

\$15.4 million to our former CEO Dr. Sehat Sutardja and \$11.4 million of costs for the surety bonds related to the litigation with CMU.

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

The following discussion of our financial condition and results of operations should be read in conjunction with the financial statements and related notes included in this Annual Report on Form 10-K. This discussion may contain forward-looking statements based upon current expectations that involve risks and uncertainties, including those discussed under Part I, Item 1A, "Risk Factors." These risks and uncertainties may cause actual results to differ materially from those discussed in the forward-looking statements.

Overview

Net revenue in fiscal 2017 was \$2.3 billion and was 13% lower than net revenue of \$2.6 billion in fiscal 2016. The decline was primarily due to a 47% decrease in sales of our other products and a 28% decrease in sales of our connectivity products. These decreases were primarily driven by the previously announced restructuring of the mobile platform business.

Restructuring. In November 2016, we announced a restructuring plan intended to refocus our research and development, increase operational efficiency and improve profitability. During fiscal 2017 we recorded restructuring and other related charges of \$105.2 million. In connection with our restructuring plan, we also plan to divest certain businesses and we began an active program to locate buyers for several businesses. As of January 28, 2017, two of these businesses have been classified as discontinued operations and we have retrospectively recast our consolidated financial statements for all periods presented to reflect these businesses as discontinued operations. These actions are expected to lower annual operating expenses to the \$820 million to \$830 million range. Unless noted otherwise, our discussion under Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations refers to our continuing operations.

Capital Return Program. We believe our financial position is strong and we remain committed to deliver shareholder value through our share repurchase and dividend programs. We previously announced our intention to repurchase shares of our common stock up to \$1 billion, of which we intend to repurchase \$500 million from November 2016 through October 2017. In the fourth quarter of fiscal 2017, we repurchased 8.9 million shares of our common stock for \$126.5 million. Including these stock repurchases, we returned \$303.9 million to stockholders in fiscal 2017, including \$181.6 million through repurchases of common stock and \$122.3 million of cash dividends.

Our cash, cash equivalents and short-term investments were \$1.7 billion at January 28, 2017. We used cash flow from operations of \$358.4 million through the fourth quarter of fiscal 2017, primarily due to the \$750 million settlement with CMU that was fully paid in April 2016.

Significant Customers

Historically, a relatively small number of customers have accounted for a significant portion of our net revenue. See the table in our discussion of "Customers, Sales and Marketing" in Item 1 of this Annual Report on Form 10-K for further information. We continuously monitor the creditworthiness of our distributors and believe these distributors' sales to diverse end customers and geographies further serve to mitigate our exposure to credit risk.

Most of our sales are made to customers located outside of the United States, primarily in Asia. Sales shipped to customers with operations in Asia represented approximately 94% of our net revenues in fiscal 2017, and 96% of our net revenue in each of fiscal 2016 and 2015. Because many manufacturers and manufacturing subcontractors of our customers are located in Asia, we expect that most of our net revenue will continue to be represented by sales to our customers in that region.

A relatively large portion of our sales have historically been made on the basis of purchase orders rather than long-term agreements. In addition, the development process for our products is long, which may cause us to experience a delay between the time we incur expenses and the time revenue is generated from these expenditures. We anticipate that the rate of new orders may vary significantly from quarter to quarter. Consequently, if anticipated sales and shipments in any quarter do not occur when expected, expenses and inventory levels could be disproportionately high, and our operating results for that quarter and future quarters may be adversely affected.

Critical Accounting Policies and Estimates

The preparation of consolidated financial statements in conformity with generally accepted accounting principles in the United States ("GAAP") requires management to make estimates, judgments and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities. On an ongoing basis, we

evaluate our estimates, including those related to revenue recognition, provisions for sales returns and allowances, share-based compensation, income taxes, inventory excess and obsolescence, goodwill and other intangible assets, restructuring, litigation and other contingencies. We base our estimates of the carrying value of certain assets and liabilities on historical experience and on various other assumptions that are believed to be reasonable under the circumstances when these carrying values are not readily available from other sources. Actual results could differ from these estimates, and such differences could affect the results of operations reported in future periods. We believe the following critical accounting policies affect our more significant judgments and estimates used in the preparation of our consolidated financial statements.

Revenue Recognition. We recognize revenue when there is persuasive evidence of an arrangement, delivery has occurred, the fee is fixed or determinable, and collection is reasonably assured. If we grant extended payment terms greater than our standard terms for a customer such that collectability is not assured, the revenue and the corresponding cost of goods sold are deferred upon shipment and will be recognized when the payment becomes due provided all other revenue recognition criteria have been satisfied. Additional review and approval by management is required for any transaction with extended payment terms that exceed 90 days to determine proper revenue recognition, which may be subject to management judgment.

Product revenue is generally recognized upon shipment of product to customers, net of accruals for estimated sales returns and rebates. However, some of our sales are made through distributors under agreements allowing for price protection and limited rights of stock rotation on product unsold by the distributors. Although title passes to the distributor upon shipment, terms and payment by our distributors is not contingent on resale of the product. Product revenue on sales made through distributors with price protection and stock rotation rights is deferred until the distributors sell the product to end customers. Deferred revenue less the related cost of the inventories is reported as deferred income. We do not believe that there is any significant exposure related to impairment of deferred cost of sales, as our historical returns have been minimal and inventory turnover for our distributors generally ranges from 60 to 90 days. Our sales to direct customers are made primarily pursuant to standard purchase orders for delivery of products.

A portion of our net revenue is derived from sales through third-party logistics providers who maintain warehouses in close proximity to our customer's facilities. Revenue from sales through these third-party logistics providers is not recognized until the product is pulled from stock by the customer.

The provision for estimated sales returns and allowances on product sales is recorded in the same period the related revenues are recorded. These estimates are based on historical sales returns, analysis of credit memo data and other known factors. In addition, payments to our customers, in cases where products with potential quality issues are not returned to us and the related quality issue can otherwise not be verified, or where the amount of the payment is not sufficiently supported by the fair value of the quality issue, may be recorded as a reduction of revenue. Actual returns could differ from these estimates. We account for rebates by recording reductions to revenue in the same period that the related revenue is recorded. The amount of these reductions is based upon the terms agreed to with the customers.

Share-Based Compensation. We measure our share-based compensation at the grant date, based on the fair value of the award, and recognize expense over the requisite service period. We amortize share-based compensation expense for time-based awards under the straight-line attribution method over the vesting period. Share-based compensation expense for performance-based awards is recognized when it becomes probable that the performance conditions will be met. Once it becomes probable that a performance-based award will vest, we recognize compensation expense equal to the number of shares expected to vest multiplied by the fair value of the award at the grant date, which is amortized using the accelerated method. In the case of performance-based awards based on total shareholder return ("TSR"), share-based compensation expense is amortized over the requisite service period. For stock purchase rights under the stock purchase plan, the Company amortizes share-based compensation expense ratably over the two-year offering period.

We estimate the fair value of time-based stock option and stock purchase awards on the date of grant using the Black Scholes option-pricing model. The fair value of TSR awards is estimated on the date of grant using a Monte Carlo simulation model since the award is indexed to the price of our common stock as set forth under the terms of the award. The value of the portion of the awards that is ultimately expected to vest is recognized as expense over the requisite service periods. The Black-Scholes and Monte Carlo models incorporate various highly subjective assumptions including expected term of awards, expected future stock price volatility, expected dividend yield and risk-free interest rate.

In developing estimates used to calculate assumptions, we establish the expected term for employee stock options, as well as expected forfeiture rates, based on the historical settlement experience and after giving consideration to vesting schedules. Assumptions for stock option exercises and pre-vesting terminations of stock options were stratified by two employee groups and one employee/non-employee group with sufficiently distinct behavior patterns. Expected volatility was developed based on an equally weighted combination of historical stock price volatility and implied volatility derived from traded options on our stock in the marketplace. The expected dividend yield is calculated by dividing annualized dividend payments by the closing stock price on the grant date of the option.

The fair value of each restricted stock unit is estimated based on the market price of the Company's common shares on the date of grant less the expected dividend yield. Additionally, for certain of our performance-based awards, we must make subjective assumptions regarding the likelihood that the related performance metrics will be met. These assumptions are based on various revenue and operating performance criteria. Changes in our actual performance could cause a significant adjustment in future periods for these performance-based awards.

Share-based compensation expense is recorded net of estimated forfeitures such that expense is recorded only for those share-based awards that are expected to vest. Previously recognized expense is reversed for the portion of awards forfeited prior to vesting as and when forfeitures occurred. Forfeitures are estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from initial estimates. Assumptions for forfeitures are stratified by employee groups with sufficiently distinct behavior patterns. Changes in the estimated forfeiture rate can have a significant effect on reported share-based compensation expense, as the effect of adjusting the rate for all expense amortization is recognized in the period the forfeiture estimate is changed. If the actual forfeiture rate is higher than the estimated forfeiture rate, then an adjustment will be made to increase the estimated forfeiture rate, which will result in a decrease to the expense recognized in the financial statements. If the actual forfeiture rate is lower than the estimated forfeiture rate, then an adjustment will be made to lower the estimated forfeiture rate, which will result in an increase to the expense recognized in the financial statements. The expense we recognize in future periods could be affected by changes in the estimated forfeiture rate and may differ significantly from amounts recognized in the current period and/or our forecasts.

Accounting for Income Taxes. We estimate our income taxes in each of the jurisdictions in which we operate. This process involves estimating our actual tax exposure together with assessing temporary differences resulting from the differing treatment of certain items for tax return and financial statement purposes. These differences result in deferred tax assets and liabilities, which are included in our consolidated balance sheets.

We recognize income taxes using an asset and liability approach. This approach requires the recognition of taxes payable or refundable for the current year, and deferred tax liabilities and assets for the future tax consequences of events that have been recognized in our consolidated financial statements or tax returns. The measurement of current and deferred taxes is based on provisions of the enacted tax law and the effects of future changes in tax laws or rates are not anticipated.

Evaluating the need for an amount of a valuation allowance for deferred tax assets often requires judgment and analysis of all the positive and negative evidence available, including cumulative losses in recent years and projected future taxable income, to determine whether all or some portion of the deferred tax assets will not be realized. Using available evidence and judgment, we establish a valuation allowance for deferred tax assets, when it is determined that it is more likely than not that they will not be realized. Valuation allowances have been provided primarily against the U.S. research and development credits. Valuation allowances have also been provided against certain acquired operating losses and the deferred tax assets of foreign subsidiaries. A change in the assessment of the realization of deferred tax assets may materially impact our tax provision in the period in which a change of assessment occurs.

As a multinational corporation, we conduct our business in many countries and are subject to taxation in many jurisdictions. The taxation of our business is subject to the application of various and sometimes conflicting tax laws and regulations as well as multinational tax conventions. Our effective tax rate is highly dependent upon the geographic distribution of our worldwide earnings or losses, the tax regulations and tax holidays in each geographic region, the availability of tax credits and carryforwards, and the effectiveness of our tax planning strategies. The application of tax laws and regulations is subject to legal and factual interpretation, judgment and uncertainty. Tax laws themselves are subject to change as a result of changes in fiscal policy, changes in legislation, and the evolution of regulations and court rulings. Consequently, taxing authorities may impose tax assessments or judgments against us that could materially impact our tax liability and/or our effective income tax rate.

We are subject to income tax audits by the respective tax authorities in all of the jurisdictions in which we operate. We recognize the effect of income tax positions only if these positions are more likely than not of being sustained. Recognized income tax positions are measured at the largest amount that is more than 50% likely of being realized. Changes in recognition or measurement are reflected in the period in which the change in judgment occurs. We record interest and penalties related to unrecognized tax benefits in income tax expense. The calculation of our tax liabilities involves the inherent uncertainty associated with the application of GAAP and complex tax laws. We believe we have adequately provided for in our financial statements additional taxes that we estimate may be required to be paid as a result of such examinations. While we believe that we have adequately provided for all tax positions, amounts asserted by tax authorities could be greater or less than our accrued position. These tax liabilities, including the interest and penalties, are released pursuant to a settlement with tax authorities, completion of audit or expiration of various statutes of limitation. The material jurisdictions in which we may be subject to potential examination by tax authorities throughout the world include China, Israel, Singapore, Switzerland and the United States.

The recognition and measurement of current taxes payable or refundable, and deferred tax assets and liabilities require that we make certain estimates and judgments. Changes to these estimates or a change in judgment may have a material impact on our tax provision in a future period.

Inventories. We value our inventory at the lower of cost or market, cost being determined under the first-in, first-out method. We regularly review inventory quantities on hand and record a reduction to the total carrying value of our inventory for any difference between cost and estimated market value of inventory that is determined to be excess, obsolete or unsellable inventory based primarily on our estimated forecast of product demand and production requirements. The estimate of future demand is compared to our inventory levels, including open purchase commitments, to determine the amount, if any, of obsolete or excess inventory. Demand for our products can fluctuate significantly from period to period. A significant decrease in demand could result in an increase in the amount of excess inventory on hand. In addition, our industry is characterized by rapid technological change, frequent new product development and rapid product obsolescence that could result in an increase in the amount of obsolete inventory quantities on hand. Additionally, our estimates of future product demand may prove to be inaccurate, in which case we may have understated or overstated the reduction to the total carrying value of our inventory for excess and obsolete inventory. In the future, if our inventory is determined to be overvalued, we would be required to recognize such costs in our cost of goods sold at the time of such determination. Likewise, if our inventory is determined to be undervalued, we may have over-reported our cost of goods sold in previous periods and would be required to recognize additional gross margin at the time the related inventory is sold. Therefore, although we make every effort to ensure the accuracy of our forecasts of future product demand, any significant unanticipated changes in demand or technological developments could have a significant impact on the value of our inventory and our results of operations.

Long-lived Assets and Intangible Assets. We assess the impairment of long-lived assets and intangible assets whenever events or changes in circumstances indicate that the carrying value of such assets may not be recoverable. Circumstances which could trigger a review include, but are not limited to the following:

- significant decreases in the market price of the asset;
- significant adverse changes in the business climate or legal factors;
- accumulation of costs significantly in excess of the amount originally expected for the acquisition or construction of the asset;
- current period cash flow or operating losses combined with a history of losses or a forecast of continuing losses associated with the use of the asset; and
- current expectation that the asset will more likely than not be sold or disposed of significantly before the end of its estimated useful life.

Whenever events or changes in circumstances suggest that the carrying amount of long-lived assets and intangible assets may not be recoverable, we estimate the future cash flows expected to be generated by the asset from its use or eventual disposition. If the sum of the expected future cash flows is less than the carrying amount of those assets, we recognize an impairment loss based on the excess of the carrying amount over the fair value of the assets. Significant management judgment is required in the forecasts of future operating results that are used in the discounted cash flow method of valuation.

Goodwill. We record goodwill when the consideration paid for a business acquisition exceeds the fair value of net tangible and intangible assets acquired. We review goodwill for impairment annually on the last business day of our fiscal fourth quarter and whenever events or changes in circumstances indicate the carrying amount of goodwill may not be recoverable. We have identified that our business operates as a single operating segment which can further be divided into two components; Storage, and Networking & Connectivity. Management concluded that goodwill is recoverable from these two components working jointly due to a fact pattern demonstrating significant sharing of assets, corporate resources, and benefits from common research and development. The two components also exhibit similar economic characteristics. Accordingly, management concluded that these two components should be aggregated into a single reporting unit for purposes of testing goodwill impairment. As part of our restructuring announced in November 2016, our former Smart Networked Devices and Solutions component was renamed to Networking & Connectivity.

When testing goodwill for impairment, we first assess qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying value. Factors we consider important which could trigger a goodwill impairment review include;

- significant underperformance relative to historical or projected future operating results;
- significant changes in the manner of our use of the acquired assets or the strategy for our overall business;
- significant negative industry or economic trends;
- a significant decline in our stock price for a sustained period; and

- a significant change in our market capitalization relative to our net book value.

If we conclude that it is more likely than not that the fair value of a reporting unit is less than its carrying amount or if we note multiple qualitative factors indicating potential impairment, then a two-step quantitative impairment test is performed. The first step requires comparing the fair value of the reporting unit to its net book value, including goodwill. A potential impairment exists if the fair value of the reporting unit is lower than its net book value. Determining the fair value of a reporting unit involves the use of significant estimates and assumptions. Our goodwill impairment test uses a weighting of the income method and the market method to estimate a reporting unit's fair value. The income method is based on a discounted future cash flow approach that uses the following assumptions and inputs: revenue based on assumed market segment growth rates and our assumed market segment share, estimated costs, and appropriate discount rates based on our weighted average cost of capital as determined by considering the observable weighted average cost of capital of comparable companies. The market method is based on quoted prices of our shares as well as an implied control premium (the excess of the reporting unit's fair value over Marvell's market capitalization). We evaluate the control premium by comparing it to observable control premiums from recent comparable market acquisition transactions.

The second step of the process is only performed if a potential impairment exists, and it involves determining the implied fair value of the reporting unit's goodwill and comparing it to the carrying value of goodwill. If the carrying value of goodwill were to exceed its implied fair value, then the Company will record a charge for the amount of impairment in the fiscal quarter in which the determination is made.

In connection with the restructuring plan we announced in November 2016 (see "Note 8 - Restructuring and Other Related Charges"), our Board of Directors approved a plan to sell certain businesses that are classified and reported in the consolidated statement of operations as discontinued operations. As a result, goodwill was allocated to these businesses based on relative fair value since each represents a portion of our reporting unit. We obtained an independent valuation to determine the fair value of these businesses for purposes of allocating the goodwill and to complete a step one assessment for goodwill impairment of our continuing operations. Although we engaged an independent valuation specialist to provide the fair value calculations, management provided the necessary estimates used in the specialists calculations. Significant management judgment is required in determining the estimations of future cash flows, which is dependent on internal forecasts, the long-term rate of growth for our business, the life over which cash flows will occur, and the weighted average cost of capital. Management assumes full responsibility for the valuation results and the accuracy and completeness of the underlying financial data and corresponding assumptions.

As of the last day of the fourth quarter of fiscal 2017, we performed our annual impairment assessment for testing goodwill. A step one assessment was performed due to the allocation of our goodwill to certain businesses that we classified and reported as discontinued operations. Based on the independent valuation we obtained, we determined there was no impairment as the fair value significantly exceeded the Company's carrying value.

Legal Contingencies. From time to time, we are involved in legal actions or other third-party assertions arising in the ordinary course of business. There can be no assurance these actions or other third-party assertions will be resolved without costly litigation, in a manner that does not adversely impact our financial position, results of operations or cash flows or without requiring royalty payments in the future, which may adversely impact gross margins. We record a liability when it is probable that a loss has been incurred and the amount can be reasonably estimated. In determining the probability of a loss and consequently, determining a reasonable estimate, management is required to use significant judgment. Given the uncertainties associated with any litigation, the actual outcome can be different than our estimates and could adversely affect our results of operations, financial position and cash flows.

Results of Operations - Continuing Operations

The following table sets forth information derived from our consolidated statements of operations expressed as a percentage of net revenue:

	Year Ended		
	January 28, 2017	January 30, 2016	January 31, 2015
Net revenue	100.0%	100.0 %	100.0 %
Operating costs and expenses:			
Cost of goods sold	44.4	54.5	49.5
Research and development	35.9	37.5	30.0
Selling and marketing	5.0	4.7	3.8
General and administrative	5.5	5.5	3.4
Carnegie Mellon University litigation settlement	—	24.7	—
Restructuring and other related charges	4.5	2.0	0.3
Amortization and write-off of acquired intangible assets	0.3	0.4	0.4
Total operating costs and expenses	95.6	129.3	87.4
Operating income (loss) from continuing operations	4.4	(29.3)	12.6
Interest and other income, net	0.7	0.7	0.6
Income (loss) from continuing operations before income taxes	5.1	(28.6)	13.2
Provision (benefit) for income taxes	3.2	0.4	(0.1)
Income (loss) from continuing operations	1.9%	(29.0)%	13.3 %

Years Ended January 28, 2017 and January 30, 2016

Net Revenue

	Year Ended		
	January 28, 2017	January 30, 2016	% Change in 2017
	(in thousands, except percentage)		
Net revenue	\$ 2,317,674	\$ 2,649,216	(12.5)%

Our net revenue for fiscal 2017 decreased by \$331.5 million compared to net revenue for fiscal 2016. This decrease was primarily due to decreased sales of our other products, which were down 47%, and decreased sales of our connectivity products, which were down by 28%. These decreases were driven by the previously announced restructuring of our mobile handset platform business. In addition, revenue from our storage products was down by 4%, mainly due to a decrease in sales of HDD products, offset by strong growth in sales of SSD product. These declines were partially offset by sales growth of 11% in our networking products, driven by the introduction of new products and increased sales to the enterprise and campus markets. Unit shipments were 22% lower and weighted average selling prices increased 12% compared to fiscal 2016, for an overall decline of 13%.

Prior to fiscal 2017, our customers agreed from time to time to take shipments in an earlier fiscal quarter than the fiscal quarter they originally requested delivery. When such agreement would not have occurred but for the request made by Marvell, we refer to such transactions internally as “pull-ins.” Beginning in fiscal 2017, our policy is not to engage in pull-in transactions and, as a result, there were no such transactions in fiscal 2017.

Cost of Goods Sold

	Year Ended		
	January 28, 2017	January 30, 2016	% Change in 2017
	(in thousands, except percentages)		
Cost of goods sold	\$ 1,029,527	\$ 1,442,517	(28.6)%
% of net revenue	44.4%	54.5%	

The cost of goods sold as a percentage of net revenue was lower for fiscal 2017 due to the \$81.3 million CMU settlement included in cost of goods sold in 2016, a reduction in sales of lower margin mobile platform related product and lower material and manufacturing costs. Our cost of goods sold as a percentage of net revenue may fluctuate in future periods due to, among other things: changes in the mix of products sold; the timing of production ramps of new products; increased pricing pressures

from our customers and competitors; charges for obsolete or potentially excess inventory; changes in the costs charged by our foundry, assembly and test subcontractors; product warranty costs; changes in commodity prices such as gold; and the margin profiles of our new product introductions.

Share-Based Compensation Expense

	Year Ended	
	January 28, 2017	January 30, 2016
	(in thousands)	
Continuing operations:		
Cost of goods sold	\$ 8,334	\$ 7,787
Research and development	78,136	92,054
Selling and marketing	10,243	10,242
General and administrative	8,047	15,878
Share-based compensation - continuing operations	104,760	125,961
Discontinued operations:		
Cost of goods sold	187	129
Research and development	8,306	6,738
Selling and marketing	649	864
General and administrative	68	87
Share-based compensation - discontinued operations	9,210	7,818
Total share-based compensation	\$ 113,970	\$ 133,779

Share-based compensation expense for continuing operations decreased by \$21.2 million in fiscal 2017 compared to fiscal 2016. The decrease was mainly due to lower headcount from the previously announced restructuring of the mobile platform business, as well as from the restructuring announced in November 2016. The cancellation of equity awards related to certain members of our executive management who departed in April 2016 also reduced the expense. These decreases were partially offset by the effect from the acceleration of expense caused by the cancellation of the June 2016 ESPP purchase because the Company was not eligible to issue shares of its common stock due to the delay in the timely filing of its periodic reports with the SEC (see "Note 12 - Shareholder's Equity" in the Notes to the Consolidated Financial Statements set forth in Part II, Item 8 of this Annual Report on Form 10-K).

Restructuring and Other Related Charges

	Year Ended	
	January 28, 2017	January 30, 2016
	(in thousands)	
Cost of goods sold	\$ —	\$ 10,292
Restructuring and other related charges	105,186	53,251
	\$ 105,186	\$ 63,543

We recorded total restructuring charges and other related charges of \$105.2 million in fiscal 2017, which primarily arose from activities related the restructuring plan we announced in November 2016 to restructure our operations to refocus our research and development, increase operational efficiency and improve profitability. The Company recorded charges of \$98.7 million, including severance benefits of \$41.0 million, the impairment of a \$45.0 million nonrefundable deposit due to the non-utilization of the related contract, \$5.4 million for the impairment of equipment and technology licenses, and other exit-related costs of \$7.3 million associated with the closure of facilities and contract termination penalties. In addition, the Company recorded \$6.5 million related to previous fiscal 2016 restructuring actions, which included the write-off of mobile-related equipment that was previously held-for-sale and the remaining lease obligation for certain floors in one of its Israel facilities that were vacated in fiscal 2017. See "Note 8 - Restructuring and Other Related Charges" in the Notes to the Consolidated Financial Statements set forth in Part II, Item 8 of this Annual Report on Form 10-K for further information.

As a result of the restructuring plan announced in November 2016, we expect to lower annual operating expenses to approximately \$820 million to \$830 million.

Research and Development

	Year Ended		
	January 28, 2017	January 30, 2016	% Change in 2017
	(in thousands, except percentages)		
Research and development	\$ 831,398	\$ 994,733	(16.4)%
% of net revenue	35.9%	37.5%	

Research and development expense decreased by \$163.3 million in fiscal 2017 compared to fiscal 2016. The decrease was primarily attributable to \$91.6 million of lower personnel-related costs, lower costs related to project spending and facility maintenance services of \$44.0 million, and a reduction in depreciation and amortization expense of \$9.4 million. These reductions were driven by the restructuring of our mobile platform business as well as the restructuring actions announced in November 2016.

Selling and Marketing

	Year Ended		
	January 28, 2017	January 30, 2016	% Change in 2017
	(in thousands, except percentages)		
Selling and marketing	\$ 115,817	\$ 124,096	(6.7)%
% of net revenue	5.0%	4.7%	

Selling and marketing expense decreased by \$8.3 million in fiscal 2017 compared to fiscal 2016. The decrease was primarily attributable to decreases of \$7.2 million of marketing communications expenses.

General and Administrative

	Year Ended		% Change in 2017
	January 28, 2017	January 30, 2016	
	(in thousands, except percentages)		
General and administrative	\$ 127,376	\$ 145,359	(12.4)%
% of net revenue	5.5%	5.5%	

General and administrative expense decreased by \$18.0 million in fiscal 2017 compared to fiscal 2016. The decrease was due to \$7.1 million of lower charges for various litigation matters and \$11.4 million of lower costs for the surety bonds related to the litigation with CMU. The decrease also included a \$9.2 million decrease in legal expenses related to legal services. In addition, the decrease reflected the effect of a \$15.4 million charge for a cash payment relating to a tax matter to our former Chief Executive Officer approved by the Company's Executive Compensation Committee and included in fiscal 2016 that was not included in fiscal 2017. These decreases were partially offset by \$22.1 million of other higher professional fees.

Carnegie Mellon University Litigation Settlement

	Year Ended		
	January 28, 2017	January 30, 2016	% Change in 2017
	(in thousands, except percentages)		
Litigation settlement with Carnegie Mellon University	\$ —	\$ 654,667	(100.0)%
% of net revenue	—%	24.7%	

In connection with the settlement agreement with CMU for \$750 million (see "Note 10 – Commitments and Contingencies" and "Note 15 – Carnegie Mellon University Settlement" in the Notes to the Consolidated Financial Statements set forth in Part II, Item 8 of this Annual Report on Form 10-K), \$654.7 million of the settlement allocated to the mutual release of claims and covenant not to sue was recorded in operating expenses in fiscal 2016. Of the remaining \$95.3 million, \$81.3 million was recorded in cost of goods sold in fiscal 2016. The remaining \$14.0 million will be recognized in cost of goods sold over the remaining term of the license from February 2016 through April 2018.

Amortization and Write-Off of Acquired Intangible Assets

	Year Ended		% Change in 2017
	January 28, 2017	January 30, 2016	
	(in thousands, except percentages)		
Amortization and write-off of acquired intangible assets	\$ 8,376	\$ 10,098	(17.1)%
% of net revenue	0.3%	0.4%	

Amortization and write-off of acquired intangible assets decreased by \$1.7 million in fiscal 2017 compared to fiscal 2016. The decrease was primarily due to lower amortization expense as certain intangible assets became fully amortized.

Interest and Other Income, net

	Year Ended		% Change in 2017
	January 28, 2017	January 30, 2016	
	(in thousands, except percentages)		
Interest and other income, net	\$ 17,022	\$ 17,685	(3.7)%
% of net revenue	0.7%	0.7%	

Interest and other income, net, decreased by \$0.7 million in fiscal 2017 compared to fiscal 2016. The decrease in fiscal 2017 reflects lower foreign currency gains from the revaluation of our foreign currency denominated tax liabilities combined with a decrease in interest income. The decrease in interest income was mainly due to overall lower average cash and investment balances offset by effects of higher interest rates.

Provision for Income Taxes

	Year Ended		% Change in 2017
	January 28, 2017	January 30, 2016	
	(in thousands, except percentages)		
Provision for income taxes	\$ 73,022	\$ 11,335	544.2%

The increase in income tax expense for fiscal 2017 compared to fiscal 2016 was primarily due to approximately \$66.9 million of tax expense related to restructuring actions taken in the fourth quarter of fiscal 2017. This consisted of \$50.1 million of foreign withholding taxes on undistributed earnings of certain subsidiaries that were no longer considered to be indefinitely reinvested as a result of these restructuring actions and \$16.8 million of additional foreign tax expense which also arises as a result of such restructuring. These tax expenses attributable to our global restructuring would not be expected to recur in the future.

Our provision for incomes taxes may be affected by changes in the geographic mix of earnings with different applicable tax rates, changes in the realizability of deferred tax assets and liabilities, accruals related to contingent tax liabilities and period-to-period changes in such accruals, the results of income tax audits, the expiration of statutes of limitations, the implementation of tax planning strategies, tax rulings, court decisions, settlements with tax authorities and changes in tax laws. Additionally, please see the information in "Item 1A: Risk Factors" under the caption "Changes in existing taxation benefits, rules or practices may adversely affect our financial results."

Years Ended January 30, 2016 and January 31, 2015

Net Revenue

	Year Ended		% Change in 2016
	January 30, 2016	January 31, 2015	
	(in thousands, except percentage)		
Net revenue	\$ 2,649,216	\$ 3,637,206	(27.2)%

Our net revenue for fiscal 2016 decreased by \$988.0 million compared to net revenue for fiscal 2015. The decrease was due to overall lower sales of products to customers in all of our product groups given the downsizing of the mobile handset business and continued challenges in the computing and consumer markets. Sales of our storage products decreased by 31%, sales of our other products decreased by 32%, sales of our networking products decreased by 20% and sales of our connectivity products decreased by 17%. Unit shipments were 18% lower combined with a 10% decline in average selling prices in fiscal 2016 compared to fiscal 2015, which resulted in an overall decline of 27%.

Prior to fiscal 2017, our customers agreed from time to time to take shipments in an earlier fiscal quarter than the fiscal quarter they originally requested delivery. When such agreement would not have occurred but for the request made by Marvell, we refer to such transactions internally as “pull-ins.” Pull-in sales increased compared to historical levels beginning in the fourth quarter of fiscal 2015 and returned to historical levels in the third quarter of fiscal 2016. Net revenue in fiscal 2016 related to pull-in sales for shipments taken early by our customers were approximately 9% and 11% of net revenue in the first and second quarters of fiscal 2016, respectively, and declined to less than 1% of net revenue in both the third and fourth quarters of fiscal 2016. This compares to net revenue in fiscal 2015 related to pull-in sales for shipments taken early by our customers, which were less than 1% in the first quarter of fiscal 2015, 1% in both the second and third quarter of fiscal 2015, and increased to 3% in the fourth quarter of fiscal 2015. Customer concessions related to these pull-in transactions, if any, were recorded in the same period in which the revenue was recognized. Beginning in fiscal 2017, our policy is not to engage in pull-in transactions.

Cost of Goods Sold

	Year Ended		
	January 30, 2016	January 31, 2015	% Change in 2016
	(in thousands, except percentages)		
Cost of goods sold	\$ 1,442,517	\$ 1,799,425	(19.8)%
% of net revenue	54.5%	49.5%	

Cost of goods sold as a percentage of net revenue was higher in fiscal 2016 due to a shift in the mix of our revenue, particularly in the first half of fiscal 2016, towards our then mobile and wireless products which had a higher average cost of goods sold as a percentage of revenue. In addition, cost of goods sold in fiscal 2016 includes higher inventory write downs due to lower than expected demand for our mobile related products. Cost of goods sold in fiscal 2016 also includes a \$81.3 million charge for the litigation settlement with CMU as described under the section “Litigation settlement with Carnegie Mellon University.”

Share-Based Compensation Expense

	Year Ended	
	January 30, 2016	January 31, 2015
(in thousands)		
Continuing operations:		
Cost of goods sold	\$ 7,787	\$ 7,972
Research and development	92,054	89,131
Selling and marketing	10,242	10,623
General and administrative	15,878	23,292
Share-based compensation - continuing operations	125,961	131,018
Discontinued operations:		
Cost of goods sold	129	—
Research and development	6,738	5,301
Selling and marketing	864	846
General and administrative	87	81
Share-based compensation - discontinued operations	7,818	6,228
Total share-based compensation	\$ 133,779	\$ 137,246

Share-based compensation expense for continuing operations decreased by \$5.1 million in fiscal 2016 compared to fiscal 2015. The decrease was mainly the result of the reversal of previously recognized expenses associated with unvested equity

awards that were cancelled as a result of the termination of employees affected by the restructuring of our mobile platform business. Share-based compensation expense was also lower since the financial goals related to performance-based equity awards granted in fiscal 2016 to our executive officers were not achieved and the related share-based compensation expense was adjusted accordingly. These decreases were partially offset by higher share-based compensation expense in fiscal 2016 from more restricted stock awards than in fiscal 2015.

Restructuring and Other Related Charges

	Year Ended	
	January 30, 2016	January 31, 2015
	(in thousands)	
Cost of goods sold	\$ 10,292	\$ —
Restructuring and other related charges	53,251	10,438
Write-off of acquired intangible assets	—	3,386
	<u>\$ 63,543</u>	<u>\$ 13,824</u>

We recorded a total of \$63.5 million in fiscal 2016 in connection with restructuring and other related charges. The charges were primarily related to the restructuring of our mobile platform business announced in September 2015 and included severance, other exit-related costs, the impairment of certain equipment and other assets, as well as the write down of inventory. In addition, we incurred additional charges in connection with our ongoing effort to streamline our business.

Research and Development

	Year Ended		
	January 30, 2016	January 31, 2015	% Change in 2016
	(in thousands, except percentages)		
Research and development	\$ 994,733	\$ 1,091,547	(8.9)%
% of net revenue	37.5%	30.0%	

Research and development expense decreased by \$96.8 million in fiscal 2016 compared to fiscal 2015. The decrease was primarily attributable to \$79.8 million of lower personnel-related costs primarily associated with headcount reductions in Israel and certain other locations in connection with our efforts to streamline our operations in fiscal 2015 and in the first half of fiscal 2016. In addition, we had a reduction in depreciation and amortization expense of \$6.8 million, lower costs for professional services of \$8.6 million and lower costs for third-party vendors of \$5.1 million.

Selling and Marketing

	Year Ended		
	January 30, 2016	January 31, 2015	% Change in 2016
	(in thousands, except percentages)		
Selling and marketing	\$ 124,096	\$ 139,627	(11.1)%
% of net revenue	4.7%	3.8%	

Selling and marketing expense decreased by \$15.5 million in fiscal 2016 compared to fiscal 2015. The decrease was primarily attributable to lower personnel-related costs of \$6.9 million due to lower headcount. The decrease also reflected a decrease of \$4.0 million of marketing communications expenses.

General and Administrative

	Year Ended		% Change in 2016
	January 30, 2016	January 31, 2015	
	(in thousands, except percentages)		
General and administrative	\$ 145,359	\$ 124,046	17.2%
% of net revenue	5.5%	3.4%	

General and administrative expense increased by \$21.3 million in fiscal 2016 compared to fiscal 2015. The increase was primarily attributable to a charge for a cash payment authorized by our Board of Directors of \$15.4 million to our former Chief Executive Officer, higher legal expenses of \$7.7 million mainly associated with certain accounting and internal control matters that are the subject of investigations by the Securities and Exchange Commission and the U.S. Attorney, and which were also investigated by the Company's Audit Committee and \$4.2 million of higher costs for the surety bond related to CMU. These increases were partially offset by \$7.8 million of lower personnel-related costs due to lower headcount and lower share-based compensation expenses related to the performance-based equity awards granted to our executive officers in fiscal 2016 for which financial goals were not achieved.

Carnegie Mellon University Litigation Settlement

	Year Ended		
	January 30, 2016	January 31, 2015	% Change in 2016
	(in thousands, except percentages)		
Litigation settlement with Carnegie Mellon University	\$ 654,667	\$ —	100.0%
% of net revenue	24.7%	—%	

In connection with the settlement agreement with CMU for \$750 million, \$654.7 million of the settlement allocated to the mutual release of claims and covenant not to sue was recorded in operating expenses. Of the remaining \$95.3 million, \$81.3 million was recorded in cost of goods sold for fiscal 2016. The remaining \$14.0 million will be recognized in cost of goods sold over the remaining term of the license through April 2018.

Amortization and Write-Off of Acquired Intangible Assets

	Year Ended		
	January 30, 2016	January 31, 2015	% Change in 2016
	(in thousands, except percentages)		
Amortization and write-off of acquired intangible assets	\$ 10,098	\$ 15,747	(35.9)%
% of net revenue	0.4%	0.4%	

Amortization and write-off of acquired intangible assets decreased by \$5.6 million in fiscal 2016 compared to fiscal 2015. The decrease was due to lower amortization expense as certain intangible assets became fully amortized. In addition, fiscal 2016 included charges of \$0.3 million to write off a trade name and \$0.3 million to write off core technology, compared to a \$3.4 million write-off of IPR&D upon our decision to discontinue the related project in fiscal 2015.

Interest and Other Income, net

	Year Ended		
	January 30, 2016	January 31, 2015	% Change in 2016
	(in thousands, except percentages)		
Interest and other income, net	\$ 17,685	\$ 23,334	(24.2)%
% of net revenue	0.7%	0.6%	

Interest and other income, net, decreased by \$5.6 million in fiscal 2016 compared to fiscal 2015. The decrease was mainly due to a \$3.0 million loss due to the write-off of an equity investment and a \$1.2 million impairment loss on our auction rate securities, compared to an \$8.8 million gain from the sale of an investment in fiscal 2015. The decrease was partially offset by the recognition of foreign currency gains, which were \$4.8 million higher in fiscal 2016 compared to fiscal 2015 due to revaluation of our foreign currency denominated tax liabilities and releases of previously accumulated liabilities, and the increase in interest income from higher rate of return as well as higher average cash and investment balances.

Provision (benefit) for Income Taxes

	Year Ended		
	January 30, 2016	January 31, 2015	% Change in 2016
	(in thousands, except percentages)		
Provision (benefit) for income taxes	\$ 11,335	\$ (4,077)	(378.0)%

The increase in income tax expense for fiscal 2016 compared to fiscal 2015 was primarily due to the recognition of \$7.5 million of valuation allowance against certain non-U.S. deferred tax assets that will not be realized in the foreseeable future and an additional tax provision of \$3.1 million related to a \$15.4 million payment to our former Chief Executive Officer.

Liquidity and Capital Resources

Our principal source of liquidity as of January 28, 2017 consisted of approximately \$1.7 billion of cash, cash equivalents and short-term investments, of which approximately \$970 million was held by foreign subsidiaries (outside Bermuda). Approximately \$620 million of this amount held by foreign subsidiaries is related to undistributed earnings which have been indefinitely reinvested outside of Bermuda. These funds are primarily held in China, Israel and the United States. We have plans to use such amounts to fund various activities outside of Bermuda, including working capital requirements, capital expenditures for expansion, funding of future acquisitions or other financing activities. If such funds were needed by the parent company in Bermuda or if the amounts were otherwise no longer considered indefinitely reinvested, we would incur a tax expense of approximately \$190 million. In addition, as described under "Provision for Income Taxes" above, we accrued deferred taxes of approximately \$50.1 million on undistributed earnings of certain subsidiaries that were no longer considered to be indefinitely reinvested due to restructuring actions taken in the fourth quarter of fiscal year 2017.

We believe that our existing cash, cash equivalents and short-term investments, together with cash generated from operations, will be sufficient to cover our working capital needs, capital expenditures, investment requirements and any declared dividends, repurchase of our common stock and commitments for at least the next 12 months. Our capital requirements will depend on many factors, including our rate of sales growth, market acceptance of our products, costs of securing access to adequate manufacturing capacity, the timing and extent of research and development projects and increases in operating expenses, which are all subject to uncertainty. In addition, we are named as defendants in several litigation actions and an unfavorable outcome in any current litigation could have a material adverse effect on our liquidity, cash flows and results of operations.

To the extent that our existing cash, cash equivalents and short-term investments and cash generated by operations are insufficient to fund our future activities, we may need to raise additional funds through public or private debt or equity financing. We may also enter into additional acquisitions of businesses, purchase assets or enter into other strategic arrangements in the future, which could also require us to seek debt or equity financing. Additional equity financing or convertible debt financing may be dilutive to our current shareholders. If we elect to raise additional funds, we may not be able to obtain such funds on a timely basis or on acceptable terms, if at all. In addition, the equity or debt securities that we issue may have rights, preferences or privileges senior to our common shares.

Future payment of a regular quarterly cash dividend on our common shares and our planned repurchases of common stock will be subject to, among other things, the best interests of the Company and our shareholders, our results of operations, cash balances and future cash requirements, financial condition, developments in ongoing litigation, statutory requirements under Bermuda law, market conditions and other factors that our board of directors may deem relevant. Our dividend payments and repurchases of common stock may change from time to time, and we cannot provide assurance that we will continue to declare dividends at all or in any particular amounts.

Cash Flows from Operating Activities

Net cash used in operating activities was \$358.4 million for fiscal 2017 compared to net cash provided by operating activities of \$205.4 million and \$728.9 million for fiscal 2016 and fiscal 2015, respectively. The cash outflows from operations for fiscal 2017 were primarily due to \$21.2 million of net income adjusted for \$329.6 million of non-cash items, offset by a net decrease in working capital of \$709.2 million. The cash outflow from working capital for fiscal 2017 was primarily driven by the decrease in the CMU accrued litigation settlement that was fully paid in the first quarter of fiscal 2017. The negative effect on working capital was partially offset by an increase in accrued liabilities and other non-current liabilities primarily due to an increase in income taxes for fiscal 2017 combined with a decrease in inventories.

The cash inflows from operations for fiscal 2016 were primarily due to \$811.4 million of net loss adjusted for \$282.6 million of non-cash items and a net increase in working capital of \$734.2 million. The cash inflow from working capital was

primarily driven by a decrease in accounts receivable due to improved collections and a decrease in inventories, combined with an increase in accrued liabilities and the accrued litigation settlement with CMU. The net increase in working capital was partially offset by decreases in accounts payable due to the timing of payments and accrued compensation primarily due to lower annual incentive compensation in fiscal 2016 compared to fiscal 2015, as well as an increase in prepaid expenses and other assets due to a deposit paid in connection with a foundry agreement executed in October 2015.

The cash inflows from operations for fiscal 2015 were primarily due to \$435.3 million of net income adjusted for \$238.2 million of non-cash items and a net increase in working capital changes of \$55.4 million. The cash inflow from working capital was primarily driven by a decrease in accounts receivable due to improved collections and a decrease in inventories, combined with an increase in accrued employee compensation as a result of higher incentive compensation.

Cash Flows from Investing Activities

Net cash provided by investing activities was \$161.6 million for fiscal 2017 compared to \$201.7 million provided by investing activities for fiscal 2016 and net cash used in investing activities of \$368.9 million for fiscal 2015. For fiscal 2017, net cash provided by investing activities was primarily generated from the sales and maturities of available-for-sale securities of \$856.3 million less purchases of available-for-sale securities of \$489.9 million, which were also partially offset by payments of \$150.0 million for net purchases of time deposits, \$44.5 million for purchases of property and equipment and \$10.3 million for the purchase of technology licenses.

For fiscal 2016, net cash provided by investing activities was primarily generated from the sales and maturities of available-for-sale securities of \$1.3 billion less purchases of available-for-sale securities of \$1.1 billion, which were partially offset by payments of \$37.3 million for the purchase of property and equipment, and \$8.2 million for the purchase of technology licenses.

For fiscal 2015, net cash used in investing activities was primarily due to purchases of available-for-sale securities of \$1.1 billion, offset by the sales and maturities of available-for-sale securities of \$826.3 million. In addition, we paid \$63.0 million for the purchase of property and equipment, and \$16.4 million for the purchase of technology licenses.

Cash Flows from Financing Activities

Net cash used in financing activities was \$267.2 million for fiscal 2017 compared to \$339.8 million for fiscal 2016 and \$114.8 million for fiscal 2015. For fiscal 2017, net cash used in financing activities was primarily attributable to payments for repurchases under our share repurchase program of our common shares in the open market for \$181.6 million and for our quarterly cash dividends of \$122.3 million. The cash outflow was partially offset by net proceeds of \$57.5 million from the issuance of our common shares under our share-based plans less the minimum tax withholding on behalf of employees for net share settlements.

For fiscal 2016, net cash used in financing activities was primarily attributable to payments for repurchases under our share repurchase program of our common shares in the open market for \$260.9 million and for our quarterly cash dividends of \$122.8 million. The cash outflow was partially offset by net proceeds of \$56.4 million from the issuance of our common shares under our share-based plans less the minimum tax withholding on behalf of employees for net share settlements.

For fiscal 2015, net cash used in financing activities was primarily attributable to payments of our quarterly cash dividends of \$122.8 million and repurchases under our share repurchase program of our common shares in the open market for \$65.0 million. The cash outflow was partially offset by net proceeds of \$85.9 million from the issuance of our common shares under our share-based plans less the minimum tax withholding on behalf of employees for net share settlements.

Off-Balance Sheet Arrangements

As part of our ongoing business, we do not participate in transactions that generate relationships with unconsolidated entities of financial partnerships, such as entities often referred to as structured finance or special purpose entities ("SPEs"), which would have been established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes. As of January 28, 2017, we were not involved in any unconsolidated SPE transactions.

Contractual Obligations and Commitments

Under our manufacturing relationships with our foundry partners, cancellation of outstanding purchase orders is allowed but requires repayment of all expenses incurred through the date of cancellation. As of January 28, 2017, these foundries had incurred approximately \$208.8 million of manufacturing costs and expenses relating to our outstanding purchase orders.

The following table summarizes our contractual obligations as of January 28, 2017 and the effect that such obligations are expected to have on our liquidity and cash flow in future periods (in thousands):

Payment Obligations by Fiscal Year

	2018	2019	2020	2021	2022	Thereafter	Total
Contractual obligations:							
Facilities operating leases, net	\$ 15,397	\$ 12,779	\$ 6,508	\$ 3,767	\$ 610	\$ 2,147	\$ 41,208
Computer-aided design software	21,770	14,225	10,200	—	—	—	46,195
Purchase commitments to foundries	208,817	—	—	—	—	—	208,817
Capital purchase obligations	10,930	—	—	—	—	—	10,930
Technology license obligations	23,180	7,025	7,025	—	—	—	37,230
Other non-current obligations (1)	—	3,185	2,000	—	—	4,076	9,261
Total contractual cash obligations	<u>\$ 280,094</u>	<u>\$ 37,214</u>	<u>\$ 25,733</u>	<u>\$ 3,767</u>	<u>\$ 610</u>	<u>\$ 6,223</u>	<u>\$ 353,641</u>

(1) Amounts represent anticipated future cash payments, including anticipated interest payments not recorded in the consolidated balance sheet.

In addition to the above commitments and contingencies, as of January 28, 2017, we have \$16.3 million of unrecognized tax benefits as liabilities. We also have a liability for potential interest and penalties of \$21.6 million as of January 30, 2016. It is reasonably possible that the amount of unrecognized tax benefits could increase or decrease significantly due to changes in tax law in various jurisdictions, new tax audits and changes in the U.S. dollar as compared to foreign currencies within the next 12 months. Excluding these factors, uncertain tax positions may decrease by as much as \$9.5 million from the lapse of statutes of limitation in various jurisdictions during the next 12 months. Government tax authorities from several non-U.S. jurisdictions are also examining our tax returns. We believe that we have adequately provided for any reasonably foreseeable outcomes related to these tax audits and that any settlement will not have a material effect on our results at this time.

Recent Accounting Pronouncements

Please see “Note 1 — The Company and its Significant Accounting Policies — Recent Accounting Pronouncements” for further details in our Notes to the Consolidated Financial Statements set forth in Part II, Item 8 of this Annual Report on Form 10-K.

Related Party Transactions

Please see “Note 14 — Related Party Transactions” for further details in our Notes to the Consolidated Financial Statements set forth in Part II, Item 8 of this Annual Report on Form 10-K.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Interest Rate Risk. Our interest rate risk relates primarily to our fixed income short-term investment portfolio as we did not have any outstanding debt as of January 28, 2017. We maintain an investment policy that requires minimum credit ratings, diversification of credit risk and limits the long-term interest rate risk by requiring effective maturities of generally less than five years. We invest our excess cash primarily in highly liquid debt instruments of the U.S. government and its agencies, money market mutual funds, asset backed securities, corporate debt securities and municipal debt securities that are classified as available-for-sale and time deposits. These investments are recorded on our consolidated balance sheets at fair market value with their related unrealized gain or loss reflected as a component of accumulated other comprehensive income (loss) in the consolidated statement of shareholders’ equity. Investments in both fixed rate and floating rate interest earning securities carry a degree of interest rate risk. Fixed rate securities may have their fair market value adversely impacted due to a rise in interest rates, while floating rate securities may produce less income than predicted if interest rates fall.

To provide an assessment of the interest rate risk associated with our investment portfolio, we performed a sensitivity analysis to determine the impact that an adverse change in interest rates would have on the value of the investment portfolio, excluding time deposits. Based on investment positions as of January 28, 2017, a hypothetical 100 basis point increase in interest rates across all maturities would result in a \$6.4 million decline in the fair market value of the portfolio. Due to our positive cash flow from operations, the relatively short-term nature of our investment portfolio and our ability to hold investments to maturity, such change in fair market value would likely not have resulted in any significant cash flow impact.

As of January 28, 2017, our investment portfolio included \$5.0 million in par value of an auction rate security classified as a long-term investment. Although the security has continued to pay interest, there is currently limited trading volume. To estimate the fair value of the auction rate security, we use a discounted cash flow model based on estimated timing and amount of future interest and principal payments. In developing the cash flow model, we consider the credit quality and liquidity of the underlying securities and related issuer, the collateralization of underlying security investments and other considerations.