cash flows.

Item 1A. Risk Factors

Investing in our securities involves a high degree of risk. In addition to the other information contained in this report, you should consider the following risk factors before investing in our securities.

Our revenue and operating results can fluctuate significantly and unpredictably from quarter to quarter.

Our revenue and results of operations can fluctuate significantly and unpredictably from quarter to quarter. We budget our expense levels based on our technology roadmap, our projections of resources needed in the field, and our plans to upgrade our support processes and organization, informed by our visibility into customer spending plans and our projections of future revenue and gross margin. Customer spending levels are uncertain and subject to change, and reductions in our expense levels can take significant time to implement. A significant portion of our quarterly revenue is generated from customer orders received in that same quarter (which we refer to as "book to revenue"). Increased reliance on book to revenue introduces a number of risks, including the inherent difficulty in forecasting the amount and timing of book to revenue in any given quarter, and may increase the likelihood of fluctuations in our results. Accordingly, our revenue for a particular quarter is difficult to predict, and a shortfall in expected orders in a given quarter can materially adversely affect our revenue and results of operations for that quarter or future quarterly periods. Additional factors that contribute to fluctuations in our revenue and operating results include:

- broader macroeconomic conditions, including weakness and volatility in global markets, that affect our customers;
- changes in capital spending by customers, in particular our large communications service provider customers;
- changes in networking strategies;
- order timing, volume and cancellations;
- backlog levels;
- the level of competition and pricing pressure in our industry;
- the impact of commercial concessions or unfavorable commercial terms required to maintain incumbency or secure new opportunities with key customers;
- our level of success in achieving cost reductions and improved efficiencies in our supply chain;
- the pace and impact of price erosion that we regularly encounter in our markets;
- our incurrence of start-up costs, including lower margin phases of projects required to support initial deployments, gain new customers or enter new markets;
- the timing of revenue recognition on sales, particularly relating to large orders;
- the mix of revenue by product segment, geography and customer in any particular quarter;
- installation service availability and readiness of customer sites;
- availability of components and manufacturing capacity;
- adverse impact of foreign exchange; and
- seasonal effects in our business.

Quarterly fluctuations from these and other factors may also cause our results of operations to fall short of or to exceed significantly the expectations of securities analysts or investors, which may cause volatility in our stock price.

A small number of customers, including large communications service providers, account for a significant portion of our revenue. The loss of any of these customers or a significant reduction in their spending could have a material adverse effect on our business and results of operations.

While our customer base has diversified in recent years to include network operators in additional customer segments and geographies, a significant portion of our revenue remains concentrated among a small number of customers, including large communications service providers. For example, AT&T accounted for approximately 18.4% of fiscal 2016 revenue, and our ten largest customers contributed 51.1% of fiscal 2016 revenue. Consequently, our financial results are closely correlated with the spending of a relatively small number of customers. Our business and results of operations can be materially adversely impacted by reductions in spending or capital expenditure budgets by our largest customers. A number of our large service provider customers, including AT&T, from which we experienced a decline in annual revenue during fiscal 2016, have announced various procurement initiatives or efforts to reduce capital expenditures on network infrastructure in future periods.

Moreover, because we do not have long-term contracts that obligate AT&T or our other customers to purchase any minimum or guaranteed order volumes, and customers often have the right to modify or cancel orders, there can be no assurance as to customer spending levels, which can be unpredictable, and sales to any customer could significantly decrease or cease at any time.

Because a number of our largest customers are communications service providers, our business and results of operations can be significantly affected by market, industry or competitive dynamics adversely affecting this segment. Our communications service provider customers face a rapidly shifting competitive landscape as cloud service operators,"over-the-top" and other content providers challenge their traditional business models and network infrastructures. Moreover, a number of our communications service provider customers, including AT&T, Verizon and Centurylink, have recently announced significant acquisition transactions. Such transactions have in the past, and may in the future, result in spending delays or deferrals, or changes in preferred vendors, as the integration of combined network infrastructures proceeds and procurement strategies are determined. There can be no assurance that we will be able to maintain the revenue levels we have previously achieved with customers, including our communications service provider customers. The loss of any of our largest customers, or a significant reduction in their spending, could have a material adverse effect on our business and results of operations.

We face intense competition that could hurt our sales and results of operations, and we expect the competitive landscape in which we operate to continue to broaden to include additional solutions providers.

We face an intense competitive market for sales of communications networking equipment, software and services. Competition is intense on a global basis, as we and our competitors aggressively seek to capture market share and displace incumbent equipment vendors. A small number of very large vendors have historically dominated our industry, many of which have substantially greater financial and marketing resources, broader product offerings, and more established relationships with service providers and other customer segments than we do. Moreover, certain customers are adopting procurement strategies that seek to purchase a broader set of networking solutions from a single or small number of vendors. Because of their scale and resources, and a more diverse offering, certain of our larger competitors may be perceived to be a better fit for the procurement or network operating and management strategies of large service providers. We also compete with a number of smaller companies that provide significant competition for a specific product, application, customer segment or geographic market. Due to the narrower focus of their efforts, these competitors may achieve commercial availability of their products more quickly or may be more attractive to customers in a particular product niche.

Generally, competition in our markets is based on any one or a combination of the following factors:

- product functionality, speed, capacity, scalability and performance;
- price and total cost of ownership of our solutions;
- incumbency and strength of existing business relationships;
- ability to offer comprehensive networking solutions, consisting of equipment, software and network consulting services;
- ability to adapt to customer needs and accommodate different consumption models;
- product development plans and the ability to meet customers’ immediate and future network requirements;
- flexibility and openness of platforms, including ease of integration, interoperability and integrated software programmability and management;
- space and power considerations;
- manufacturing and lead-time capability; and
- services and support capabilities.

In an effort to maintain our incumbency or secure new customer opportunities, we have in the past, and may in the future, agree to aggressive pricing, commercial concessions and other unfavorable terms that result in low or negative gross margins on a particular order or group of orders. Competition can also result in commercial and legal terms and conditions that place a disproportionate amount of risk on us.

We expect the competitive landscape in which we operate to continue to broaden and to increase, as network operators pursue a diverse range of consumption models and network strategies. As these changes occur, we expect that our business will compete more directly with additional networking solution suppliers, including IP router vendors, data center switch providers and other suppliers or integrators of networking technology. In addition, as we seek increased customer adoption of our Blue Planet software platform, and network operator demands for software programmability, management and control increase, we expect to compete more directly with software vendors and information technology vendors or integrators of these solutions. We may also face competition from system and component vendors, including those in our supply chain, who develop networking products based on off-the-shelf or commoditized hardware technology, referred to as “white box” hardware;

particularly where a customer's network strategy seeks to emphasize deployment of such product offerings or adopt a disaggregated approach to the procurement of hardware and software. The expansion of our competitive landscape, and entry of new competitors into our markets and customers, may adversely impact our business and results of operations. If competitive pressures increase, or if we fail to compete successfully in our markets, our business and results of operations could suffer.

Our business and operating results could be adversely affected by unfavorable changes in macroeconomic and market conditions and reductions in the level of spending by customers in response to these conditions.

Our business and operating results, which depend significantly on general economic conditions and demand for our products and services, could be materially adversely affected by unfavorable or uncertain macroeconomic and market conditions, globally or with respect to a particular region or country where we operate. Global financial markets experienced periods of significant volatility and instability during fiscal 2016. Broad macroeconomic weakness and market volatility have previously resulted in sustained periods of decreased demand for our products and services, which has adversely affected our operating results. Macroeconomic and market conditions could be adversely affected by a variety of political, economic or other factors in the United States and international markets, that could in turn adversely affect spending levels of our customers and their end users, and could create volatility or deteriorating conditions in the markets in which we operate. Macroeconomic uncertainty or weakness could result in:

- reductions in customer spending and delay, deferral or cancellation of network infrastructure initiatives;
- increased competition for fewer network projects and sales opportunities;
- increased pricing pressure that may adversely affect revenue, gross margin and profitability;
- difficulty forecasting operating results and making decisions about budgeting, planning and future investments;
- increased overhead and production costs as a percentage of revenue;
- tightening of credit markets needed to fund capital expenditures by us or our customers;
- customer financial difficulty, including longer collection cycles and difficulties collecting accounts receivable or write-offs of receivables; and
- increased risk of charges relating to excess and obsolete inventories and the write-off of other intangible assets.

Reductions in customer spending in response to unfavorable or uncertain macroeconomic and market conditions, globally or with respect to a particular region where we operate, would adversely affect our business, results of operations and financial condition.

Our reliance upon third party component suppliers, including sole and limited source suppliers, exposes our business to additional risk and could limit our sales, increase our costs and harm our customer relationships.

We maintain a global sourcing strategy and depend on third party suppliers in international markets for support in our product design and development, and in the sourcing of key product components and subsystems. Our products include optical and electronic components for which reliable, high-volume supply is often available only from sole or limited sources. Increases in market demand or scarcity of resources or manufacturing capability have resulted, and may in the future result, in shortages in availability of important components for our solutions, product allocation challenges, deployment delays and increased lead times. We are exposed to risks relating to unfavorable economic conditions or other similar challenges affecting the businesses and results of operations of our component providers that can affect their liquidity levels, ability to continue investing in their businesses, ability to meet development commitments and manufacturing capability. These and other challenges affecting our suppliers could expose our business to increased costs, loss or lack of supply, or discontinuation of components that can result in lost revenue, additional product costs, increased lead times and deployment delays that could harm our business and customer relationships. We do not have any guarantees of supply from these third parties, and in certain cases are relying upon temporary commercial arrangements or standard purchase orders. As a result, there is no assurance that we will be able to secure the components or subsystems that we require, in sufficient quantity and quality, and on reasonable terms. Moreover, our access to necessary components could be adversely impacted by competition from component vendors, including those in our supply chain, who develop competing networking products based on off-the-shelf or commoditized hardware technology, referred to as “white box” hardware. The loss of a source of supply, or lack of sufficient availability of key components, could require that we locate an alternate source or redesign our products, either of which could result in business interruption and increased costs and could negatively affect our product gross margin and results of operations. Our business and results of operations would be negatively affected if we were to experience any significant disruption or difficulties with key suppliers affecting the price, quality, availability or timely delivery of required components.

Investment of research and development resources in communications networking technologies for which there is not an adequate matching market opportunity, or failure to sufficiently or timely invest in technologies for which there is market demand, would adversely affect our revenue and profitability.

The market for communications networking hardware and software solutions is characterized by rapidly evolving technologies, changes in market demand and increasing adoption of software-based networking solutions. We continually invest in research and development to sustain or enhance our existing hardware and software solutions and to develop or acquire new technologies including new software platforms. There is often a lengthy period between commencing these development initiatives and bringing new or improved solutions to market. During this time, technology preferences, customer demand and the markets for our solutions, or those introduced by our competitors, may move in directions that we had not anticipated. There is no guarantee that our new products, including our Blue Planet software platform, or enhancements to other solutions, will achieve market acceptance or that the timing of market adoption will be as predicted. As a result, there is a significant possibility that some of our development decisions, including significant expenditures on acquisitions, research and development costs, or investments in technologies, will not meet our expectations, and that our investment in some projects will be unprofitable. There is also a possibility that we may miss a market opportunity because we failed to invest, or invested too late, in a technology, product or enhancement sought by our customers. Changes in market demand or investment priorities may also cause us to discontinue existing or planned development for new products or features, which can have a disruptive effect on our relationships with customers. If we fail to make the right investments or fail to make them at the right time, our competitive position may suffer, and our revenue and profitability could be adversely affected.

Network equipment sales to communications service providers, Web-scale providers and other large customers often involve lengthy sales cycles and protracted contract negotiations that may require us to agree to commercial terms or conditions that negatively affect pricing, risk allocation, payment and the timing of revenue recognition.

Our sales initiatives, particularly with communications service providers, Web-scale providers and other large customers, often involve lengthy sales cycles. These selling efforts often involve a significant commitment of time and resources by us and our customers that may include extensive product testing, laboratory or network certification, network or region-specific product certification and homologation requirements for deployment in networks. Even after a customer awards its business to us or decides to purchase our solutions, the length of deployment time can vary depending upon the customer's schedule, site readiness, the size of the network deployment, the degree of custom configuration required and other factors. Additionally, these sales also often involve protracted and sometimes difficult contract negotiations in which we may deem it necessary to agree to unfavorable contractual or commercial terms that adversely affect pricing, expose us to penalties for delays or non-performance, and require us to assume a disproportionate amount of risk. To maintain incumbency with key customers for existing and future business opportunities, we may be required to offer discounted pricing, make commercial concessions or offer less favorable terms as compared to our historical business arrangements with these customers. We may also be requested to provide deferred payment terms, vendor or third-party financing or other alternative purchase structures that extend the timing of payment and revenue recognition. Alternatively, customers may insist upon terms and conditions that we deem too onerous or not in our best interest, and we may be unable to reach a commercial agreement. As a result, we may incur substantial expense and devote time and resources to potential sales opportunities that never materialize or result in lower than anticipated sales.

If the market for software solutions does not evolve in the way we anticipate or if customers do not adopt our Blue Planet solutions, we may not be able to realize a key part of our business strategy and the intended benefits of our acquisition of Cyan.

A key part of our business strategy and ability to derive the anticipated benefits of our acquisition of Cyan will depend on our ability to gain market adoption for our Blue Planet software platform. If the markets relating to software solutions, including SDN, NFV, service orchestration and software management and control, do not develop as we anticipate, or if we are unable to increase market awareness and adoption of our Blue Planet solutions as a preferred solution within those markets, demand for our Blue Planet solutions may not grow. As a result, the success of our Cyan acquisition and our long-term success in the software market will depend to a significant extent on potential customers recognizing the benefits of our next-generation Blue Planet software solutions, and the willingness of service providers and high-performance data center and other network operators to increase their use of SDN and NFV solutions in their networks. The market for these solutions is at an early stage, and it is difficult to predict important trends, including the potential growth, if any, of this market. If the market for these software solutions does not evolve in the way we anticipate or if customers do not adopt our solutions, we may not to be able to increase sales of our Blue Planet platform, and our revenue and profitability would be adversely affected. If we are not able to successfully achieve these objectives, certain of the anticipated benefits of the merger may not be realized fully, or may take longer to realize than expected.

Changes in networking or procurement strategies among our customers could adversely affect our business, competitive position and results of operations.

Growing bandwidth demands, network operator efforts to reduce costs and requirements for enhanced network programmability and automation are causing network operators to consider a diverse range of approaches to the design and procurement of network infrastructure. We refer to these different approaches as “consumption models.” These consumption models can include: the traditional systems procurement of fully integrated solutions including hardware, software and services from the same vendor; the procurement of a fully integrated hardware solution from one vendor with the separate use of a network operator’s own SDN-based control; the procurement of an integrated photonic line system with open interfaces from one vendor and the separate or “disaggregated” procurement of modem technology from a different vendor; or the use of published reference designs and open source specifications for the procurement of off-the-shelf or commoditized hardware (often referred to as “white box” hardware) to be used with open source software. We believe that network operators will continue to consider a variety of different consumption models. Many of these approaches are in their very early stages of development and evaluation, and the types of models and their levels of adoption will depend in significant part on the nature of the operator and its particular network and network applications. Among our customers, AT&T is pursuing network strategies that emphasize enhanced software programmability, management and control of networks, and deployment of “white box” hardware. Other network operator customers, including Web-scale providers, are playing a leading role in the transition to software-defined networking or the standardization of communications network solutions. The potential for different approaches to the procurement of networking infrastructure will require network operators and vendors to assess and possibly broaden their existing commercial models over time. Adoption of a range of consumption models may alter and broaden our competitive landscape to include other technology vendors, including component vendors and software vendors. If we are unable to offer attractive solutions that accommodate the range of consumption models ultimately adopted by our customers or within our markets, or if we are unable to modify or existing commercial model accordingly, our business, competitive position and results of operations could be adversely affected.

We may experience delays in the development and production of our products that may negatively affect our competitive position and business.

Our hardware and software networking solutions, including our Blue Planet software platform, are based on complex technology, and we can experience unanticipated delays in developing, manufacturing and introducing these solutions to market. Delays in product development efforts by us or our supply chain may affect our reputation with customers, affect our ability to seize market opportunities and impact the timing and level of demand for our products. The development of new technologies may increase the complexity of supply chain management or require the acquisition, licensing or interworking with the technology of third parties. As a result, each step in the development cycle of our products presents serious risks of failure, rework or delay, any one of which could adversely affect the cost-effectiveness and timely development of our products. We may encounter delays relating to engineering development activities and software, design, sourcing and manufacture of critical components, and the development of prototypes. In addition, intellectual property disputes, failure of critical design elements, and other execution risks may delay or even prevent the release of these products. If we do not successfully develop or produce products in a timely manner, our competitive position may suffer, and our business, financial condition and results of operations could be harmed.

Product performance problems and undetected errors affecting the performance, reliability or security of our products could damage our business reputation and negatively affect our results of operations.

The development and production of sophisticated hardware and software for communications network equipment is highly complex. Some of our products can be fully tested only when deployed in communications networks or when carrying traffic with other equipment, and software products may contain bugs that can interfere with expected performance. As a result, undetected defects or errors, and product quality, interoperability, reliability and performance problems are often more acute for initial deployments of new products and product enhancements. We have recently launched, and are in the process of launching, a number of new hardware and software platforms, including our Blue Planet software platform, and other solutions targeting metro network applications and data center interconnect. Unanticipated product performance problems can relate to the design, manufacturing, installation, operation and interoperability of our products. Undetected errors can also arise as a result of defects in components, software or manufacturing, installation or maintenance services supplied by third parties, and technology acquired from or licensed by third parties. From time to time we have had to replace certain components, provide software remedies or other remediation in response to defects or bugs, and we may have to do so again in the future. There can be no assurance that such remediation would not have a material impact on our business and results of operations. In addition, unanticipated security vulnerabilities relating to our products or the activities of our supply chain, including any actual or perceived exposure of our solutions to malicious software or cyber-attacks, could adversely affect our business and reputation.

Product performance, reliability, security and quality problems can negatively affect our business, and may result in some or all of the following effects:

- damage to our reputation, declining sales and order cancellations;
- increased costs to remediate defects or replace products;
- payment of liquidated damages, contractual or similar penalties, or other claims for performance failures or delays;
- increased warranty expense or estimates resulting from higher failure rates, additional field service obligations or other rework costs related to defects;
- increased inventory obsolescence;
- costs and claims that may not be covered by liability insurance coverage or recoverable from third parties; and
- delays in recognizing revenue or collecting accounts receivable.

These and other consequences relating to undetected errors affecting the quality, reliability and security of our products could negatively affect our business and results of operations.

Direct or indirect efforts to increase our sales and market share in targeted international markets and customer segments may be unsuccessful.

Part of our business and growth strategy is to expand our geographic reach and increase market share in international markets. This strategy includes selling to Web-scale network operators with global operations as well as to service provider customers in additional geographies, including Asia-Pacific and India. This diversification of our markets and customer base has been a significant component of the growth of our business. Our efforts to continue to increase our sales and market share in international markets may ultimately be unsuccessful, and failure to do so could limit our growth and could harm our results of operations.

In addition, in order to sell our products into new geographic markets, diversify our customer base and broaden the application for our solutions in communications networks, we continue to promote sales initiatives and foster strategic channel sales relationships. Specifically, we are targeting sales opportunities around the world with Web-scale providers, cloud infrastructure providers, communications service providers, enterprises, wireless operators, cable and multiservice operators, submarine network operators, research and education institutions, and federal, state and local governments. To succeed in some of these geographic markets and customer segments, we often need to leverage strategic sales channels and distribution arrangements, and we expect these relationships to be an important part of our business. There can be no assurance we will realize the expected benefits of these third party sales relationships. We compete in certain business areas with our third party channel partners or may have divergent interests. Our efforts to manage and drive the intended benefits of such sales relationships may ultimately be unsuccessful, and difficulties selling through third party channels could limit our growth and could harm our results of operations.

The international scale of our sales and operations exposes us to additional risk and expense that could adversely affect our results of operations.

We market, sell and service our products globally, maintain personnel in numerous countries, and rely upon a global supply chain for sourcing important components and manufacturing our products. Our international sales and operations are subject to inherent risks, including:

- the impact of economic conditions in countries outside the United States;
- effects of adverse changes in currency exchange rates;
- greater difficulty in collecting accounts receivable and longer collection periods;
- difficulty and cost of staffing and managing foreign operations;
- less protection for intellectual property rights in some countries;
- tax and customs changes that adversely impact our global sourcing strategy, manufacturing practices, transfer-pricing, or competitiveness of our products for global sales;
- social, political and economic instability;
- compliance with certain testing, homologation or customization of products to conform to local standards;
- higher incidence of corruption or unethical business practices that could expose us to liability or damage our reputation;
- significant changes to free trade agreements, trade protection measures, tariffs, export compliance, domestic preference procurement requirements, qualification to transact business and additional regulatory requirements; and
- natural disasters, epidemics and acts of war or terrorism.

Our international operations are also subject to complex foreign and U.S. laws and regulations, including anti-corruption laws, antitrust or competition laws, environmental regulations, and data privacy laws, among others. Violations of these laws and regulations could result in fines and penalties, criminal sanctions against us or our employees, prohibitions on the conduct of our business and on our ability to offer our products and services in certain geographies, and significant harm to our business reputation. There can be no assurance that any individual employee, contractor, agent or other business partner will not violate these legal requirements or our policies to mitigate these risks. Additionally, the costs of complying with these laws (including the costs of investigations, auditing and monitoring) could also adversely affect our current or future business.

The U.S. government has indicated a willingness to revise, renegotiate, or terminate various, existing multilateral trade agreements and to impose new taxes on certain goods imported into the U.S. Because we rely upon a global sourcing strategy and third party contract manufacturers in markets outside of the U.S. to perform substantially all of the manufacturing of our products, such steps, if adopted, could adversely impact our business and operations, and may make our products less competitive in the U.S. and other markets. At this time, it remains unclear what actions, if any, the U.S. government will take with respect to such trade agreements, tax policy related to international commerce, or imposition of tariffs on goods imported into the U.S. There can be no assurance that any future legislation or executive action in the U.S. relating to tax policy and trade regulation would not adversely affect our business, operations and financial results.

The success of our international sales and operations will depend, in large part, on our ability to anticipate and manage effectively these risks. Our failure to manage any of these risks could harm our international operations, reduce our international sales, and could give rise to liabilities, costs or other business difficulties that could adversely affect our operations and financial results.

We may be required to write off significant amounts of inventory as a result of our inventory purchase practices, the obsolescence of product lines or unfavorable market or contractual conditions.

To avoid delays and meet customer demand for shorter delivery terms, we place orders with our contract manufacturers and component suppliers based on forecasts of customer demand. In a number of cases these suppliers may require longer lead times for fulfillment than we have with our customers. Thus, our practice of buying inventory based on forecasted demand exposes us to the risk that our customers ultimately may not order the products we have forecast or will purchase fewer products than forecast. As a result, we may purchase inventory in anticipation of sales that ultimately do not occur. We regularly incur, on a quarterly basis, expense provisions against excess or obsolete inventory. Market uncertainty can also limit our visibility into customer spending plans and compound the difficulty of forecasting inventory at appropriate levels. Moreover, our customer purchase agreements generally do not include any minimum purchase commitment. Also, customers often have the right to modify, reduce or cancel purchase quantities, and spending levels can be uncertain and subject to significant fluctuation. Our products are highly configurable, and certain new products have overlapping feature sets or application as existing products. Accordingly, it is increasingly possible that customers may forgo purchases of certain products we have inventoried in favor of a similar, newer product. We may also be exposed to the risk of inventory write-offs as a result of certain supply chain initiatives, including consolidation and transfer of key manufacturing activities. If we are required to write off or write down a significant amount of inventory, our results of operations for the applicable period would be materially adversely affected.

Our new distribution channel for our WaveLogic coherent technology could be unprofitable, could expose us to increased or new forms of competition, and could adversely affect our systems business and competitive position.

Our new distribution relationships with Lumentum, NeoPhotonics and Oclaro present a number of risks for our business as we make available and distribute key elements of our WaveLogic coherent optical technology as a component for the first time. In order to develop these components and design the module to be sold by our partners, we will be required to incur additional research and development costs. However, this form of distribution channel for an existing system vendor is new in our industry and unproven in the market. The success of these distribution relationships will depend on, among other things, our ability to adapt to this new component market and commercial model and the ability of our partners to manufacture, market and sell optical modules containing our components in the “merchant” market. And, there is no guarantee that the modules containing our components will achieve market acceptance or that the timing of market adoption will be as predicted. As a result, it is possible that our research and development investments in this new distribution channel will be unprofitable.

Lumentum, NeoPhotonics and Oclaro each have the unrestricted ability to sell such modules to end users, including our customers, our competitors, and other vendors or network operators who plan to build or use “white box” hardware. Making our critical technology available in this manner could adversely impact the sale of products in our existing systems business. For example, our customers may choose to adopt disaggregated consumption models or third party solutions using these Ciena-designed optical modules instead of purchasing systems-based solutions from us. Alternatively, we may encounter situations where we are competing for opportunities in the market directly against a system from one of our competitors that incorporates

Ciena-designed modules. In addition, making this key technology available and enabling a third-party partner to manufacture Ciena-designed modules may adversely affect our competitive position and increase the risk that third parties misappropriate or attempt to use our technology or related intellectual property without our authorization. These and other risks or unanticipated liabilities or costs associated with our new distribution strategy could harm our reputation and adversely affect our business and our results of operations.

Our intellectual property rights may be difficult and costly to enforce.

We generally rely on a combination of patents, copyrights, trademarks and trade secret laws to establish and maintain proprietary rights in our products and technology. Although we have been issued numerous patents and other patent applications are currently pending, there can be no assurance that any of these patents or other proprietary rights will not be challenged, invalidated or circumvented, or that our rights will provide us with any competitive advantage. In addition, there can be no assurance that patents will be issued from pending applications or that claims allowed on any patents will be sufficiently broad to protect our technology. Further, the laws of some foreign countries may not protect our proprietary rights to the same extent as do the laws of the United States.

We are subject to the risk that third parties may attempt to access, divert or use our intellectual property without authorization. Protecting against the unauthorized use of our products, technology and other proprietary rights is difficult, time-consuming and expensive, and we cannot be certain that the steps that we are taking will prevent or minimize the risks of such unauthorized use. In addition, our intellectual property strategy must continually evolve to protect our proprietary rights in new solutions, including our software solutions. Litigation may be necessary to enforce or defend our intellectual property rights or to determine the validity or scope of the proprietary rights of others. Such litigation could result in substantial cost and diversion of management time and resources, and there can be no assurance that we will obtain a successful result. Any inability to protect and enforce our intellectual property rights could harm our ability to compete effectively.

We may incur significant costs in response to claims by others that we infringe their intellectual property rights.

From time to time third parties may assert claims or initiate litigation or other proceedings related to patent, copyright, trademark and other intellectual property rights to technologies and related standards that are relevant to our business. The rate of infringement assertions by patent assertion entities is increasing, particularly in the United States. Generally, these patent owners neither manufacture nor use the patented invention directly, and they seek to derive value from their ownership solely through royalties from patent licensing programs.

We could be adversely affected by litigation, other proceedings or claims against us, as well as claims against our manufacturers, suppliers or customers, alleging infringement of third party proprietary rights by our products and technology, or components thereof. Regardless of the merit of these claims, they can be time-consuming, divert the time and attention of our technical and management personnel, and result in costly litigation. These claims, if successful, could require us to:

- pay substantial damages or royalties;
- comply with an injunction or other court order that could prevent us from offering certain of our products;
- seek a license for the use of certain intellectual property, which may not be available on commercially reasonable terms or at all;
- develop non-infringing technology, which could require significant effort and expense and ultimately may not be successful; and
- indemnify our customers or other third parties pursuant to contractual obligations to hold them harmless or pay expenses or damages on their behalf.

Any of these events could adversely affect our business, results of operations and financial condition. Our exposure to risks associated with the use of intellectual property may increase as a result of acquisitions, as we would have a lower level of visibility into the development process with respect to such technology and the steps taken to safeguard against the risks of infringing the rights of third parties.

Our products incorporate software and other technology under license from third parties, and our business would be adversely affected if this technology were no longer available to us on commercially reasonable terms.

We integrate third party software and other technology into our operating system, network management and control platforms and other products. As network operators adopt software management and control and virtualized network functions, we believe that we will be increasingly required to work with third party technology providers. As a result, we may be required to license certain software or technology from third parties, including competitors. Licenses for software or other technology may not be available or may not continue to be available to us on commercially reasonable terms. Third party licensors may insist on unreasonable financial or other terms in connection with our use of such technology. Our failure to comply with the terms of any license may result in our inability to continue to use such license, which may result in significant costs, harm our market opportunities and require us to obtain or develop a substitute technology.

Our solutions, including our Blue Planet software platform, utilize elements of open source or publicly available software. As network operators seek to enhance programmability of networks, we expect that we and other communications networking solutions vendors will increasingly contribute to and use technology or open source software developed by standards settings bodies or other industry forums that seek to promote the integration of network layers and functions. The terms of such licenses could be construed in a manner that could impose unanticipated conditions or restrictions on our ability to commercialize our products. This increases our risks associated with our use of such software and may require us to seek licenses from third parties, to re-engineer our products or to discontinue the sale of such solutions. Difficulty obtaining and maintaining technology licenses with third parties may disrupt development of our products, increase our costs and adversely affect our business.

We rely upon third party contract manufacturers and our business and results of operations may be adversely affected by risks associated with their businesses, financial condition, and the geographies in which they operate.

We rely upon third party contract manufacturers with facilities in Canada, Mexico, Thailand and the United States to perform substantially all of the manufacturing of our products. There are a number of risks associated with our dependence on contract manufacturers, including:

- reduced control over delivery schedules and planning;
- reliance on the quality assurance procedures of third parties;
- potential uncertainty regarding manufacturing yields and costs;
- availability of manufacturing capability and capacity, particularly during periods of high demand;
- risks and uncertainties associated with the locations or countries where our products are manufactured, including potential manufacturing disruptions caused by social, geopolitical or environmental factors;
- changes in U.S. law or policy governing foreign trade, manufacturing, development and investment in the countries where we currently manufacture our products, including the World Trade Organization Information Technology Agreement or other free trade agreements;
- limited warranties provided to us; and
- potential misappropriation of our intellectual property.

These and other risks could impair our ability to fulfill orders, harm our sales and impact our reputation with customers. If our contract manufacturers are unable or unwilling to continue manufacturing our products or components of our products, or if our contract manufacturers discontinue operations, we may be required to identify and qualify alternative manufacturers, which could cause us to be unable to meet our supply requirements to our customers and result in the breach of our customer agreements. The process of qualifying a new contract manufacturer and commencing volume production is expensive and time-consuming, and if we are required to change or qualify a new contract manufacturer, we would likely lose sales revenue and damage our existing customer relationships.

A substantial portion of our products are manufactured by third party contract manufacturers in Mexico. The U.S. government has indicated a willingness to revise, renegotiate, or terminate various multilateral trade agreements and to impose new taxes on certain goods imported into the U.S. Such steps, if adopted, could adversely impact our business and operations, and may make our products less competitive in the U.S. and other markets. At this time, it remains unclear what actions, if any, will be taken by the U.S. government with respect to such trade agreements, tax policy related to international commerce, or the imposition of tariffs on goods imported into the U.S. There can be no assurance that any future legislation or executive action in the in the U.S. relating to tax policy and trade regulation would not adversely affect our business, operations and financial results.

Data security breaches and cyber-attacks could compromise our intellectual property or other sensitive information and cause significant damage to our business and reputation.

In the ordinary course of our business, we maintain on our network systems, and the networks of third party providers, certain information that is confidential, proprietary or otherwise sensitive in nature. This information includes intellectual property, financial information and confidential business information relating to us and our customers, suppliers and other business partners. We also produce networking equipment solutions and software used by network operators to ensure security and reliability in their management and transmission of data. Our customers, particularly those in regulated industries, are increasingly focused on the security features of our technology solutions, and maintaining the security of information sensitive to us and our business partners is critical to our business and reputation. Companies in the technology industry have been increasingly subject to a wide variety of security incidents, cyber-attacks and other attempts to gain unauthorized access to networks or sensitive information. Our network systems and storage applications, and those systems and storage applications maintained by our third party providers, may be subject to unauthorized access by hackers or breached due to operator error, malfeasance or other system disruptions. The network solutions we sell to end customers may be exposed to similar risks. In some cases, it is difficult to anticipate or to detect immediately such incidents and the damage caused thereby. If an actual or perceived breach of network security occurs in our network or in the network of a business partner, the market perception of our products could be harmed. While we continually work to safeguard our products and internal network systems to mitigate these potential risks, there is no assurance that such actions will be sufficient to prevent cyber-attacks or security breaches. Security incidents involving access or improper use of our systems, networks or products could compromise confidential or otherwise protected information, destroy or corrupt data, or otherwise disrupt our operations. These security events could also negatively impact our reputation and our competitive position and could result in litigation with third parties, regulatory action, loss of business, potential liability and increased remediation costs, any of which could have a material adverse effect on our financial condition and results of operations.

Our failure to manage our relationships with third party service partners effectively could adversely impact our financial results and relationship with customers.

We rely on a number of third party service partners, both domestic and international, to complement our global service and support resources. We rely upon these partners for certain installation, maintenance and support functions. In addition, as network operators increasingly seek to rely on vendors to perform additional services relating to the design, construction and operation of their networks, the scope of work performed by our support partners is likely to increase and may include areas where we have less experience providing or managing such services. We must successfully identify, assess, train and certify qualified service partners in order to ensure the proper installation, deployment and maintenance of our products, as well as to ensure the skillful performance of other services associated with expanded solutions offerings, including site assessment and construction-related services. Vetting and certification of these partners can be costly and time-consuming, and certain partners may not have the same operational history, financial resources and scale as Ciena. Moreover, certain service partners may provide similar services for other companies, including our competitors. We may not be able to manage our relationships with our service partners effectively, and we cannot be certain that they will be able to deliver services in the manner or time required or that we will be able to maintain the continuity of their services. We may also be exposed to a number of risks or challenges relating to the performance of our service partners, including:

- delays in recognizing revenue;
- liability for injuries to persons, damage to property or other claims relating to the actions or omissions of our service partners;
- our services revenue and gross margin may be adversely affected; and
- our relationships with customers could suffer.

As our service offering expands and customers look to identify vendors capable of managing, integrating and optimizing multi-domain, multi-vendor networks with unified software, our relationships with third party service partners will become increasingly important. If we do not manage effectively our relationships with third party service partners, or if they fail to perform these services in the manner or time required, our financial results and relationships with customers could be adversely affected.

We may be adversely affected by fluctuations in currency exchange rates.

As a company with global operations, we face exposure to adverse movements in foreign currency exchange rates. For example, the announcement of Brexit and the outcome of the U.S. presidential election each have caused, and may continue to cause, significant volatility in currency exchange rate fluctuations. Due to our global presence, a significant percentage of our revenue, operating expense and assets and liabilities are non-U.S. Dollar denominated and therefore subject to foreign currency fluctuation. We face exposure to currency exchange rates as a result of the growth in our non-U.S. Dollar denominated operating expense in Canada, Europe, Asia and Latin America. An increase in the value of the U.S. Dollar could increase the real cost to our customers of our products in those markets outside the United States where we sell in Dollars, and a weakened Dollar could increase the cost of local operating expenses and procurement of materials or service that we purchase in foreign currencies. From time to time, we may hedge against currency exposure associated with anticipated foreign currency cash flows or assets and liabilities denominated in foreign currency. Such attempts to offset the impact of currency fluctuations are costly, and no amount of hedging can be effective against all circumstances. Losses associated with these hedging instruments and the adverse effect of foreign currency exchange rate fluctuation may negatively affect our results of operations.

We may be exposed to unanticipated risks and additional obligations in connection with our resale of complementary products or technology of other companies.

We have entered into agreements with strategic supply partners that permit us to distribute their products or technology. We may rely upon these relationships to add complementary products or technologies, diversify our product portfolio, or address a particular customer or geographic market. We may enter into additional original equipment manufacturer (OEM), resale or similar strategic arrangements in the future. We may incur unanticipated costs or difficulties relating to our resale of third party products. Our third party relationships could expose us to risks associated with the business, financial condition, intellectual property rights and supply chain continuity of such partners, as well as delays in their development, manufacturing or delivery of products or technology. We may also be required by customers to assume warranty, indemnity, service and other commercial obligations, including potential liability to customers, greater than the commitments, if any, made to us by our technology partners. Some of our strategic supply partners are relatively small companies with limited financial resources. If they are unable to satisfy their obligations to us or our customers, we may have to expend our own resources to satisfy these obligations. Exposure to these risks could harm our reputation with key customers and could negatively affect our business and our results of operations.

Our exposure to the credit risks of our customers and resellers may make it difficult to collect receivables and could adversely affect our revenue and operating results.

In the course of our sales to customers and resale channel partners, we may have difficulty collecting receivables, and our business and results of operations could be exposed to risks associated with uncollectible accounts. Lack of liquidity in the capital markets, macroeconomic weakness and market volatility may increase our exposure to these credit risks. Our attempts to monitor customer payment capability and to take appropriate measures to protect ourselves may not be sufficient, and it is possible that we may have to write down or write off accounts receivable. Such write-downs or write-offs could negatively affect our operating results for the period in which they occur, and, if large, could have a material adverse effect on our revenue and operating results.

Our business is dependent upon the proper functioning of our internal business processes and information systems, and modification or interruption of such systems or external factors may disrupt our business, processes and internal controls.

We rely upon a number of internal business processes and information systems to support key business functions, and the efficient operation of these processes and systems is critical to managing our business. Our business processes and information systems must be sufficiently scalable to support the growth of our business and may require modifications or upgrades that expose us to a number of operational risks. We are currently pursuing initiatives to transform and optimize our business operations through the reengineering of certain processes, investment in automation, and engagement of strategic partners or resources to assist with certain business functions. These changes require a significant investment of capital and human resources and may be costly and disruptive to our operations, and they could impose substantial demands on management time. These changes may also require changes in our information systems, modification of internal control procedures and significant training of employees or third party resources. There can be no assurance that our business and operations will not experience disruption in connection with our current system upgrade or other initiatives. Even if we do not encounter these adverse effects or disruption in our business, the design and implementation of these new systems may be more costly than anticipated.

Our information technology systems, and those of third party information technology providers or business partners, may also be vulnerable to damage or disruption caused by circumstances beyond our control, including catastrophic events, power anomalies or outages, natural disasters, viruses or malware, and computer system or network failures. We may also be exposed to cyber-security related incidents, including unauthorized access of information systems and disclosure or diversion of intellectual property or confidential data. There can be no assurance that our business systems or those of our third party business partners would not be subject to similar incidents, exposing us to significant cost, reputational harm and disruption or damage to our business.

Outstanding indebtedness under our convertible notes and senior secured credit facilities may adversely affect our liquidity and results of operations and could limit our business.

As of the date of this report, we had approximately $752.4 million in indebtedness repayable at maturity under our outstanding convertible notes. In the event that some or all of these notes are converted into common stock, the ownership interests of our existing stockholders will be diluted, and any sales of such shares in the public market following conversion may adversely affect the market price for our common stock. We are also a party to credit agreements relating to a $250 million senior secured asset-based revolving credit facility and an outstanding senior secured term loan with $399.0 million repayable at maturity. The agreements governing these credit facilities contain certain covenants that limit our ability, among other things, to incur additional debt, create liens and encumbrances, pay cash dividends, redeem or repurchase stock, enter into certain acquisition transactions or transactions with affiliates, repay certain indebtedness, make investments or dispose of assets. The agreements also include customary remedies, including the right of the lenders to take action with respect to the collateral securing the loans, that would apply should we default or otherwise be unable to satisfy our debt obligations.

Our indebtedness could have important negative consequences, including:

- increasing our vulnerability to adverse economic and industry conditions;
- limiting our ability to obtain additional financing, particularly in unfavorable capital and credit market conditions;
- debt service and repayment obligations that may adversely impact our results of operations and reduce the availability of cash resources for other business purposes;
- limiting our flexibility in planning for, or reacting to, changes in our business and the markets; and
- placing us at a possible competitive disadvantage to competitors who have better access to capital resources.

We may also enter into additional transactions or credit facilities, including equipment loans, working capital lines of credit and other long-term debt, which may increase our indebtedness and result in additional restrictions upon our business. In addition, major debt rating agencies regularly evaluate our debt based on a number of factors. There can be no assurance that we will be able to maintain our existing debt ratings, and failure to do so could adversely affect our cost of funds, liquidity and access to capital markets.

Significant volatility and uncertainty in the capital markets may limit our access to funding on favorable terms or at all.

The operation of our business requires significant capital. We have accessed the capital markets in the past and have successfully raised funds, including through the issuance of equity, convertible notes and other indebtedness, to increase our cash position, support our operations and undertake strategic growth initiatives. We regularly evaluate our liquidity position, debt obligations, and anticipated cash needs to fund our long-term operating plans, and we may consider it necessary or advisable to raise additional capital or incur additional indebtedness in the future. If we raise additional funds through further issuance of equity or securities convertible into equity, or undertake certain transactions intended to address our existing indebtedness, our existing stockholders could suffer dilution in their percentage ownership of our company or our leverage and outstanding indebtedness could increase. Global capital markets have undergone periods of significant volatility and uncertainty in recent years, and there can be no assurance that such financing alternatives would be available to us on favorable terms or at all, should we determine it necessary or advisable to seek additional cash resources.

Facilities transitions could be disruptive to our operations and may result in unanticipated expense and adverse effects to our cash position and cash flows.

We have undertaken and expect to undertake in the future the transition of two of our significant research and development facilities, which will affect a large number of our employees. The lease for our Lab 10 building on the Carling Campus in Ottawa, Canada will expire in fiscal 2018, and the leases for our facilities in Gurgaon, India will expire in fiscal 2018 and fiscal 2019. The Ottawa and Gurgaon facilities represent our two largest research and development sites, and they house both significant headcount including key engineering personnel and a large amount of sophisticated lab equipment. In Ottawa, we are in the process of developing a new research and development campus, and we are transitioning our existing operations and personnel to the new campus in anticipation of the expiration of the Lab 10 lease. In Gurgaon, we recently entered into a lease for a new building adjacent to one of our existing facilities, and we will be transitioning certain of our existing operations and personnel to the new building during 2017 and 2018. Relocating our engineering operations may be costly, and there can be no assurance that the transition of key engineering functions to a successor facility will not be disruptive or adversely affect productivity. Significant facilities transitions could be disruptive to our operations and may result in additional or unanticipated expense and adverse effects on our cash position and cash flows.

The potential effects of the referendum on the UK's membership in the European Union remain uncertain.

On June 23, 2016, the United Kingdom (UK) held a referendum in which voters approved an exit from the European Union (EU), commonly referred to as "Brexit," and on March 29, 2017 notified the EU that it intended to exit as provided in Article 50 of the Treaty on European Union. The terms of the withdrawal are subject to a negotiation period that could last at least two years from the withdrawal notification date. This will be either accompanied or followed by additional negotiations between the EU and the UK concerning the future relations between the parties. Nevertheless, Brexit has created significant uncertainty about the future relationship between the UK and the EU. It is possible that the level of economic activity in this region will be adversely impacted and that there will be increased regulatory and legal complexities, including those relating to tax, trade, security, and employees. Such changes could be costly and potentially disruptive to our operations and business relationships in these markets. In addition, Brexit could lead to economic uncertainty, including significant volatility in global stock markets and currency exchange rates, that may adversely impact our business. While we have adopted certain financial measures to reduce the risks of doing business internationally, we cannot ensure that such measures will be adequate to allow us to operate without disruption or adverse impact to our business and financial results in the affected regions.

Restructuring activities could disrupt our business and affect our results of operations.

We have previously taken steps, including reductions in force, office closures, and internal reorganizations to reduce the size and cost of our operations, improve efficiencies, or realign our organization and staffing to better match our market opportunities and our technology development initiatives. We may take similar steps in the future as we seek to realize operating synergies, to optimize our operations to achieve our target operating model and profitability objectives, or to reflect more closely changes in the strategic direction of our business. These changes could be disruptive to our business, including our research and development efforts, and could result in significant expense, including accounting charges for inventory and technology-related write-offs, workforce reduction costs and charges relating to consolidation of excess facilities. Substantial expense or charges resulting from restructuring activities could adversely affect our results of operations and use of cash in those periods in which we undertake such actions.

If we are unable to attract and retain qualified personnel, we may be unable to manage our business effectively.

Competition to attract and retain highly skilled technical, engineering and other personnel with experience in our industry is intense, and our employees have been the subject of targeted hiring by our competitors. Competition is particularly intense in certain jurisdictions where we have research and development centers, including the Silicon Valley area of northern California, and we may experience difficulty retaining and motivating existing employees and attracting qualified personnel to fill key positions. Because we rely upon equity awards as a significant component of compensation, particularly for our executive team, a lack of positive performance in our stock price, reduced grant levels, or changes to our compensation program may adversely affect our ability to attract and retain key employees. In addition, none of our executive officers is bound by an employment agreement for any specific term. The loss of members of our management team or other key personnel could be disruptive to our business, and, were it necessary, it could be difficult to replace members of our management team or other key personnel. If we are unable to attract and retain qualified personnel, we may be unable to manage our business effectively, and our operations and financial results could suffer.

Strategic acquisitions and investments could disrupt our operations and may expose us to increased costs and unexpected liabilities.

We may acquire or make investments in other technology companies, or enter into other strategic relationships, to expand the markets we address, diversify our customer base or acquire, or accelerate the development of, technology or products. To do so, we may use cash, issue equity that could dilute our current stockholders, or incur debt or assume indebtedness. Strategic transactions, including our acquisition of Cyan in fiscal 2015 and our acquisition of the high-speed photonics components (“HSPC”) assets from TeraXion in fiscal 2016, can involve numerous additional risks, including:

- failure to achieve the anticipated transaction benefits or the projected financial results and operational synergies;
- greater than expected acquisition and integration costs;
- disruption due to the integration and rationalization of operations, products, technologies and personnel;
- diversion of management attention;
- difficulty completing projects of the acquired company and costs related to in-process projects;
- difficulty managing customer transitions or entering into new markets;
- the loss of key employees;
- disruption or termination of business relationships with customers, suppliers, vendors, landlords, licensors and other business partners;
- ineffective internal controls over financial reporting;
- dependence on unfamiliar suppliers or manufacturers;
- assumption of or exposure to unanticipated liabilities, including intellectual property infringement or other legal claims; and
- adverse tax or accounting impact.

As a result of these and other risks, our acquisitions, investments or strategic transactions may not realize the intended benefits and may ultimately have a negative impact on our business, results of operation and financial condition.

Adverse resolution of litigation may harm our operating results or financial condition.

We are a party to claims and litigation in the normal course of our business. Such litigation can be expensive, lengthy, and disruptive to normal business operations. Moreover, the results of complex legal proceedings are difficult to predict and may harm our operating results or financial condition. For additional information regarding certain of the legal proceedings in which we are involved, see Item 1, "Legal Proceedings," contained in Part II of this report.

Changes in government regulation affecting the communications industry and the businesses of our customers could harm our prospects and operating results.

The Federal Communications Commission, or FCC, has jurisdiction over the U.S. communications industry, and similar agencies have jurisdiction over the communication industries in other countries. Many of our largest customers, including service providers and multiservice network operators, are subject to the rules and regulations of these agencies. During 2015, the FCC approved rules that would regulate broadband internet service providers as telecommunications service carriers under Title II of the Telecommunications Act and adopted net neutrality regulations that prohibit blocking, degrading or prioritizing certain types of internet traffic. The future impact of these rules is uncertain in light of the recent change in FCC leadership. In addition to the net neutrality rules, similar changes in regulatory requirements covering access to, management of, or carriage of traffic on the internet in the United States and internationally could serve as a disincentive to certain wireline or wireless network operators, including certain of our customers, to invest in their network infrastructures or introduce new services. Such changes could adversely affect the sale of our products and services. Similarly, changes in regulatory tariff requirements or other regulations relating to pricing or terms of carriage on communications networks could slow the development or expansion of network infrastructures and adversely affect our business, operating results, and financial condition.

Government regulations affecting the use, import or export of products could adversely affect our operations, negatively affect our revenue and increase our costs.

The United States and various foreign governments have established certain trade and tariff requirements under which we have implemented a global approach to the sourcing and manufacture of our products, as well as the distribution and fulfillment to customers around the world. Changes or restrictions impacting the import of our components to manufacturing facilities outside of the U.S., the importation of finished goods to the U.S., or the export of products globally, would adversely affect our operations, increase our costs and adversely impact our revenue. Government regulation of usage, import or export of our products, or our technology within our products, or our failure to obtain required approvals for our products, could harm our international and domestic sales and adversely affect our revenue and costs of sales. Failure to comply with such regulations could result in enforcement actions, fines, penalties or restrictions on export privileges. In addition, costly tariffs on our equipment, restrictions on importation, trade protection measures and domestic preference requirements of certain countries could limit our access to these markets and harm our sales. These regulations could adversely affect the sale or use of our products, substantially increase our cost of sales and adversely affect our business and revenue.

Government regulations related to the environment, potential climate change and other social initiatives could adversely affect our business and operating results.

Our operations are regulated under various federal, state, local and international laws relating to the environment and potential climate change. If we were to violate or become liable under these laws or regulations, we could incur fines, costs related to damage to property or personal injury, and costs related to investigation or remediation activities. Our product design efforts and the manufacturing of our products are also subject to evolving requirements relating to the presence of certain materials or substances in our equipment, including regulations that make producers for such products financially responsible for the collection, treatment and recycling of certain products. For example, our operations and financial results may be negatively affected by environmental regulations, such as the Waste Electrical and Electronic Equipment (WEEE) and Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) that have been adopted by the European Union. Compliance with these and similar environmental regulations may increase our cost of designing, manufacturing, selling and removing our products. The SEC has adopted disclosure requirements regarding the use of "conflict minerals" mined from the Democratic Republic of Congo and adjoining countries ("DRC") and disclosure requirements with respect to procedures regarding a manufacturer's efforts to prevent the sourcing of such minerals from the DRC. Certain of these minerals are present in our products. SEC rules implementing these requirements may have the effect of reducing the pool of suppliers who can supply DRC "conflict free" components and parts, and we may not be able to obtain conflict free products or supplies in sufficient quantities for our operations. Because our supply chain is complex, we may face reputational challenges with our customers, stockholders and other stakeholders if we are unable to verify sufficiently the origins for the "conflict minerals" used in our products and cannot assert that our products are "conflict free." Environmental or similar social initiatives may also make it difficult to obtain supply of compliant components or may require us to write off non-compliant inventory, which could have an adverse effect on our business and operating results.

We may be required to write down goodwill or long-lived assets, and these impairment charges would adversely affect our operating results.

As of April 30, 2017 our balance sheet includes $266.8 million of goodwill. This amount represents the remaining excess of the total purchase price of our acquisitions of Cyan and the HSPC assets from TeraXion over the fair value of the net assets acquired. We test each reporting unit for impairment of goodwill on an annual basis, and between annual tests if an event occurs or circumstances change that would, more likely than not, reduce the fair value of the reporting unit below its carrying value. As of April 30, 2017, our balance sheet also includes $461.5 million in long-lived assets, which includes $113.2 million of intangible assets. Valuation of our long-lived assets requires us to make assumptions about future sales prices and sales volumes for our products. These assumptions are used to forecast future, undiscounted cash flows upon which our estimates are based. Periods of significant uncertainty or instability of macroeconomic conditions can make forecasting future business difficult. If actual market conditions differ or our forecasts change for our business or any particular operating segment, we may be required to reassess goodwill or long-lived assets, and we could record an impairment charge. Any impairment charge relating to goodwill or long-lived assets would have the effect of decreasing our earnings or increasing our losses in such period. If we are required to take a substantial impairment charge, our operating results would be materially adversely affected in such period.

Failure to maintain effective internal controls over financial reporting could have a material adverse effect on our business, operating results and stock price.

Section 404 of the Sarbanes-Oxley Act of 2002 requires that we include in our annual report a report containing management's assessment of the effectiveness of our internal controls over financial reporting as of the end of our fiscal year and a statement as to whether or not such internal controls are effective. Compliance with these requirements has resulted in, and is likely to continue to result in, significant costs and the commitment of time and operational resources. Certain ongoing initiatives, including efforts to transform business processes or to transition certain functions to third party resources or providers, will necessitate modifications to our internal control systems, processes and related information systems as we optimize our business and operations. Our expansion into new regions could pose further challenges to our internal control systems. We cannot be certain that our current design for internal control over financial reporting, or any additional changes to be made, will be sufficient to enable management to determine that our internal controls are effective for any period, or on an ongoing basis. If we are unable to assert that our internal controls over financial reporting are effective, market perception of our financial condition and the trading price of our stock may be adversely affected, and customer perception of our business may suffer.

Our stock price is volatile.

Our common stock price has experienced substantial volatility in the past and may remain volatile in the future. Volatility in our stock price can arise as a result of a number of the factors discussed in this “Risk Factors” section. During fiscal 2016, our closing stock price ranged from a high of $25.30 per share to a low of $15.73 per share. The stock market has experienced significant price and volume fluctuation that has affected the market price of many technology companies, with such volatility often unrelated to the operating performance of these companies. Divergence between our actual or anticipated financial results and published expectations of investment analysts, or the expectations of the market generally, can cause significant swings in our stock price. Our stock price can also be affected by market conditions in our industry as well as announcements that we, our competitors, vendors or our customers may make. These may include announcements of financial results or changes in estimated financial results, technological innovations, the gain or loss of customers, or key opportunities. Our common stock is also included in certain market indices, and any change in the composition of these indices to exclude our company would adversely affect our stock price. These and other factors affecting macroeconomic conditions or financial markets may materially adversely affect the market price of our common stock in the future.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

Not applicable.

Item 3. Defaults Upon Senior Securities

Not applicable.

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

Not applicable.

Item 6. Exhibits

10.1	Amended and Restated 2003 Employee Stock Purchase Plan
10.2	Employee Stock Purchase Plan Enrollment Agreement
10.3	Ciena Corporation 2017 Omnibus Incentive Plan*
10.4	Form of Employee Restricted Stock Unit Agreement for Ciena Corporation 2017 Omnibus Incentive Plan*
10.5	Form of Director Restricted Stock Unit Agreement for Ciena Corporation 2017 Omnibus Incentive Plan*
10.6	Form of Performance Stock Unit Agreement for Ciena Corporation 2017 Omnibus Incentive Plan*
10.7	Omnibus Refinancing Amendment to Credit Agreement (dated as of July 15, 2014, as amended), Security Agreement, and Pledge Agreement, dated as of January 30, 2017, by and among Ciena Corporation, as borrower, Ciena Communications, Inc. and Ciena Government Solutions, Inc., as guarantors, Bank of America, N.A. as administrative agent, and the lenders party thereto**
31.1	Certification of Chief Executive Officer Pursuant to Rule 13a-14(a) under the Securities Exchange Act of 1934 as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2	Certification of Chief Financial Officer Pursuant to Rule 13a-14(a) under the Securities Exchange Act of 1934 as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1	Certification of Chief Executive Officer Pursuant to 18 U.S.C. Section 1350 as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
32.2	Certification of Chief Financial Officer Pursuant to 18 U.S.C. Section 1350 as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

*	Incorporated by reference from Ciena’s Current Report on Form 8-K filed March 29, 2017
**	Incorporated by reference from Ciena’s Quarterly Report on Form 10-Q filed March 8, 2017

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

Ciena Corporation

Date: June 7, 2017	By:	/s/ Gary B. Smith
		Gary B. Smith President, Chief Executive Officer and Director (Duly Authorized Officer)
Date: June 7, 2017	By:	/s/ James E. Moylan, Jr.
		James E. Moylan, Jr. Senior Vice President, Finance and Chief Financial Officer (Principal Financial Officer)

AMENDED AND RESTATED CIENA CORPORATION
EMPLOYEE STOCK PURCHASE PLAN

AMENDED AND RESTATED CIENA CORPORATION
EMPLOYEE STOCK PURCHASE PLAN

The Board of Directors of Ciena Corporation (the “Company”) has adopted this Amended and Restated 2003 Employee Stock Purchase Plan (the “Plan”) to enable eligible employees of the Company and its participating Affiliates (as defined below), through payroll deductions, to purchase shares of the Company’s common stock, par value $0.01 per share (the “Common Stock”). The Plan is for the benefit of the employees of the Company and any participating Affiliates. The Plan is intended to benefit the Company by increasing the employees’ interest in the Company’s growth and success and encouraging employees to remain in the employ of the Company or its participating Affiliates. The provisions of the Plan are set forth below:

1. SHARES SUBJECT TO THE PLAN

Subject to adjustment as provided in Section 26 below, the aggregate number of shares of Common Stock that may be made available for purchase by participating employees under the Plan is 8,211,915 shares; provided, that, beginning on December 31, 2005 and on each December 31 thereafter (the “Determination Date) there shall be added to the Plan an additional 571,428 shares; and provided further that, the number of shares so added on the Determination Date each year shall be reduced to the extent necessary that the total number of shares available for purchase under the Plan shall not at any time exceed 8,211,915 shares. The shares issuable under the Plan may, in the discretion of the Board of Directors of the Company (the “Board”), be authorized but unissued shares, treasury shares or issued and outstanding shares that are purchased in the open market.

2. ADMINISTRATION

The Plan shall be administered under the direction of the Compensation Committee of the Board (the “Committee”). The Committee shall have the power to make, amend and repeal rules and regulations for the interpretation and administration of the Plan, which shall include the power to designate Affiliates to participate in the Plan. In particular, the Committee may adopt rules or procedures, including sub-plans, relating to the operation and administration of the Plan to accommodate the specific requirements of local laws and procedures for jurisdictions outside the United States. Without limiting the generality of the foregoing, the Committee is authorized to determine, among other items, eligibility requirements, earnings definitions, how payroll deductions are taken, whether payroll deductions are held in a financial institution or trust account, payment of interest on payroll deductions, procedures for conversion of local currency, beneficiary designation requirements, restrictions on shares of Common Stock and tax withholding and reporting requirements.

3. INTERPRETATION

The Plan includes two components: a component that is intended to qualify under Section 423 of the Internal Revenue Code of 1986, as amended (the “Code”) (the “423 Component”) and a component that is not intended to qualify under Section 423 of the Code (the “Non-423 Component”). It is intended for the 423 Component to constitute an “employee stock purchase plan” within the meaning of Section 423(b) of the Code. In addition, this Plan authorizes the grant of options under the Non-423 Component that does not qualify as an “employee stock purchase plan” under Section 423 of the Code. Except as otherwise provided herein, the Non-423 Component will operate and be administered in the same manner as the 423 Component.

Subject to the express provisions of the Plan, the Committee shall have authority to interpret the Plan, with such interpretations to be conclusive and binding on all persons and otherwise accorded the maximum deference permitted and shall take any other actions and make any other determinations or decisions that it deems necessary or appropriate in connection with the Plan or the administration or interpretation thereof. Neither the Board, the Committee, any other committee appointed by the Board, nor any of their agents or designees shall be liable for any act, failure to act, or determination made in good faith with respect to the Plan.

To the extent any provision in the Plan is deemed to be in violation of local laws or regulations, the provision shall be deemed to be modified in a manner that complies with applicable law, provided that such modification is in conformance with the requirements of Section 423 of the Code with respect to the 423 Component. Notwithstanding the foregoing, the Plan shall continue to be governed by U.S. law as provided in section 27 herein and all interpretations and determinations made by the Committee under the Plan will be made subject to U.S. law.

4. ELIGIBLE EMPLOYEES

Any employee of the Company and its participating Affiliates as determined by the Committee may participate in the Plan, except the following, who are ineligible to participate: (a) an employee who has been employed by the Company or any of its participating Affiliates for less than three months as of the beginning of an Offering Period (as defined in Section 8 below); (b) an employee whose customary employment is for less than five months in any calendar year; (c) an employee whose customary employment is less than 21 hours per week; (d) an employee who, after exercising his or her rights to purchase shares under the Plan, would own shares of Common Stock (including shares that may be acquired under any outstanding options) representing five percent or more of the total combined voting power of all classes of stock of the Company; and (e) employees who are citizens or residents of a non-U.S. jurisdiction where the grant of an option under the Plan to a citizen or resident of the non-U.S. jurisdiction is prohibited under the laws of that jurisdiction, or where compliance with the laws of the foreign jurisdiction would cause the Plan to violate Code Section 423 requirements if such option is granted under the 423 Component.

The term "participating Affiliate" means any company or other trade or business that is a subsidiary of the Company (determined in accordance with the principles of Sections 424(e) and (f) of the Code and the regulations thereunder) designated by the Committee as being eligible to participate in the Plan under the 423 Component or Non-423 Component. The Board may at any time in its sole discretion, if it deems it advisable to do so, terminate the participation of the employees of a particular participating Affiliate. The Committee may at any time in its sole discretion, if it deems it advisable to do so, restrict the participation of officers, highly compensated employees or such other employees whose principal duties consist of supervising the work of other employees.

5. PARTICIPATION IN THE PLAN

An eligible employee may become a participating employee in the Plan by completing an election to participate in the Plan on a form provided by the Company and submitting that form to the Benefits Department of the Company. The form will authorize payroll deductions (as provided in Section 6 below) and authorize the purchase of shares of Common Stock for the employee's account in accordance with the terms of the Plan. Enrollment will become effective upon the first day of the next Offering Period. Enrollment in this Plan is limited to one Offering Period at a time.

6. PAYROLL DEDUCTIONS

At the time an eligible employee submits his or her election to participate in the Plan (as provided in Section 5 above), the employee shall elect to have deductions made from his or her pay, on each pay day following his or her enrollment in the Plan, and for as long as he or she shall participate in the Plan. The Committee shall have discretion to establish limitations on the amount of any such deductions. As determined by the Committee, such deductions may be either as a percentage or as a maximum dollar amount, but in either case such deductions shall not exceed ten percent (10%) of such employee's base salary allocable to the Offering Period. The deductions will be credited to the participating employee's account under the Plan. An employee may not during any Offering Period change his or her amount or percentage of payroll deduction for that Offering nor may an employee withdraw any contributed funds, other than in accordance with Sections 15 through 20 below.

7. RECORD OF PAYROLL DEDUCTIONS

The Company and participating Affiliates will cause to be maintained a record of amounts credited to each participating employee authorizing a payroll deduction pursuant to Section 6. The Company will not credit interest on the balance of the employees' accounts during the Offering Period.

8. OFFERING AND PURCHASE PERIODS

An Offering Period is the period determined by the Committee during which payroll deductions are accumulated for the purpose of purchasing Common Stock under the Plan, provided such Offering Period shall in no event exceed twenty-four months (24 months). A Purchase Period is the period designated by the Committee and ending on the last trading day on which purchases of Common Stock are made under the Plan.

9. RIGHTS TO PURCHASE COMMON STOCK; PURCHASE PRICE

Rights to purchase shares of Common Stock will be deemed granted to participating employees as of the first trading day of each Offering Period. The purchase price of each share of Common Stock (the "Purchase Price") shall be the lesser of 85 percent of the fair market value of the Common Stock (i) on the trading day immediately preceding the first day of the Offering Period or (ii) on the last trading day of the Purchase Period, unless the Purchase Price is otherwise established by the Committee; *provided* that in no event shall the Purchase Price be less than the amount determined pursuant to subparagraphs (i) and (ii) above, or the par value of the Common Stock. For purposes of the Plan, "fair market value" means the value of each share of Common Stock subject to the Plan determined as follows: if on the determination date the shares of Common Stock are listed on an established national or regional stock exchange, are admitted to quotation on the National Association of Securities Dealers Automated Quotation System, or are publicly traded on an established securities market, the fair market value of the shares of Common Stock shall be the closing price of the shares of Common Stock on such exchange or in such market (the exchange designated by the Board if there is more than one such exchange or market) on the determination date (or if there is no such reported closing price, the fair market value shall be the mean between the highest bid and lowest asked prices or between the high and low sale prices on such trading day) or, if no sale of the shares of Common Stock is reported for such trading day, on the next preceding day on which any sale shall have been reported. If the shares of Common

Stock are not listed on such an exchange, quoted on such System or traded on such a market, fair market value shall be determined by the Board in good faith.

10. TIMING OF PURCHASE; PURCHASE LIMITATION

Unless a participating employee has given prior written notice terminating such employee's participation in the Plan, or the employee's participation in the Plan has otherwise been terminated as provided in Sections 16 through 20 below, such employee will be deemed to have exercised automatically his or her right to purchase Common Stock on the last trading day of the Purchase Period (except as provided in Section 15 below) for the number of shares of Common Stock which the accumulated funds in the employee's account at that time will purchase at the Purchase Price, subject to the participation adjustment provided for in Section 14 below and subject to adjustment under Section 26 below. Notwithstanding any other provision of the Plan, no employee may purchase in any one Purchase Period and in any one calendar year under the Plan and all other "employee stock purchase plans" of the Company and its participating Affiliates shares of Common Stock having an aggregate fair market value in excess of $25,000, determined as of the last trading date preceding the Offering Period as to shares purchased during such period. Notwithstanding any other provision of the Plan, the Committee may specify a maximum number of shares of Common Stock that may be purchased by any participating employee for such Offering Period and/or a maximum aggregate number of shares of Common Stock that may be purchased by all participating employees for such Offering Period. Effective upon the last trading day of the Purchase Period, a participating employee will become a stockholder with respect to the shares purchased during such period, and will thereupon have all dividend, voting and other ownership rights incident thereto. Notwithstanding the foregoing, no shares shall be sold pursuant to the Plan unless the Plan is approved by the Company's stockholders in accordance with Section 25 below.

11. REGISTRATION; ISSUANCE OF STOCK CERTIFICATES

As of the last trading day of the Purchase Period, a participating employee will be credited with the number of shares of Common Stock purchased for his or her account under the Plan during such Offering Period. Shares purchased under the Plan will be held in the custody of an agent (the "Agent") appointed by the Committee. Notwithstanding any provision of the Plan to the contrary, the ownership of the shares of Stock issued under the Plan may be evidenced in such a manner as the Committee, in its sole discretion, deems appropriate or required by any applicable law, rule or regulation, including by book-entry or direct registration (including transaction advices) or the issuance of one or more share certificates. The Agent may hold the shares purchased under the Plan in stock certificates in nominee names and may commingle shares held in its custody in a single account or stock certificate without identification as to individual participating employees. A participating employee may, at any time following his or her purchase of shares under the Plan and after the expiration of the qualifying holding period, by written notice instruct the Agent to have all or part of such shares reissued in the participating employee's own name and have the stock certificate delivered to the employee. The Committee shall have the right to require that participating employees abstain from selling or otherwise transferring shares of Common Stock purchased pursuant to the Plan for a period lasting up to two years from the date the shares were purchased pursuant to the Plan.

12. WITHHOLDING OF TAXES

To the extent that a participating employee realizes ordinary income in connection with a sale or other transfer of any shares of Common Stock purchased under the Plan, the Company may withhold amounts, by any method permissible under applicable law, needed to cover such taxes from any payments otherwise due and owing to the participating employee or from shares that would otherwise be issued to the participating employee hereunder. Any participating employee who sells or otherwise transfers shares purchased under the Plan within two years after the beginning of the Offering Period in which the shares were purchased must within 30 days of such transfer notify the Payroll Department of the Company in writing of such transfer.

13. ACCOUNT STATEMENTS

The Company will cause the Agent to deliver to each participating employee a statement for each Purchase Period during which the employee purchases Common Stock under the Plan, but no more frequently than every six months, reflecting the amount of payroll deductions during the Purchase Period, the number of shares purchased for the employee's account, the price per share of the shares purchased for the employee's account and the number of shares held for the employee's account at the end of the Purchase Period.

14. PARTICIPATION ADJUSTMENT

If in any Purchase Period the number of unsold shares that may be made available for purchase under the Plan pursuant to Section 1 above (or, as determined by the Committee, pursuant to any limitation on the aggregate number of shares purchasable in any Purchase Period) is insufficient to permit exercise of all rights deemed exercised by all participating employees pursuant to Section 9 above, a participation adjustment will be made, and the number of shares purchasable by all participating employees will be reduced proportionately. Any funds then remaining in a participating employee's account after such exercise will be refunded to the employee.

15. CHANGES IN ELECTIONS TO PURCHASE

(a) A participating employee may, at any time prior to the fifth business day before the last day of the Purchase Period, by written notice to the Company, direct the Company to cease payroll deductions (or, if the payment for shares is being made through periodic cash payments, notify the Company that such payments will be terminated), in accordance with the following alternatives:

(i) The employee's option to purchase shall be reduced to the number of shares which may be purchased, as of the last day of the Purchase Period, with the amount then credited to the employee's account; or

(ii) Withdraw the amount in such employee's account and terminate such employee's option to purchase.

(b) Any participating employee may decrease his or her payroll deduction or periodic cash payments, to take effect as soon as administratively practicable by delivering to the Company a new form regarding election to participate in the Plan under Section 5 above.

(c) Any participating employee may increase his or her payroll deduction or periodic cash payments, to take effect on the first day of the next following Offering Period by delivering to the Company a new form regarding election to participate in the Plan under Section 5 above.

16. TERMINATION OF EMPLOYMENT

In the event a participating employee voluntarily leaves the employ of the Company or a participating Affiliate, otherwise than by retirement under a plan of the Company or a participating Affiliate, or is terminated by the Company prior to the last day of the Purchase Period, the amount in the employee's account will be distributed and the employee's option to purchase will terminate.

17. RETIREMENT

In the event a participating employee who has an option to purchase shares leaves the employ of the Company or a participating Affiliate because of retirement under a plan of the Company or a participating Affiliate, the participating employee may elect, within 60 days after the date of such retirement or termination, but, in no event, later than the end of the current Purchase Period, one of the following alternatives:

(a) The employee's option to purchase shall be reduced to the number of shares which may be purchased, as of the last day of the Purchase Period, with the amount then credited to the employee's account; or

(b) Withdraw the amount in such employee's account and terminate such employee's option to purchase.

In the event the participating employee does not make an election within the aforesaid 60-day period, he or she will be deemed to have elected subsection 17(b) above.

18. LAY-OFF, AUTHORIZED LEAVE OF ABSENCE OR DISABILITY

Payroll deductions for shares for which a participating employee has an option to purchase may be suspended during any period of absence of the employee from work due to lay-off, authorized leave of absence or disability or, if the employee so elects, periodic payments for such shares may continue to be made in cash.

If such employee returns to active service prior to the last day of the Purchase Period, the employee's payroll deductions will be resumed and if said employee did not make periodic cash payments during the employee's period of absence, the employee shall, by written notice to the Company's Payroll Department within 10 days after the employee's return to active service, but not later than the last day of the Purchase Period, elect one of the following alternatives:

(a) The employee's option to purchase shall be reduced to the number of shares that can be purchased with the amount, if any, then credited to the employee's account plus the aggregate amount, if any, of all payroll deductions to be made thereafter; or

(b) Withdraw the amount in the employee's account and terminate the employee's option to purchase.

A participating employee on lay-off, authorized leave of absence or disability on the last day of the Purchase Period shall deliver written notice to his or her employer on or before the last day of the Purchase Period, electing one of the alternatives provided in the foregoing clauses (a) or (b) of this

Section 18. If any employee fails to deliver such written notice within 10 days after the employee's return to active service or by the last day of the Purchase Period, whichever is earlier, the employee shall be deemed to have elected subsection 18(b) above.

If the period of a participating employee's lay-off, authorized leave of absence or disability shall terminate on or before the last day of the Purchase Period, and the employee shall not resume active employment with the Company or a participating Affiliate, the employee shall receive a distribution in accordance with the provisions of Section 17 of this Plan.

19. DEATH

In the event of the death of a participating employee while the employee's option to purchase shares is in effect, the legal representatives of such employee may, within 60 days after the employee's death (but no later than the last day of the Purchase Period) by written notice to the Company or participating Affiliate, elect one of the following alternatives:

(a) The employee's option to purchase shall be reduced to the number of shares which may be purchased, as of the last day of the Purchase Period, with the amount then credited to the employee's account; or

(b) Withdraw the amount in such employee's account and terminate such employee's option to purchase.

In the event the legal representatives of such employee fail to deliver such written notice to the Company or participating Affiliate within the prescribed period, the election to purchase shares shall terminate and the amount then credited to the employee's account shall be paid to such legal representatives.

20. TERMINATION OF PARTICIPATION

A participating employee will be refunded all moneys in his or her account, and his or her participation in the Plan will be terminated if either (a) the Board elects to terminate the Plan as provided in Section 25 below, or (b) the employee ceases to be eligible to participate in the Plan under Section 4 above. As soon as practicable following termination of an employee's participation in the Plan, the Company will deliver to the employee a check representing the amount in the employee's account and a stock certificate representing the number of whole shares held in the employee's account. Once terminated, participation may not be reinstated for the then current Offering Period, but, if otherwise eligible, the employee may elect to participate in any subsequent Offering Period.

21. ASSIGNMENT

No participating employee may assign his or her rights to purchase shares of Common Stock under the Plan, whether voluntarily, by operation of law or otherwise. Any payment of cash or issuance of shares of Common Stock under the Plan may be made only to the participating employee (or, in the event of the employee's death, to the employee's estate). Once a stock certificate has been issued to the employee or for his or her account, such certificate may be assigned the same as any other stock certificate.

22. APPLICATION OF FUNDS

All funds received or held by the Company under the Plan shall be deposited with the Agent for the account of the participating employees. Participating employees’ accounts will not be segregated.

23. NO RIGHT TO CONTINUED EMPLOYMENT

Neither the Plan nor any right to purchase Common Stock under the Plan confers upon any employee any right to continued employment with the Company or any of its participating Affiliates, nor will an employee’s participation in the Plan restrict or interfere in any way with the right of the Company or any of its participating Affiliates to terminate the employee’s employment at any time.

24. AMENDMENT OF PLAN

The Board may, at any time, amend the Plan in any respect (including an increase in the percentage specified in Section 9 above used in calculating the Purchase Price). An amendment to the Plan shall be contingent on approval of the stockholders of the Company only to the extent required by applicable law, regulations or rules or as provided by the Board.

25. EFFECTIVE DATE; TERM AND TERMINATION OF THE PLAN

The Plan, as amended and restated, shall be effective as of the date of adoption by the Board, which date is set forth below, subject to approval of the Plan by a majority of the votes present and entitled to vote at a duly held meeting of the shareholders of the Company at which a quorum representing a majority of all outstanding voting stock is present, either in person or by proxy; provided, however, that upon approval of the Plan by the shareholders of the Company as set forth above, all rights to purchase shares granted under the Plan on or after the effective date shall be fully effective as if the shareholders of the Company had approved the Plan on the effective date. If the shareholders fail to approve the Plan on or before one year after the effective date, the amendment and restatement of the Plan shall be rejected, any rights to purchase shares granted hereunder shall be null and void and of no effect and all contributed funds shall be refunded to participating employees to the extent based upon the amendment and restatement of the Plan. The Board may terminate the Plan at any time and for any reason or for no reason, provided that such termination shall not impair any rights of participating employees that have vested at the time of termination. In any event, the Plan shall, without further action of the Board, terminate ten (10) years after the January 20, 2012 adoption of the amendment and restatement of the Plan by the Board or, if earlier, at such time as all shares of Common Stock that may be made available for purchase under the Plan pursuant to Section 1 above have been issued.

26. EFFECT OF CHANGES IN CAPITALIZATION

(a) Changes in Stock

If the number of outstanding shares of Common Stock is increased or decreased or the shares of Common Stock are changed into or exchanged for a different number or kind of shares or other securities of the Company by reason of any recapitalization, reclassification, stock split, reverse split, combination of shares, exchange of shares, stock dividend, or other distribution payable in capital stock, or other increase or decrease in such shares effected without receipt of consideration by the Company occurring after the effective date of the Plan, the number and kinds of shares that may be purchased under the Plan shall be adjusted proportionately and accordingly by the Company. In addition, the number and kind of shares for which rights are outstanding shall be similarly adjusted so that the proportionate interest of a participating employee immediately following such event shall, to the extent practicable, be the same as immediately prior to such event. Any such adjustment in outstanding rights shall not change the aggregate Purchase Price payable by a participating employee with respect to shares subject to such rights, but shall include a corresponding proportionate adjustment in the Purchase Price per share.

(b) Reorganization in Which the Company Is the Surviving Corporation

Subject to Subsection (c) of this Section 26, if the Company shall be the surviving corporation in any reorganization, merger or consolidation of the Company with one or more other corporations, all outstanding rights under the Plan shall pertain to and apply to the securities to which a holder of the number of shares of Common Stock subject to such rights would have been entitled immediately following such reorganization, merger or consolidation, with a corresponding proportionate adjustment of the Purchase Price per share so that the aggregate Purchase Price thereafter shall be the same as the aggregate Purchase Price of the shares subject to such rights immediately prior to such reorganization, merger or consolidation.

(c) Reorganization in Which the Company Is Not the Surviving Corporation or Sale of Assets or Stock

Upon any dissolution or liquidation of the Company, or upon a merger, consolidation or reorganization of the Company with one or more other corporations in which the Company is not the surviving corporation, or upon a sale of all or substantially all of the assets of the Company to another corporation, or upon any transaction (including, without limitation, a merger or reorganization in which the Company is the surviving corporation) approved by the Board that results in any person or entity owning more than 80 percent of the combined voting power of all classes of stock of the Company, the Plan and all rights outstanding hereunder shall terminate, except to the extent provision is made in writing in connection with such transaction for the continuation of the Plan and/or the assumption of the rights theretofore granted, or for the substitution for such rights of new rights covering the stock of a successor corporation, or a parent or subsidiary thereof, with appropriate adjustments as to the number and kinds of shares and exercise prices, in which event the Plan and rights theretofore granted shall continue in the manner and under the terms so provided. In the event of any such termination of the Plan, all current Purchase Periods and Offering Periods shall be deemed to have ended on the last trading day prior to such termination, and in accordance with Section 10 above the rights of each participating employee then outstanding shall be deemed to be automatically exercised on such last trading day. The Board shall send written notice of an event that will result in such a termination to all participating employees not later than the time at which the Company gives notice thereof to its stockholders

(d) Adjustments

Adjustments under this Section 26 related to stock or securities of the Company shall be made by the Committee, whose determination in that respect shall be final, binding, and conclusive.

(e) No Limitations on Company

The grant of a right pursuant to the Plan shall not affect or limit in any way the right or power of the Company to make adjustments, reclassifications, reorganizations or changes of its capital or business structure or to merge, consolidate, dissolve or liquidate, or to sell or transfer all or any part of its business or assets.

27. GOVERNMENTAL LAW AND REGULATION

The provisions of the Plan shall be governed by and construed in accordance with the laws of the State of Delaware, without regard to its conflict of law rules.

The Company’s obligation to issue, sell and deliver shares of Common Stock pursuant to the Plan is subject to such approval of any governmental authority and any national securities exchange or other market quotation system as may be required in connection with the authorization, issuance or sale of such shares.

28. SECTION 409A

The 423 Component is exempt from the application of Section 409A of the Code. The Non-423 Component is intended to be exempt from Section 409A of the Code under the short-term deferral exception and any ambiguities shall be construed and interpreted in accordance with such intent. In the case of a participant who would otherwise be subject to Section 409A of the Code, to the extent an option to purchase Shares or the payment, settlement or deferral thereof is subject to Section 409A of the Code, the option to purchase Shares shall be granted, paid, exercised, settled or deferred in a manner that will comply with Section 409A of the Code, including the final regulations and other guidance issued with respect thereto, except as otherwise determined by the Board or the Committee. Notwithstanding the foregoing, the Company shall have no liability to a participant or any other party if the option to purchase Shares under the Plan that is intended to be exempt from or compliant with Section 409A of the Code is not so exempt or compliant or for any action taken by the Board or the Committee with respect thereto.

29. STOCKHOLDER RIGHTS

Any dividends paid on shares held by the Company for a participating employee’s account will be transmitted to the employee. The Company will deliver to each participating employee who purchases shares of Common Stock under the Plan, as promptly as practicable by mail or otherwise, all notices of meetings, proxy statements, proxies and other materials distributed by the Company to its stockholders. Any shares of Common Stock held by the Agent for an employee’s account will be voted in accordance with the employee’s duly delivered and signed proxy instructions. There will be no charge to participating employees in connection with such notices, proxies and other materials.

30. RULE 16B-3

Transactions under this Plan are intended to comply with all applicable conditions of Rule 16b-3 or any successor provision under the Securities Exchange Act of 1934, as amended. If any provision of the Plan or action by the Board fails to so comply, it shall be deemed null and void to the extent permitted by law and deemed advisable by the Board. Moreover, in the event the Plan does not include a provision required by Rule 16b-3 to be stated herein, such provision (other than one relating to eligibility requirements, or the price and amount of awards) shall be deemed automatically to be incorporated by reference into the Plan.

31. PAYMENT OF PLAN EXPENSES

The Company will bear all costs of administering and carrying out the Plan; provided, however, participating employees shall bear all costs incurred subsequent to the issuance of stock certificates pursuant to Section 11.

* * *

This Plan was duly adopted and approved by the Board of Directors on January 24, 2003 and amended by action of the Board or a committee thereof on December 8, 2004, March 3, 2005, May 30, 2006, and September 10, 2010. This Plan, as amended, was approved by action of the stockholders on March 12, 2003, and March 16, 2005. This Plan was further amended and restated by action of the Board on January 20, 2012, and, this Plan, as amended, was approved by action of the stockholders on March 21, 2012. This Plan was further amended and restated by action of the Board on May 24, 2017.

/s/ David M. Rothenstein

Secretary of the Company

Ciena Corporation
Amended and Restated 2003 Employee Stock Purchase Plan
Enrollment Form
&
Supplemental Term and Notifications for International Employees

The Amended and Restated 2003 Employee Stock Purchase Plan ("ESPP") is made available to eligible employees of Ciena Corporation ("Ciena") and its participating Affiliates. The Compensation Committee of the Board of Directors of Ciena may in its absolute discretion limit eligibility and participation of certain Ciena subsidiaries and their employees.

A description of the ESPP can be found in the Prospectus and other materials available on myCiena and the ESPP enrollment platform. By enrolling in the ESPP, you acknowledge receipt of the ESPP, Prospectus and this "Enrollment Form" (which includes the additional country-specific terms in Appendix A attached hereto) and agree to be bound by the terms thereof as a condition of enrollment.

Employees outside of the U.S., or who are subject to tax jurisdictions outside the U.S., should carefully evaluate their participation in this U.S.-based program to ensure they understand its impact on their personal income tax situations. Additional terms for international employees are set forth below in addition to any country-specific appendix. Capitalized terms not defined herein shall have the meanings assigned to such terms in the ESPP and the Prospectus.

Contribution Limits
Each pay period, employees may contribute up to 10% of eligible base compensation for payroll deductions under the ESPP. In either case, an employee will not be allowed to purchase more than USD 25,000 worth of Common Stock in a calendar year based on the fair market value of Ciena's Common Stock on an employee's Offer Date. If an employee purchases the maximum number of shares of Common Stock allowed before using all of the funds they have contributed to the ESPP, excess payroll deductions will be refunded to the employee.

Payroll Deductions
Many employees outside of the U.S. are paid at the end of each month. Contributions for the U.S.-based June purchase will be withheld from amounts received in the international December through May payrolls on a monthly basis. Contributions for the December purchase will be withheld from amounts received in the international June - November payrolls on a monthly basis.

Exchange Rate
ESPP contributions in non-U.S. dollars will be converted to U.S. dollars at the end of each Purchase Period using the exchange rate in effect at the end of the fiscal month immediately preceding the Purchase Date. For example, the exchange rate in effect on May 26, 2017, would be used for the June 15, 2017, ESPP purchase. Neither Ciena nor any participating Affiliate shall be liable for any foreign exchange rate fluctuation between the local currency of the employee's employer ("Employer") and the U.S. dollar that may affect (i) the conversion of the employee's ESPP contributions to purchase shares of Common Stock; (ii) the proceeds due to the employee upon purchase of the shares of Common Stock; or (iii) the sale of the shares of Common Stock acquired at purchase.

Sale of Shares of Common Stock Acquired through the ESPP
Shares of Common Stock acquired through the ESPP are placed in a limited purpose brokerage account with E*TRADE Securities, LLC (E*TRADE). E*TRADE will e-mail a Welcome Packet to newly enrolled ESPP participants prior to their first purchase. Before the employee will be allowed to sell shares of Common Stock acquired through the ESPP, he or she must complete and return the required tax identification and account set-up forms with original signatures to E*TRADE. Questions about these forms and the sale process should be directed to E*TRADE Securities, LLC at: 001-800-775-2793.

Responsibility for Taxes
Regardless of any action Ciena and/or the Employer takes with respect to any or all income tax, social insurance, payroll tax, payment on account or other tax-related items related to the employee's participation in the ESPP and legally applicable to the employee ("Tax-Related Items"), the employee acknowledges that the ultimate liability for all Tax-Related Items is and remains his or her responsibility and may exceed the amount, if any, actually withheld by Ciena or the Employer. The employee further acknowledges that Ciena and/or the Employer (1) make no representations or undertakings regarding the treatment of any Tax-

Related Items in connection with any aspect of the ESPP, including but not limited to, the purchase of shares of Common Stock, the issuance of shares of Common Stock pursuant to the purchase, the sale of shares of Common Stock acquired under the ESPP, or the receipt of any dividends; and (2) do not commit to and are under no obligation to structure the terms of the grant or any aspect of the employee's ESPP participation to reduce or eliminate the employee's liability for Tax-Related Items or achieve any particular tax result. Further, if the employee has become subject to tax in more than one jurisdiction, the employee acknowledges that Ciena and/or the Employer (or former employer, as applicable) may be required to withhold or account for Tax-Related Items in more than one jurisdiction.

Prior to any relevant taxable or tax withholding event, the employee will pay or make adequate arrangements satisfactory to Ciena and/or the Employer to satisfy all Tax-Related Items. In this regard, the employee authorizes Ciena and/or the Employer, or their respective agents, at their discretion, to satisfy the obligations with regard to all Tax-Related Items by one or a combination of the following:

(1) requiring the employee to pay an amount necessary to pay the Tax-Related Items to Ciena and/or the Employer in the form of cash, check or other cash equivalent; or

(2) withholding from the employee's wages or other cash compensation paid to the employee by Ciena and/or the Employer; or

(3) withholding from proceeds of the sale of shares of Common Stock acquired upon purchase either through a voluntary sale or through a mandatory sale arranged by Ciena (on employee's behalf pursuant to this authorization); or

(4) withholding in shares of Common Stock to be issued upon purchase.

If the employee is subject to the short-swing profit rules of Section 16(b) of the U.S. Securities and Exchange Act of 1934, as amended, then the Committee shall establish the method of withholding from alternatives (1) - (4) above.

Ciena may withhold or account for Tax-Related Items by considering applicable withholding rates, including maximum applicable rates to the extent permitted by the ESPP, in which case the employee may receive a refund of any over-withheld amount in cash and will have no entitlement to the Common Stock equivalent. If the obligation for Tax-Related Items is satisfied by withholding in shares of Common Stock, for tax purposes, employee is deemed to have been issued the full number of shares of Common Stock subject to the purchase, notwithstanding that a number of the shares of Common Stock are held back solely for the purpose of paying the Tax-Related Items due as a result of any aspect of the employee's participation in the ESPP.

Finally, the employee shall pay to Ciena or the Employer any amount of Tax-Related Items that Ciena or the Employer may be required to withhold or account for as a result of the employee's participation in the ESPP that cannot be satisfied by the means previously described. Ciena may refuse to purchase or deliver the shares of Common Stock or the proceeds of the sale of shares of Common Stock, if employee fails to comply with his or her obligations in connection with the Tax-Related Items.

Nature of Grant

By enrolling and participating in the ESPP, the employee acknowledges, understands and agrees that:

(a) the ESPP is established voluntarily by Ciena, it is discretionary in nature, and it may be modified, amended, suspended, or terminated by Ciena at any time as described in the ESPP;

(b) the grant of the offer to purchase Common Stock under the ESPP ("Purchase Right") is voluntary and occasional and does not create any contractual or other right to participate in any future ESPP offerings, or benefits in lieu of the ESPP, even if the ESPP has been granted in the past;

(c) all decisions with respect to future ESPP offerings, if any, will be at the sole discretion of Ciena;

(d) the employee's participation in the ESPP shall not create a right to further employment with the Employer and shall not interfere with the ability of the Employer to terminate employee's employment or service relationship at any time;

(e) the employee is voluntarily participating in the ESPP;

(f) the Purchase Rights and the shares of Common Stock subject to the Purchase Rights, and income from and value of such Purchase Rights, are extraordinary items that do not constitute compensation of any kind for services of any kind rendered to Ciena or the Employer, and which are outside the scope of employee's employment or service contract, if any;

(g) the Purchase Rights and the shares of Common Stock subject to the Purchase Rights, and the income from and value of such Purchase Rights, are not intended to replace any pension rights;

(h) the Purchase Rights and the shares of Common Stock subject to the Purchase Rights, and the income from and value of such Purchase Rights, are not part of normal or expected compensation or salary for any purposes, including, but not limited to, calculating any severance, resignation, termination, redundancy, dismissal, end of service payments, bonuses, holiday pay, long-service awards, pension or retirement or welfare benefits or similar payments and in no event should be considered as compensation for, or relating in any way to, past services for Ciena, the Employer or any participating Affiliate;

(i) the Purchase Rights and employee's participation in the ESPP will not be interpreted to form or amend an employment or service contract or relationship with Ciena or any participating Affiliate;

(j) the future value of the underlying shares of Common Stock is unknown and cannot be predicted with certainty;

(k) the value of the shares of Common Stock purchased under the ESPP, may increase or decrease, even below the Purchase Price;

(l) no claim or entitlement to compensation or damages shall arise from forfeiture of the Purchase Rights resulting from termination of employee's employment by Ciena or the Employer (for any reason whatsoever and whether or not in breach of contract or any employment law in the country where the employee resides, even if otherwise applicable to the employee's employment benefits from the Employer, and whether or not later found to be invalid) and in consideration of the grant of the Purchase Rights, the employee irrevocably agrees not to institute any claim against Ciena, the Employer or any Affiliate, waives his or her ability, if any, to bring any such claim, and releases Ciena, the Employer and any Affiliate from any such claim; if, notwithstanding the foregoing, any such claim is allowed by a court of competent jurisdiction, then, by participating in the ESPP, the employee shall be deemed irrevocably to have agreed not to pursue such claim and agrees to execute any and all documents necessary to request dismissal or withdrawal of such claims;

(m) in the event of termination of employee's employment (whether or not in breach of contract or any employment law in the country where the employee resides, even if otherwise applicable to the employee's employment benefits from the Employer, and whether or not later found to be invalid), the employee's right to participate in the ESPP and his or her right to receive shares of Common Stock, if any, will terminate effective as of the date that the employee is no longer actively employed and will not be extended by any notice period mandated under local law (e.g., active employment would not include a period of "garden leave" or similar period); the Board and/or the Committee, as applicable, shall have the exclusive discretion to determine when the employee is no longer actively employed for purposes of his or her participation in the ESPP;

(n) unless otherwise agreed with Ciena, the Purchase Rights and the shares of Common Stock subject to the Purchase Rights, and the income from and value of the Purchase Rights, are not granted as consideration for, or in connection with, the service the employee may provide as a director of an Affiliate of Ciena; and

(o) the right to purchase shares of Common Stock and participate in the ESPP do not create any entitlement, not otherwise specifically provided for in the ESPP or by Ciena in its discretion, to have the right to purchase share of Common Stock or the Common Stock acquired upon purchase transferred to, or assumed by, another company, nor to be exchanged, cashed out or substituted for, in connection with any corporate transaction affecting the Common Stock;

Data Privacy

The employee hereby explicitly and unambiguously consents to the collection, use, and transfer, in electronic or other form, of employee's personal data as described in this Enrollment Form or any other ESPP materials by and among, as applicable, the Employer, Ciena, and its participating Affiliates for the exclusive purpose of implementing, administering, and managing employee's participation in the ESPP.

The employee understands that Ciena and the Employer hold certain personal information about the employee, including, but not limited to, employee's name, home address, email address and telephone number, date of birth, social insurance number, passport number or other identification number, salary, nationality, job title, any shares of Common Stock or directorships held in Ciena, details of all Purchase Rights or any other entitlement to shares of Common Stock awarded, canceled, purchased,

exercised, vested, unvested, or outstanding in the employee's favor, for the exclusive purpose of implementing, administering and managing the ESPP ("Data").

The employee understands that Data may be transferred to E*TRADE Financial Services, Inc., or such other stock plan service provider as may be selected by Ciena in the future, which is assisting Ciena with the implementation, administration, and management of the ESPP. The employee understands that the recipients may be located in the United States or elsewhere, and that the recipients' country (e.g., the United States) may have different data privacy laws and protections than employee's country. The employee understands that he or she may request a list with the names and addresses of any potential recipients of the Data by contacting his or her local human resources representative. The employee authorizes Ciena, E*TRADE Financial Services, Inc., and any other possible recipients which may assist Ciena (presently or in the future) with implementing, administering, and managing the ESPP to receive, possess, use, retain, and transfer the Data, in electronic or other form, for the sole purpose of implementing, administering, and managing his or her participation in the ESPP. The employee understands that Data will be held only as long as is necessary to implement, administer, and manage the employee's participation in the ESPP. The Employee understands that he or she may, at any time, view Data, request information about the storage and processing of Data, require any necessary amendments to Data, or refuse or withdraw the consents herein, in any case without cost, by contacting in writing his or her local human resources representative or Ciena's stock administration department. Further, the employee understands that he or she is providing the consent herein on a purely voluntary basis. If the employee does not consent, or if he or she later revokes consent, the employee's employment status or service with the Employer will not be affected; the only consequence of refusing or withdrawing his or her consent is that Ciena would not be able to grant Purchase Rights to the employee or administer or maintain such awards. Therefore, the employee understands that refusing or withdrawing his or her consent may affect employee's ability to participate in the ESPP. For more information on the consequences of employee's refusal to consent or withdrawal of consent, the employee understands that he or she may contact his or her local human resources representative or Ciena's stock administration department.

No Advice Regarding Grant

Ciena is not providing any tax, legal or financial advice, nor is Ciena making any recommendations regarding employee's participation in the ESPP, or employee's acquisition or sale of the underlying shares of Common Stock. The employee is hereby advised to consult with his or her own personal tax, legal, and financial advisors regarding his or her participation in the ESPP before taking any action related to the ESPP.

Governing Law and Venue

The ESPP and the provisions of this Enrollment Form are governed by, and subject to, the laws of the State of Delaware, without regard to the conflict of law provisions. For purposes of litigating any dispute that arises directly or indirectly from the relationship of the parties evidenced by this grant of Purchase Rights or this Enrollment Form, the parties hereby submit to and consent to the exclusive jurisdiction of the State of Maryland and agree that such litigation shall be conducted only in the courts of Maryland, or the federal courts for the District of Maryland and no other courts, where this offer is made and/or to be performed.

Electronic Delivery and Acceptance

Ciena may, in its sole discretion, decide to deliver any documents related to current or future participation in the ESPP by electronic means. The employee hereby consents to receive such documents by electronic delivery and agrees to participate in the ESPP through an on-line or electronic system established and maintained by Ciena or another third party designated by Ciena.

Language

If the employee has received this Enrollment Form or any other document related to the ESPP translated into a language other than English and if the meaning of the translated version is different than the English version, the English version will control.

Severability

The provisions of this Enrollment Form are severable and if any one or more provisions are determined to be illegal or otherwise unenforceable, in whole or in part, the remaining provisions shall nevertheless be binding and enforceable.

Waiver

The employee acknowledges that a waiver by Ciena or breach of any provision of this Enrollment Form shall not operate or be construed as a waiver of any other provision of this Enrollment Form, or of any subsequent breach of this Enrollment Form.

Country-Specific Provisions: Appendix A

Notwithstanding any provisions in this Enrollment Form, the ESPP shall be subject to any additional terms and conditions set forth in any Appendix A to this Enrollment Form for employee's country. Moreover, if the employee relocates to one of the countries included in the Appendix A, the terms and conditions for such country will apply to the employee, to the extent Ciena determines that the application of such terms and conditions are necessary or advisable for legal or administrative reasons. The Appendix A constitutes part of this Enrollment Form.

Foreign Account / Assets Reporting and Exchange Controls

Depending upon the laws of the country to which the employee is subject, he or she may have certain foreign asset and/or account reporting requirements and exchange controls which may affect his or her ability to acquire or hold shares of Common Stock under the ESPP or cash received from participating in the ESPP (including from any dividends received or sale proceeds arising from the sale of shares of Common Stock) in a brokerage or bank account outside his or her country of residence. The employee's country may require that he or she report such accounts, assets or transactions to the applicable authorities in his or her country. The employee may be required to repatriate sale proceeds or other funds received as a result of his or her participation in the ESPP to his or her country through a designated bank or broker within a certain time after receipt. The employee is responsible for knowledge of and compliance with any such regulations and should speak with his or her own personal tax, legal and financial advisors regarding the same.

Insider Trading / Market Abuse Laws

The employee acknowledges that, depending on his or her country, the employee may be subject to insider trading restrictions and/or market abuse laws, which may affect his or her ability to acquire or sell shares of Common Stock or rights to shares of Common Stock (e.g., Purchase Rights) under the ESPP during such times as he or she is considered to have "inside information" regarding Ciena (as defined by the laws in his or her country). Any restrictions under these laws or regulations are separate from and in addition to any restrictions that may be imposed under any applicable insider trading policy of Ciena. The employee acknowledges that it is his or her responsibility to comply with any applicable restrictions, and he or she should consult with his or her own personal legal and financial advisors on this matter.

Imposition of Other Requirements

Ciena reserves the right to impose other requirements on employee's participation in the ESPP, on the ESPP offering, and on any shares of Common Stock purchased under the ESPP, to the extent Ciena determines it is necessary or advisable for legal or administrative reasons, and to require the employee to sign any additional agreements or undertakings that may be necessary to accomplish the foregoing.

THE EMPLOYEE UNDERSTANDS THAT THIS ENROLLMENT FORM SHALL REMAIN IN EFFECT THROUGHOUT SUCCESSIVE OFFERING PERIODS UNLESS TERMINATED BY CIENA OR THE EMPLOYEE, OR THE EMPLOYEE BECOMES INELIGIBLE TO PARTICIPATE IN THE ESPP DUE TO TERMINATION OF EMPLOYMENT OR OTHERWISE. UPON TERMINATION OF EMPLOYMENT, THE EMPLOYEE'S ACCUMULATED PAYROLL DEDUCTIONS, IF ANY, SHALL BE RETURNED WITHOUT INTEREST.

The employee's acceptance of this offer and participation in the ESPP indicates that he or she has read the information provided to the employee regarding the ESPP, including this Enrollment Form, and authorizes deductions of employee's contribution from his or her base salary allocable to the Offering Period on an after-tax basis as indicated above and agrees to be bound by the terms and conditions of the ESPP and this Enrollment Form. Any changes to the above instruction must be provided in writing and sent to the appropriate benefits department for processing.

For additional information about the ESPP, please refer to the ESPP Prospectus or FAQ available on myCiena. The employee may also contact Ciena's Benefits Department at 410-981-7322 or via email at benefits@ciena.com.

Ciena Corporation
Amended and Restated 2003 Employee Stock Purchase Plan

Appendix A
Country-Specific Provisions for International Employees

Terms and Conditions

The following sections of this Appendix A include additional terms and conditions applicable to ESPP participants in the countries covered by the following sections. These terms and conditions are in addition to or, if so indicated, in replacement of the terms and conditions set forth in the Enrollment Form. Any capitalized term used in this Appendix A without definition shall have the meaning ascribed to such term in the ESPP or the main body of the Enrollment Form, as applicable.

Notifications

The information in this Appendix A is based on the exchange control, securities and other laws in effect in the respective countries as of May 2017. Such laws are often complex and change frequently. As a result, Ciena strongly recommends that the employee should not rely on the information herein as the only source of information relating to the consequences of participation in the ESPP because the information may be out of date at the time shares of Common Stock are purchased under the ESPP or are sold. If the employee resides outside of the U.S. or is on assignment outside of the U.S., exchange control reporting or filing obligations (especially with respect to currency transfers) may apply at the time of the purchase of shares of Common Stock or sale of the shares of Common Stock. The employee should determine whether these obligations, if any, apply prior to the purchase and sale of shares of Common Stock. In addition, the information is general in nature and might not apply to the employee's particular situation, and Ciena is not in a position to assure the employee of any particular result. Accordingly, the employee is advised to seek appropriate professional advice as to how the relevant laws in the employee's country may apply to his or her situation.

Finally, note that if the employee is a citizen or resident of a country other than the one he or she is working and/or residing, or is considered a resident of another country for local law purposes or if the employee transfers employment and/or residency to another country after the offer to participate in the ESPP has been granted to the employee, the information contained herein may not be applicable to the employee in the same manner. In addition, Ciena shall, in its sole discretion, determine to what extent the additional terms and conditions included herein will apply to the employee under these circumstances.

ALL EUROPEAN ECONOMIC AREA COUNTRIES

Terms and Conditions

Securities Law Requirements. If the employee resides and/or works in a country located in the European Economic Area ("EEA"), his or her participation in the ESPP may be limited as a result of applicable securities laws. Specifically, contributions from all ESPP participants residing and/or working in the EEA will be limited to less than an aggregate amount of €5 million on an annual basis. It is also possible that certain other equity awards in the EEA will count against this €5 million threshold. If ESPP participants in the EEA elect to contribute more than this amount during any year, contribution rates will be prorated to ensure that this threshold is not exceeded. If the employee's participation will be prorated, he or she understands that he or she will receive a notice from the Company explaining the proration.

AUSTRALIA

Notifications

Australian Offer Document. The offering of the ESPP in Australia is intended to comply with the provisions of the Corporations Act 2001, Australian Securities & Investments Commission ("ASIC") Regulatory Guide 49 and ASIC Class Order CO 14/1000. Additional details are set forth in the Offer Document, which is being provided along with the Enrollment Form.

AUSTRIA

Terms and Conditions

Interest Waiver. By participating in the ESPP and accepting the ESPP offer, the employee unambiguously consents to waive his or her right to any interest arising in relation to the payroll deductions taken from the employee's base salary allocable to the Offering Period in connection with his or her participation in the ESPP.

BELGIUM

Notifications

Authorization to Remit Eligible Cash Earnings. For Belgian law purposes, "payroll deductions" means a specific instruction by the employee to the Employer to pay out part of his or her base salary allocable to the Offering Period in order to fund the Purchase Price for the shares of Common Stock, in accordance with the terms and conditions of the ESPP.

Foreign Account / Assets Reporting Information. If the employee is a Belgian resident, he or she is required to report any taxable income attributable to the grant of the Purchase Right on his or her annual tax return. In addition, the employee is required to report any security (e.g., shares of Common Stock acquired under the ESPP) or bank accounts (including brokerage accounts) opened and maintained outside Belgium on his or her annual tax return. In a separate report, the employee is also required to provide the Central Contact Point of the National Bank of Belgium with details regarding any such account, including the account number, the name of the bank in which such account is held and the country in which such account is located the first time he or she reports the foreign security and/or bank account on his or her annual tax return. The forms to complete this report are available on the website of the National Bank of Belgium.

Undertaking. Under current Belgian tax law, employees may execute an undertaking to hold the shares of Common Stock for two years from the Purchase Date to obtain certain tax treatment for the ESPP income. If an employee is interested in finding out more information about the tax treatment of the ESPP income, he or she should check with his or her personal tax advisor.

If an employee wishes to take advantage of this two-year hold agreement, he or she should complete the Undertaking form available on the next page. The employee should keep a copy of the Undertaking for his or her records and include a copy of the Undertaking when filing his or her income tax return.

(Undertaking on next page)

Ciena Corporation

Amended and Restated Employee Stock Purchase Plan

Undertaking

For Participants in Belgium

The undersigned has been offered the possibility to participate in the Ciena Corporation Amended and Restated Employee Stock Purchase Plan (the "ESPP") and has therefore the possibility, on each Purchase Date of the Offering Period (as defined in the Prospectus), to purchase a certain number of shares of Common Stock in Ciena Corporation.

For Belgian tax purposes, the undersigned hereby undertakes to hold the shares of Common Stock purchased on each respective Purchase Date for a period of at least two years commencing on the respective Purchase Date.

Name: ____

Address: ____

Date: ____

____

Signature

CANADA

Terms and Conditions

Termination of Employment. This provision replaces the Nature of Grant subsection (m) provision of the Enrollment Form:

In the event of the employee's termination of employment or service to Ciena or any of its participating Affiliates for any reason (whether or not in breach of local labor laws and whether or not later found to be invalid), the employee's right to participate in the ESPP and his or her right to receive shares of Common Stock, if any, will terminate effective as of the date that is the earlier of (1) the date the employee receives notice of termination of employment from his or her Employer, or (2) the date the employee is no longer actively employed, regardless of any notice period or period of pay in lieu of such notice required for Canadian employment law purposes (including, but not limited to Canadian statutory law, regulatory law and/or common law), even if otherwise applicable to the employee's employment benefits from the Employer; Ciena shall have the exclusive discretion to determine when the employee is no longer actively employed for purposes of his or her participation in the ESPP.

The following provisions will apply to the employee if he or she is a resident of Quebec:

Language Consent. The parties acknowledge that it is their express wish that the Enrollment Form, including this Appendix A, as well as all documents, notices, and legal proceedings entered into, given or instituted pursuant hereto or relating directly or indirectly hereto, be drawn up in English.

Les parties reconnaissent avoir exige la redaction en anglais de cette convention («Enrollment Form») ainsi que cette Annexe A, ainsi que de tous documents, avis et procedures judiciaires, executes, donnes ou intentes en vertu de, ou lies directement ou indirectement a, la presente convention.

Data Privacy Notice and Consent. This provision supplements the Data Privacy section of the Enrollment Form:

The employee hereby authorizes Ciena and Ciena's representatives to discuss with and obtain all relevant information from all personnel, professional or non-professional, involved in the administration of the ESPP. The employee further authorizes Ciena, its participating Affiliates and any stock plan service provider that may be selected by Ciena to assist with the ESPP to disclose and discuss the ESPP with their advisors. The employee also authorizes Ciena and its participating Affiliates to record such information and to keep such information in his or her file.

Notifications

Securities Law Information. The employee is permitted to sell shares of Common Stock acquired through the ESPP through the designated broker appointed under the ESPP, if any, provided the resale of shares of Common Stock acquired under the ESPP takes place outside of Canada through the facilities of a stock exchange on which the Common Stock is listed. Currently, the Common Stock is listed on the New York Stock Exchange.

Foreign Account / Assets Reporting Information. Specified foreign property, including Purchase Rights, shares of Common Stock acquired under the ESPP and other rights to receive shares (e.g., Purchase Rights) of a non-Canadian company held by a Canadian resident must generally be reported annually on a Form T1135 (Foreign Income Verification Statement) if the total cost of the foreign property exceeds CAD 100,000 at any time during the year. Thus, such Purchase Rights must be reported - generally at a nil cost - if the CAD 100,000 cost threshold is exceeded because other specified foreign property is held by the employee. When shares of Common Stock are acquired, their cost generally is the adjusted cost base ("ACB") of the shares. The ACB would ordinarily equal the fair market value of the shares at the time of acquisition, but if the employee owns other shares of the same company, this ACB may have to be averaged with the ACB of the other shares. The employee should consult with his or her personal tax advisor to determine his or her reporting requirements.

DENMARK

Terms and Conditions

Stock Options Act. The employee acknowledges that he or she received an Employer Statement in Danish which sets forth the terms of the Purchase Rights under the Act on Stock Options.

Notifications

Exchange Control and Tax Reporting Information. The employee must complete a "Declaration V" form in connection with the deposit of any securities (including shares of Common Stock acquired under the ESPP) into a bank or brokerage account outside of Denmark. The form is available on the website of the Danish Tax Authorities. In connection with filing Declaration V to the Danish Tax Authorities, the bank or broker with which the securities are deposited (the "depositary") may sign a statement according to which the depositary undertakes an obligation, without further request, to forward certain information concerning the shares on an annual basis to the Danish Tax Authorities. However, if the depositary will not agree to sign such a statement the employee is personally responsible for submitting the required information as an attachment to his or her annual tax return. It is only necessary to submit a Declaration V form the first time securities are deposited with a depositary outside of Denmark. However, if the securities are transferred to a different depositary or if you begin using a new depositary, a new Declaration V is required. Generally, the Declaration V must be submitted by the depositary no later than on February 1 of the year following the calendar year to which the information relates. However, if the employee is responsible for submitting the information, he or she must submit the required information as an attachment to his or her annual tax return.

In addition, if the employee holds shares of Common Stock or cash in an account outside of Denmark, he or she is required to report the existence of such an account to the Danish Tax Authorities by completing a "Declaration K" form and submitting it to the Danish Tax Authorities following opening of the account. The form is available on the website of the Danish Tax Authorities. A separate form must be submitted for each account held outside of Denmark that holds shares of Stock or cash which are taxable in Denmark. The Declaration K requirement is in addition to the Declaration V requirement discussed above. The employee should consult with his or her personal legal advisor to ensure compliance with the applicable requirements.

FRANCE

Terms and Conditions

Payroll Deduction Authorization. The employee hereby authorizes payroll deductions from each paycheck in that percentage of his or her base salary or flat payment amount (if permitted by Ciena) allocable to the Offering Period (up to 10%) as selected during the enrollment process and in accordance with the terms and conditions of the ESPP, and as the employee may change from time to time in accordance with the ESPP.

Autorisation Relative Aux Retenues Sur Salaire. L'employé par ceci autorise les retenues sur salaire de chaque paie en ce pourcentage du salaire de base alloué à la Période D'offre (jusqu'à 10%), ainsi élu lors de la souscription et en conformité avec les termes et conditions du Plan d'Achat d'Actions, et comme l'employé peut le changer de temps en temps en conformité avec le Plan d'Achat d'Actions.

Language Consent. By accepting the terms and conditions of the Enrollment Form, the employee confirms having read and understood the documents relating to this grant of the offer to purchase shares of Common Stock (the ESPP, the Enrollment Form, and this Appendix A) which were provided to the employee in the English language. The employee accepts the terms of these documents accordingly.

Consentement Relatif à la Langue Utilisée.: En acceptant les termes et conditions du Contrat de Souscription, l'employé confirme ainsi avoir lu et compris les documents relatifs à cette attribution du droit d'achat d'Actions Cotées en Bourse (le Plan d'Achat d'Actions, le Contrat de Souscription, et la présente Annexe A) qui ont été fournis á l'employé dans la langue anglaise. L'employé accepte les termes de ces documents en connaissance de cause.

Notifications

Foreign Account / Assets Reporting Information. The employee may hold shares of Common Stock acquired under the ESPP outside of France provided that he or she declares all foreign accounts, whether open, current, or closed in his or her income tax return. Failure to comply could trigger significant penalties.

GERMANY

There are no country-specific provisions.

INDIA

Notifications

Exchange Control Information. Indian resident employees must repatriate all proceeds resulting from the sale of shares of Common Stock acquired under the ESPP to India within 90 days of receipt and all proceeds from the receipt of cash dividends within 180 days of receipt, or within any other time frame prescribed under applicable Indian exchange control laws as may be amended from time to time. Indian resident employees will receive a foreign inward remittance certificate ("FIRC") from the bank where he or she deposits the foreign currency. The employee should maintain the FIRC as evidence of the repatriation of funds in the event the Reserve Bank of India or the Employer requests proof of repatriation. The employee is responsible for complying with applicable exchange control laws in India.

IRELAND

Terms and Conditions

Nature of Grant. This provision supplements the Nature of Grant section of the Enrollment Form:

By participating in the ESPP and making enrollment elections, the employee acknowledges, understands and agrees that the benefits received under the ESPP will not be taken into account for any redundancy or unfair dismissal claim.

Notifications

Director Notification Information. If the employee is a director, shadow director, or secretary of an Irish Affiliate, pursuant to the Companies Act 2014, he or she must (a) notify that Affiliate in writing if he or she receives or disposes of an interest exceeding in the aggregate 1% of the share capital of Ciena (e.g., Purchase Rights, shares of Common Stock or debenture), (b) if he or she becomes aware of the event giving rise to the notification requirement, or (c) if he or she becomes a director or secretary if such an interest exceeding in the aggregate 1% of the share capital of Ciena exists at the time. This notification requirement also applies with respect to the interests of a spouse, civil partner, or minor children (whose interests will be attributed to the director, shadow director, or secretary). The employee should consult his or her personal legal advisor to ensure compliance with the applicable requirements.

ISRAEL

Terms and Conditions

Mandatory Sale Restriction. The employee agrees to the sale of any shares of Common Stock acquired under the ESPP if Ciena, in its sole discretion, determines that such sale is necessary in order to facilitate compliance with tax withholding obligations in Israel. The sale will occur (i) immediately upon purchase, (ii) following his or her termination of employment or service, or (iii) within any other time frame as Ciena determines to be necessary to comply with local tax requirements. The employee further agrees that Ciena is authorized to instruct its designated broker to assist with the mandatory sale of such shares of Common Stock (on his or her behalf pursuant to this authorization) and the employee expressly authorizes Ciena's designated broker to complete the sale of such shares of Common Stock. The employee acknowledges that Ciena's designated broker is under no obligation to arrange for the sale of the shares of Common Stock at any particular price. Upon the sale of the shares of Common Stock, Ciena agrees to pay the employee the cash proceeds from the sale, less any brokerage fees or commissions and subject to any obligation to satisfy the Tax-Related Items.

The employee further agrees that any shares of Common Stock to be issued to the employee shall be deposited directly into an account with Ciena's designated broker. The deposited shares of Common Stock shall not be transferable (either electronically or in certificate form) from the brokerage account. This limitation shall apply both to transfers to different accounts with the same broker and to transfers to other brokerage firms. The limitation shall apply to all shares of Common Stock issued to the employee under the ESPP, whether or not he or she remains employed.\

JAPAN

Notifications

Foreign Account / Assets Reporting Information. Japanese residents are required to report details of any assets held outside of Japan as of December 31st (including shares of Common Stock acquired under the ESPP), to the extent such assets have a total net fair market value exceeding ¥50 million. Such report will be due by March 15th each year. The employee should consult with his or her personal tax advisor as to whether the reporting obligation applies to him or her and whether he or she will be required to report details of his or her outstanding Purchase Rights, as well as shares of Common Stock, in the report.

KOREA

Terms and Conditions

Power of Attorney. By enrolling in the ESPP and making his or her online enrollment elections, the employee agrees to the provisions of the attached Power of Attorney appointing each of the entities described therein (acting individually without the other) as the employee's attorney-in-fact for the purposes described therein and the employee ratifies and confirms as his or her own act and deed all that either such representative may do or cause to be done by virtue of the Power of Attorney. Further, the employee agrees to execute a separate Power of Attorney (in a form substantially the same as the attached) at Ciena's request, if Ciena's determines that a separate Power of Attorney is required or desirable in order to allow the employee's continued participation in the ESPP.

Notifications

Foreign Asset/Account Reporting Information. Korean residents are required to declare all foreign financial accounts (i.e., non-Korean bank accounts, brokerage accounts, etc.) to the Korean tax authority and file a report with respect to such accounts if the value of such accounts exceeds KRW 1 billion (or an equivalent amount in foreign currency) on any month-end date during a calendar year.

ATTACHMENT TO APPENDIX A FOR KOREA

POWER OF ATTORNEY
FOR EMPLOYEES IN KOREA PARTICIPATING IN
THE CIENA CORPORATION AMENDED AND RESTATED 2003 EMPLOYEE STOCK PURCHASE PLAN ("ESPP")

I, an employee working for Ciena (Asia) Limited (Korea Branch), a branch of Ciena (Asia) Limited, a company organized under the laws of Hong Kong with principal offices at Unit D, 16/F, 169 Electric Road, Hong Kong, do hereby appoint attorney-in-fact, Ciena (Asia) Limited (Korea Branch), through their respective duly appointed representative(s), as my true and lawful attorney, with full power and authority to do the following:

(1) To prepare, execute and file any report/application and all other documents required for implementation of the ESPP, as amended from time to time in Korea;

(2) To take any action that may be necessary or appropriate for implementation of the ESPP with the competent Korean authorities, including but not limited to the transfer of my payroll deductions through a foreign exchange bank; and

(3) To constitute and appoint, in its place and stead, and as its substitute, one or more representatives, with power of revocation.

I hereby ratify and confirm as my own act and deed all that such representative may do or cause to be done by virtue of this instrument.

IN WITNESS WHEREOF, I have caused this Power of Attorney to be executed in my name this _____ day of ___________, _____.

By: ________________________________
(Signature)

MEXICO

Terms and Conditions

Acknowledgement of the Enrollment Form. By accepting the grant of Purchase Rights, the employee acknowledges that he or she has received a copy of the ESPP and the Enrollment Form, including this Appendix A, which the employee has reviewed. The employee acknowledges further that he or she accepts all the provisions of the ESPP and the Enrollment Form, including this Appendix A. The employee also acknowledges that he or she has read and specifically and expressly approves the terms and conditions set forth in the Nature of Grant section of the Enrollment Form, which clearly provide as follows:

(1) The employee's participation in the ESPP does not constitute an acquired right;

(2) The ESPP and the employee's participation in it are offered by Ciena on a wholly discretionary basis;

(3) The employee's participation in the ESPP is voluntary; and

(4) Ciena and its participating Affiliates are not responsible for any decrease in the value of any shares of Common Stock acquired at purchase.

Labor Law Acknowledgement and Policy Statement. By accepting the grant of Purchase Rights, the employee acknowledges that Ciena Corporation, with registered offices at 7035 Ridge Road, Hanover, Maryland 21076, U.S.A., is solely responsible for the administration of the ESPP. The employee further acknowledges that his or her participation in the ESPP, the grant of Purchase Rights and any acquisition of shares of Common Stock under the ESPP do not constitute an employment relationship between the employee and Ciena Corporation because the employee is participating in the ESPP on a wholly commercial basis and his sole employer is Ciena Communications Mexico S.A. de C.V. or Ciena Mexico S.A. de C.V ("Ciena-Mexico"), as applicable. Based on the foregoing, the employee expressly acknowledges that the ESPP and the benefits that the employee may derive from his or her participation in the ESPP do not establish any rights between the employee and Ciena-Mexico, and do not form part of the employment conditions and/or benefits provided by Ciena-Mexico, and any modification of the ESPP or its termination shall not constitute a change or impairment of the terms and conditions of the employee's employment.

The employee further understands that his or her participation in the ESPP is the result of a unilateral and discretionary decision of Ciena Corporation and therefore, Ciena Corporation reserves the absolute right to amend and/or discontinue his or her participation in the ESPP at any time, without any liability to the employee.

Finally, the employee hereby declares that he or she does not reserve to him- or herself any action or right to bring any claim against Ciena Corporation for any compensation or damages regarding any provision of the ESPP or the benefits derived under the ESPP, and the employee therefore grants a full and broad release to Ciena Corporation, its subsidiaries, affiliates, branches, representation offices, shareholders, officers, agents and legal representatives, with respect to any claim that may arise.

Spanish Translation

Reconocimiento del Acuerdo de Inscripción

Al aceptar el otorgamiento de Derechos de Compra, el empleado reconoce que ha recibido una copia del ESPP y del Acuerdo de Inscripción, incluyendo este Anexo A, los mismos que el empleado ha revisado. El empleado reconoce, además, que acepta todas las disposiciones del ESPP y del Acuerdo de Inscripción, incluyendo este Anexo A. Además, el empleado reconoce que ha leído y que específica y expresamente aprueba de los términos y las condiciones establecidos en el apartado intitulado Naturaleza del Otorgamiento del Acuerdo de Inscripción, que claramente dispone lo siguiente:

(1) La participación del empleado en el ESPP no constituye un derecho adquirido;

(2) El ESPP y la participación del empleado en el ESPP son ofrecidos por Ciena sobre una base totalmente discrecional;

(3) La participación del empleado en el ESPP es voluntaria; y

(4) Ciena y sus Afiliadas no son responsables por ninguna disminución en el valor de cualquier de las Acciones Ordinarias adquiridas en el momento de la compra.

Reconocimiento de Ley Laboral y Declaración de Política

Al aceptar el otorgamiento de los Derechos de Compra, el empleado reconoce que Ciena Corporation, con oficinas registradas en 7035 Ridge Road, Hanover, Maryland 21076, Estados Unidos de América, es únicamente responsable por la administración del ESPP. Además, el empleado reconoce que su participación en el ESPP, el otorgamiento de los Derechos de Compra y cualquier adquisición de Acciones Ordinarias por medio del ESPP no constituyen una relación laboral entre el empleado y Ciena Corporation porque el empleado está participando en el ESPP sobre una base totalmente comercial y su único patrón es Ciena Communications Mexico S.A. de C.V. or Ciena Mexico S.A. de C.V ("Ciena-México"). Con base en lo anterior, el empleado expresamente reconoce *que el ESPP y los beneficios que puede derivar por medio de la participación en el ESPP no establecen ningún derecho entre el empleado y su Patrón, Ciena-México, y no forman parte de las condiciones de trabajo y/o las prestaciones otorgadas por Ciena-México, y cualquier modificación al ESPP o su terminación no constituirá un cambio o deterioro de los términos y las condiciones del trabajo del empleado.*

Además, el empleado entiende que su participación en el ESPP se resulta de una decisión discrecional y unilateral de Ciena Corporation y, por lo tanto, Ciena Corporation se reserva el derecho absoluto de modificar y/o discontinuar la participación del empleado en el ESPP en cualquier momento, sin responsabilidad alguna al empleado.

Finalmente, el empleado manifiesta que no se reserva ninguna acción o derecho para presentar una reclamación o demanda en contra de Ciena Corporation por cualquier compensación o daños en relación con cualquier disposición del ESPP o de los beneficios derivados del ESPP y, por lo tanto, el empelado otorga un amplio y total finiquito a Ciena Corporation, sus subsidiarias, afiliadas, sucursales, oficinas de representación, accionistas, directores, funcionarios, agentes y representantes legales con respecto a cualquier reclamación o demanda que pudiera surgir.

NETHERLANDS

There are no country-specific provisions.

POLAND

Terms and Conditions

Authorization for ESPP Participation. The employee understands that as a condition of his or her participation in the ESPP, the employee will be required to execute the attached Consent for Deduction form. The employee understands that he or she must print out the form, sign and date the form in the applicable places, and return a copy to his or her local human resources department. Further, the employee agrees to execute other agreements or consents that may be required by Ciena or the Employer with respect to payroll deductions under the ESPP. The employee understands that if he or she fails to execute the Consent for Deduction form or any other form of agreement or consent that is required with respect to payroll deductions under the ESPP, the employee may not be able to participate in the ESPP.

Notifications

Exchange Control Information. Polish residents are obligated to transfer funds via bank accounts if the transferred amount in a particular transaction exceeds PLN 15,000. Polish residents are required to store the documents connected with foreign exchange transactions for a period of five years, as measured from the end of the year in which such transaction occurred.

Polish residents holding foreign securities (including shares of Common Stock) and/or maintaining accounts abroad must report information to the National Bank of Poland. Polish residents holding foreign securities will be required to file quarterly reports with information on transactions and balances regarding foreign securities if the value (calculated individually or together with other assets/liabilities possessed abroad) exceeds PLN 7 million. The reports must be filed on special forms available on the website of the National Bank of Poland. The employee is responsible for complying with all applicable exchange control regulations.

CIENA CORPORATION

AMENDED AND RESTATED 2003 EMPLOYEE STOCK PURCHASE PLAN

For Participants in Poland

CONSENT FOR DEDUCTION

I, the undersigned, in order to participate in the Ciena Corporation Amended and Restated 2003 Employee Stock Purchase Plan ("ESPP"), authorize my employer, i.e., Ciena Limited (Poland Branch), to withhold payroll deductions in the amount of ___% of eligible base salary ("eligible compensation"), or such other percentage as subsequently selected separately by me (in writing) under the ESPP. I understand that this amount must not be more than 10% of my eligible compensation for any Offering Period with the reservation that the deductions are made in accordance with the applicable provisions of Polish labor law.

I acknowledge and agree that any past payroll deductions from my eligible compensation, with respect to my participation in the ESPP complied with Polish law and that I authorized all such deductions.

All the terms written in capital letters shall have the meanings given to them in the ESPP.

In case of any discrepancies between the Polish language version of this document and its English language version, the Polish language version shall prevail.

CIENA CORPORATION

ZAMIENIONY PRACOWNICZY PLAN NABYWANIA AKCJI 2003

Dla Uczestników w Polsce

ZGODA NA POTRACENIE

Ja nizej podpisany, w celu uczestnictwa w Zmienionym Pracowniczym Planie Nabywania Akcji Ciena Corporation Amended and Restated 2003 Employee Stock Purchase Plan ("ESPP"), upowazniam mojego pracodawce, i.e. Ciena Limited (Poland Branch), do potracenia kwoty w wysokosci ___% z mojego uprawnionego wynagrodzenia zasadniczego ("Uprawnione Wynagrodzenie") lub inny procent pózniej wskazany oddzielnie przeze mnie (na pismie) w ramach Planu. Przyjmuje do wiadomsci, iz ta kwota nie moze byc wieksza niz 10% mojego Uprawnionego Wynagrodzenia w kazdym Okresie Oferty z zastrzezeniem, ze potracenia beda dokonywane zgodnie z obowiazujacymi przepisami polskiego prawa pracy.

Niniejszym potwierdzam i zgadzam sie z tym, ze jakiekolwiek przeszle potracenia z mojego Uprawnionego Wynagrodzenia dokonane w zwiazku z moim uczestnictwem w Planie byly zgodne z polskim prawem i ze wyrazilem/am na nie zgode.

Wszystkie terminy pisane wielkimi literami maja znaczenie przypisane im w ramach Planu.

W przypadku jakichkolwiek rozbieznosci pomiedzy polska a angielska wersja jezykowa niniejszego dokumentu, wersja polska ma charakter wiazacy.

___________________________ _________________

Employee/Pracownik Date/Data

SPAIN

Terms and Conditions

Nature of Grant. This provision supplements the Nature of Grant section in the Enrollment Form:

In accepting the Purchase Rights, the employee consents to participate in the ESPP and acknowledges that he or she has received a copy of the ESPP.

The employee understands and agrees that in accepting the Purchase Rights, the employee will cease to be a participant in the ESPP upon the termination of his or her status as an eligible employee for any reason (including for the reasons listed below) and the employee's payroll deductions shall cease and be returned to the employee, without interest, as soon as administratively possible.

The employee understands that Ciena has unilaterally, gratuitously and in its sole discretion decided to grant Purchase Rights under the ESPP to individuals who may be eligible employees. The decision is a limited decision that is entered into upon the express assumption and condition that any offer will not economically or otherwise bind Ciena or any participating Affiliate on an ongoing basis. Consequently, the employee understands that the Purchase Rights are granted on the assumption and condition that the ESPP and any shares of Common Stock purchased under the ESPP are not part of any employment contract either with Ciena or a participating Affiliate and shall not be considered a mandatory benefit, salary for any purposes (including severance compensation) or any other right whatsoever. In addition, the employee understands that the Purchase Rights would not be granted to the employee but for the assumptions and conditions referred to herein; thus, the employee acknowledges and freely accepts that should any or all of the assumptions be mistaken or should any of the conditions not be met for any reason, then the Purchase Rights shall be null and void.

Further, the employee's participation in the ESPP is expressly conditioned on his or her continued and active employment, such that if his or her employment terminates for any reason whatsoever, the employee's participation in the ESPP will cease immediately, effective on the date of his or her termination of employment (or as of the end of the Purchase Period following termination as provided in the ESPP where the employee retires, dies, becomes disabled, or is laid off or on authorized leave). In particular, the employee understands and agrees that, unless otherwise provided in the ESPP or by Ciena, any outstanding Purchase Rights as of the date he or she is no longer actively employed will be forfeited without entitlement to the underlying shares of Common Stock or to any amount of indemnification in the event of a termination of employment or service by reason of, but not limited to, resignation, disciplinary dismissal adjudged to be with cause, disciplinary dismissal adjudged or recognized to be without cause (i.e., subject to a "*despido improcedente*"), individual or collective dismissal adjudged or recognized to be without cause, individual or collective dismissal on objective grounds, whether adjudged or recognized to be with or without cause, material modification of the terms of employment under Article 41 of the Workers' Statute, relocation under Article 40 of the Workers' Statute, Article 50 of the Workers' Statute, unilateral withdrawal by the Employer and under Article 10.3 of the Royal Decree 1382/1985. The employee acknowledges that he or she has read and specifically accepts the conditions referred to in the following provisions of the Enrollment Form: Tax-Related Items and Nature of Grant.

Notifications

Exchange Control Information. To participate in the ESPP, the employee agrees to comply with exchange control regulations in Spain. The acquisition of shares of Common Stock under the ESPP must be declared for statistical purposes to the Dirección General de Comercio e Inversiones (the "DGCI"). Because the employee will not acquire the shares of Common Stock through the use of a Spanish financial institution, he or she agrees to make the declaration by filing a D-6 form with the DGCI. Generally, the D-6 form must be filed each January while the shares of Common Stock are owned. In addition, the sale of shares of Common Stock must also be declared on D-6 form filed with the DGCI in January, unless the sale proceeds exceed the applicable threshold (currently €1,502,530), in which case, the filing is due within one month after the sale.

The employee also may be required to electronically declare to the Bank of Spain any foreign accounts (including brokerage accounts held abroad), any foreign instruments (including shares of Common Stock acquired under the ESPP), and any transactions with non-Spanish residents (including any payments of shares of Common Stock made pursuant to the ESPP), depending on the balances in such accounts together with the value of such instruments as of December 31 of the relevant year, or the volume of transactions with non-Spanish residents during the relevant year.

Foreign Account / Assets Reporting Information. To the extent that the employee holds rights or assets (e.g., cash or shares of Common Stock held in a bank or brokerage account) outside of Spain with a value in excess of €50,000 per type of right or asset (e.g., shares of Common Stock, cash, etc.) as of December 31 each year, he or she is required to report information on such rights and assets on his or her tax return for such year. After such rights or assets are initially reported, the reporting obligation will only apply for subsequent years if the value of any previously-reported rights or assets increases by more than €20,000 or if the employee transfers or disposes of any previously-reported rights or assets. The reporting must be completed by March 31. Failure to comply with this reporting requirement may result in penalties. Accordingly, the employee is advised to consult with his or her personal tax and legal advisors to ensure that he or she is properly complying with his or her reporting obligations.

SWEDEN

There are no country-specific provisions.

SWITZERLAND

Notifications

Securities Law Information. The offering of the ESPP is considered a private offering in Switzerland and is, therefore, not subject to registration in Switzerland. Neither this document nor any other materials relating to the ESPP (i) constitutes a prospectus as such term is understood pursuant to article 652a of the Swiss Code of Obligations, (ii) may be publicly distributed nor otherwise made publicly available in Switzerland, or (iii) have been or will be filed with, approved or supervised by any Swiss regulatory authority, including the Swiss Financial Market Supervisory Authority (FINMA).

UNITED ARAB EMIRATES

Notifications

Securities Law Information. The ESPP is only being offered to employees and is in the nature of providing equity incentives to employees of Ciena's participating Affiliates in the United Arab Emirates. Any documents related to the ESPP, including the ESPP, the Prospectus and other grant documents ("ESPP Documents"), are intended for distribution only to such employees and must not be delivered to, or relied on by, any other person. Neither the Ministry of Economy nor the Dubai Department of Economic Development have approved the ESPP Documents nor taken steps to verify the information set out therein, and have no responsibility for such documents. The employee, as a prospective stockholder, should conduct his or her own due diligence on the securities. If the employee does not understand the contents of the ESPP Documents, he or she should consult an authorized financial advisor.

UNITED KINGDOM

Terms and Conditions

Taxes. This section supplements the Responsibility for Taxes section of the Enrollment Form:

Without limitation to the provisions contained in the Responsibility for Taxes section of the Enrollment Form, the employee agrees that he or she is liable for all Tax-Related Items and hereby covenants to pay all such Tax-Related Items as and when requested by Ciena or the Employer or by Her Majesty's Revenue and Customs ("HMRC") (or any other tax or relevant authority). The employee also agrees to indemnify and keep indemnified Ciena and the Employer against any Tax-Related Items that they are required to pay or withhold on his or her behalf or have paid or will pay to the HMRC (or any other tax or relevant authority).

CIENA CORPORATION
CERTIFICATION OF CHIEF EXECUTIVE OFFICER

I, Gary B. Smith, certify that:

1. I have reviewed this quarterly report of Ciena Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Dated: June 7, 2017

/s/ Gary B. Smith

Gary B. Smith
President and Chief Executive Officer

CIENA CORPORATION

CERTIFICATION OF CHIEF FINANCIAL OFFICER

I, James E. Moylan, Jr., certify that:

1. I have reviewed this quarterly report of Ciena Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: June 7, 2017

/s/ James E. Moylan Jr.

James E. Moylan Jr.
Senior Vice President and Chief Financial Officer

CIENA CORPORATION

Written Statement of Chief Executive Officer

Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

The undersigned, the Chief Executive Officer of Ciena Corporation (the “Company”), hereby certifies that, to his knowledge, on the date hereof:

(a) the Report on Form 10-Q of the Company for the quarter ended April 30, 2017 filed on the date hereof with the Securities and Exchange Commission (the “Report”) fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(b) information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Gary B. Smith

Gary B. Smith
President and Chief Executive Officer

June 7, 2017

A signed original of this written statement required by Section 906, or other document authenticating, acknowledging, or otherwise adopting the signature that appears in typed form within the electronic version of this written statement required by Section 906, has been provided to Ciena Corporation and will be retained by Ciena Corporation and furnished to the Securities and Exchange Commission or its staff upon request.

CIENA CORPORATION

Written Statement of Chief Financial Officer

Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

The undersigned, the Chief Financial Officer of Ciena Corporation (the “Company”), hereby certifies that, to his knowledge, on the date hereof:

(a) the Report on Form 10-Q of the Company for the quarter ended April 30, 2017 filed on the date hereof with the Securities and Exchange Commission (the “Report”) fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(b) information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ James E. Moylan Jr.

Senior Vice President and Chief Financial Officer

June 7, 2017

A signed original of this written statement required by Section 906, or other document authenticating, acknowledging, or otherwise adopting the signature that appears in typed form within the electronic version of this written statement required by Section 906, has been provided to Ciena Corporation and will be retained by Ciena Corporation and furnished to the Securities and Exchange Commission or its staff upon request.