

ANALOGIC CORP

FORM 10-Q (Quarterly Report)

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**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549**

FORM 10-Q

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

For the quarterly period ended January 31, 2017

OR

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

For the transition period from _____ to _____

Commission File Number 0-6715



ANALOGIC CORPORATION

(Exact name of registrant as specified in its charter)

Massachusetts
(State or other jurisdiction of
incorporation or organization)

8 Centennial Drive, Peabody, Massachusetts
(Address of principal executive offices)

04-2454372
(I.R.S. Employer
Identification No.)

01960
(Zip Code)

(978) 326-4000
(Registrant's telephone number, including area code)

(Former name, former address and former fiscal year, if changed since last report.)

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

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes No

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

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

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

As of March 1, 2017, there were 12,489,189 shares of common stock outstanding.

ANALOGIC CORPORATION
Form 10Q – Quarterly Report
For the Quarterly Period Ended January 31, 2017
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Part I. FINANCIAL INFORMATION

Item 1. Financial Statements (Unaudited)

ANALOGIC CORPORATION
CONSOLIDATED BALANCE SHEETS
(Unaudited in thousands, except share and per share data)

	January 31, 2017	July 31, 2016
Assets		
Current assets:		
Cash and cash equivalents	\$ 152,990	\$ 118,697
Accounts receivable, net of allowance for doubtful accounts of \$1,091 and \$1,070 as of January 31, 2017 and July 31, 2016, respectively	91,581	112,412
Inventory	143,800	145,513
Income tax receivable	3,042	3,004
Prepaid expenses and other current assets	10,360	9,178
Total current assets	401,773	388,804
Property, plant, and equipment, net	106,652	107,790
Intangible assets, net	40,644	45,194
Goodwill	64,105	73,915
Deferred income taxes	10,733	10,671
Other assets	4,536	6,523
Total assets	\$ 628,443	\$632,897
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	\$ 30,063	\$ 28,575
Accrued employee compensation and benefits	16,968	18,108
Accrued income tax	722	1,610
Accrued warranty	6,060	6,296
Accrued restructuring charges	1,462	5,248
Deferred revenue	4,353	5,359
Customer deposits	4,193	3,476
Contingent consideration	3,096	4,534
Other current liabilities	4,232	5,261
Total current liabilities	71,149	78,467
Long-term liabilities:		
Accrued income taxes, net of current portion	2,351	2,174
Contingent consideration, net of current portion	1,040	7,705
Other long-term liabilities	11,699	13,374
Total long-term liabilities	15,090	23,253
Guarantees, commitments and contingencies (Note 16)		
Stockholders' Equity:		
Common stock, \$0.05 par value; 30,000,000 shares authorized and 12,482,405 shares issued and outstanding as of January 31, 2017; 30,000,000 shares authorized and 12,396,765 shares issued and outstanding as of July 31, 2016	623	619
Capital in excess of par value	154,821	149,005
Retained earnings	397,532	390,013
Accumulated other comprehensive loss	(10,772)	(8,460)
Total stockholders' equity	542,204	531,177
Total liabilities and stockholders' equity	\$ 628,443	\$632,897

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

ANALOGIC CORPORATION
CONSOLIDATED STATEMENTS OF OPERATIONS
(Unaudited, in thousands, except per share data)

	Three Months Ended January 31,		Six Months Ended January 31,	
	2017	2016	2017	2016
Net revenue:				
Product	\$ 130,330	\$ 125,938	\$ 250,582	\$ 240,067
Engineering	1,204	1,931	2,077	2,750
Total net revenue	<u>131,534</u>	<u>127,869</u>	<u>252,659</u>	<u>242,817</u>
Cost of sales:				
Product	72,721	68,123	141,482	131,070
Engineering	1,123	967	1,846	2,029
Total cost of sales	<u>73,844</u>	<u>69,090</u>	<u>143,328</u>	<u>133,099</u>
Gross profit	<u>57,690</u>	<u>58,779</u>	<u>109,331</u>	<u>109,718</u>
Operating expenses:				
Research and product development	16,213	16,566	32,063	33,805
Selling and marketing	17,358	15,249	35,538	30,482
General and administrative	3,979	22,308	17,600	35,504
Restructuring	267	3,147	299	6,430
Asset impairment charges	10,423	—	10,423	—
Total operating expenses	<u>48,240</u>	<u>57,270</u>	<u>95,923</u>	<u>106,221</u>
Income from operations	<u>9,450</u>	<u>1,509</u>	<u>13,408</u>	<u>3,497</u>
Other income (expense), net	28	(3,507)	(414)	(3,965)
Income (loss) before income taxes	<u>9,478</u>	<u>(1,998)</u>	<u>12,994</u>	<u>(468)</u>
Provision for income taxes	<u>1,968</u>	<u>987</u>	<u>2,948</u>	<u>1,141</u>
Net income (loss)	<u>\$ 7,510</u>	<u>\$ (2,985)</u>	<u>\$ 10,046</u>	<u>\$ (1,609)</u>
Net income (loss) per common share:				
Basic	\$ 0.60	\$ (0.24)	\$ 0.81	\$ (0.13)
Diluted	\$ 0.59	\$ (0.24)	\$ 0.79	\$ (0.13)
Weighted average shares outstanding:				
Basic	12,466	12,418	12,442	12,422
Diluted	12,680	12,418	12,712	12,422
Dividends declared and paid per share	\$ 0.10	\$ 0.10	\$ 0.20	\$ 0.20

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

ANALOGIC CORPORATION
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(Unaudited, in thousands)

	Three Months Ended		Six Months Ended	
	January 31,		January 31,	
	<u>2017</u>	<u>2016</u>	<u>2017</u>	<u>2016</u>
Net income (loss)	\$ 7,510	\$ (2,985)	\$ 10,046	\$ (1,609)
Other comprehensive income (loss), net of tax:				
Foreign currency translation adjustment, net of tax	(1,019)	(2,729)	(2,593)	(3,248)
Unrecognized gain on pension benefits, net of tax	52	50	110	50
Unrealized gain (loss) on foreign currency forward contracts, net of tax	385	(127)	171	(15)
Total other comprehensive loss, net of tax	(582)	(2,806)	(2,312)	(3,213)
Total comprehensive income (loss)	<u>\$ 6,928</u>	<u>\$ (5,791)</u>	<u>\$ 7,734</u>	<u>\$ (4,822)</u>

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

ANALOGIC CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited, in thousands)

	Six Months Ended January 31,	
	2017	2016
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net income (loss)	\$ 10,046	\$ (1,609)
Adjustments to reconcile net income (loss) to net cash provided by operating activities:		
Benefit from deferred income taxes	(194)	(2,319)
Depreciation and amortization	12,871	11,281
Asset impairment charges	10,423	—
Share-based compensation expense	4,255	4,209
Write down of demo equipment to net realizable value	969	1,319
Provision for excess and obsolescence inventory	1,329	624
Excess tax benefit from share-based compensation	(158)	(220)
Change in fair value of contingent consideration	(8,103)	—
Provision for doubtful accounts, net of recovery	20	(32)
Gain (loss) on sale of property, plant and equipment	36	(12)
Net changes in operating assets and liabilities:		
Accounts receivable	20,223	22,945
Inventory	(4,180)	(20,074)
Prepaid expenses and other assets	641	(1,720)
Accounts payable	1,207	(1,394)
Accrued liabilities	(5,699)	9,866
Deferred revenue	(977)	(686)
Customer deposits	720	11
Accrued income taxes and income taxes receivable	(1,120)	(3,566)
Other liabilities	(1,552)	226
NET CASH PROVIDED BY OPERATING ACTIVITIES	40,757	18,849
CASH FLOWS FROM INVESTING ACTIVITIES:		
Additions to property, plant, and equipment	(5,743)	(4,521)
Acquisition of businesses, net of cash acquired	—	(8,048)
Proceeds from the sale of property, plant, and equipment	18	60
NET CASH USED IN INVESTING ACTIVITIES	(5,725)	(12,509)
CASH FLOWS FROM FINANCING ACTIVITIES:		
Issuance of stock pursuant to exercise of stock options, employee stock purchase plan, restricted stock plans, and non-employee director stock plan	3,090	2,294
Repurchase of common stock	—	(7,236)
Shares repurchased for taxes for vested employee restricted stock grants	(1,039)	(1,708)
Excess tax benefit from share-based compensation	158	220
Dividends paid to shareholders	(2,501)	(2,487)
Cash paid for financing cost	—	(458)
NET CASH USED IN FINANCING ACTIVITIES	(292)	(9,375)
EFFECT OF EXCHANGE RATE CHANGES ON CASH	(447)	(698)
NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	34,293	(3,733)
CASH AND CASH EQUIVALENTS, BEGINNING OF PERIOD	118,697	123,800
CASH AND CASH EQUIVALENTS, END OF PERIOD	\$ 152,990	\$ 120,067
Supplemental disclosures of cash flow information:		
Non-cash transfer of demonstration inventory to fixed asset	\$ 1,764	\$ —

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

ANALOGIC CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited, in millions, except share and per share data)

1. Basis of presentation

Throughout this Quarterly Report on Form 10-Q, unless the context states otherwise, the words “we,” “us,” “our” and “Analogic” refer to Analogic Corporation and all of its subsidiaries taken as a whole, and “our board of directors” refers to the board of directors of Analogic Corporation.

Our unaudited consolidated financial statements presented herein have been prepared pursuant to the rules of the United States Securities and Exchange Commission, or SEC, for quarterly reports on Form 10-Q. Preparing financial statements requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue, and expenses. We report our financial condition and results of operations on a fiscal year basis ending on July 31st of each year. The three months ended January 31, 2017 and 2016 represent the second quarters of fiscal years 2017 and 2016, respectively.

In our opinion, the accompanying unaudited consolidated financial statements contain all adjustments (consisting solely of normal recurring adjustments) necessary for a fair statement of the results for all interim periods presented. The results of operations for the three and six months ended January 31, 2017 are not necessarily indicative of the operating results for the full year. These statements should be read in conjunction with the consolidated financial statements and notes thereto for the fiscal year ended July 31, 2016, or fiscal year 2016, included in our Annual Report on Form 10-K as filed with the SEC on September 27, 2016. The year-end balance sheet data was derived from audited financial statements, but does not include all disclosures required by generally accepted accounting principles, or GAAP, in the United States of America.

Consolidation

The unaudited consolidated financial statements presented herein include our accounts and those of our subsidiaries, all of which are wholly owned. All intercompany accounts and transactions have been eliminated in consolidation.

In determining whether we are the primary beneficiary of an entity and therefore required to consolidate, we apply a qualitative approach that determines whether we have both (1) the power to direct the economically significant activities of the entity and (2) the obligation to absorb losses of, or the right to receive benefits from, the entity that could potentially be significant to that entity. We have not been required to consolidate the activity of any entity due to these considerations.

Reclassifications and revisions to prior period financial statements

Certain financial statement items have been reclassified to conform to the current period presentation. We separately presented write down of demo equipment to net realizable value and provision for excess and obsolescence inventory on our January 31, 2016 Consolidated Statements of Cash Flows to conform to the current period presentation. There was no impact on our Consolidated Statements of Operations as a result of these reclassifications.

2. Recent accounting pronouncements

Accounting pronouncements issued and recently adopted

Simplifying the Test for Goodwill Impairment

In January 2017, the FASB issued ASU No. 2017-04, “*Intangibles—Goodwill and Other (Topic 350)*” The amendments remove Step 2 of the goodwill impairment test, which requires a hypothetical purchase price allocation. Goodwill impairment will now be the amount by which a reporting unit’s carrying value exceeds its fair value, not to exceed the carrying amount of goodwill. The amendments are effective for annual or any interim goodwill impairment tests in fiscal years beginning after December 15, 2019. Early adoption is permitted for any impairment tests performed after January 1, 2017. The standard will be effective for us for annual or any interim goodwill impairment tests in fiscal years beginning August 1, 2020. We elected early adoption of ASU 2017-04 as of January 1, 2017. We do not deem the adoption of this update to have a material impact on our consolidated financial statements as of January 1, 2017.

Accounting pronouncements issued and not yet effective

Clarifying the Definition of a Business

In January 2017, the FASB issued ASU No. 2017-01, “*Business Combinations (Topic 805): Clarifying the Definition of a Business.*” The amendments provide the requirements needed for a set to be a business and establish a practical way to determine when a set is not a business. To be considered a business, an acquisition would have to include an input and a substantive process that

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together significantly contribute to the ability to create outputs. An output is the result of inputs and substantive processes that provide goods or services to customers, other revenue, or investment income, such as dividends and interest. The amendments narrow the definition of outputs and align it with how outputs are described in Topic 606 “Revenue from Contracts with Customers”. The amendments are effective for annual periods beginning after December 15, 2017, including interim periods within those periods. Early adoption is permitted. The standard will be effective for us in fiscal years beginning August 1, 2018. We are currently evaluating the impact of the adoption of this update on our consolidated financial statements.

Classification of Certain Cash Receipts and Cash Payments

In August 2016, the FASB issued ASU No. 2016-15, “*Statement of Cash Flows (Topic 230)*.” The amendments provide guidance on the eight specific cash flow statement presentation and classification issues as follows: (1) debt prepayment or debt extinguishment costs; (2) settlement of zero-coupon debt instruments or other debt instruments with coupon interest rates that are insignificant in relation to the effective interest rate of the borrowing; (3) contingent consideration payments made after a business combination; (4) proceeds from the settlement of insurance claims; (5) proceeds from the settlement of corporate-owned life insurance policies, including bank-owned life insurance policies; (6) distributions received from equity method investees; (7) beneficial interests in securitization transactions; and (8) separately identifiable cash flows and application of the predominance principle. The amendments are effective for fiscal years beginning after December 15, 2017, and interim periods within those fiscal years. Early adoption is permitted. The standard will be effective for us in the first quarter of our fiscal year ending July 31, 2019. We are currently evaluating the impact of the adoption of this update on our consolidated financial statements.

Improvements to employee share-based payment accounting

In March 2016, the FASB issued ASU No. 2016-09, “Improvements to Employee Share-Based Payment Accounting,” which amends ASC 718, “Stock Based Compensation.” The amendments require that all excess tax benefits be recorded as an income tax benefit or expense in the income statement and be classified as an operating activity in the statement of cash flows. Entities may also elect to estimate the amount of forfeitures or recognize them as they occur. The amendments are effective for fiscal years, and interim periods within those years, beginning after December 15, 2016. The standard will be effective for us in the first quarter of our fiscal year ending July 31, 2018 and early adoption is permitted. We are currently evaluating the impact of the adoption of this update on our consolidated financial statements.

Leases

In February 2016, the FASB issued ASU No. 2016-02, “Leases (Topic 842)”. The standard requires lessees to recognize assets and liabilities for most leases on the balance sheet. For income statement purposes, the standard requires leases to be classified as either operating or finance. The standard is effective for annual and interim periods beginning after December 15, 2018. Early adoption is permitted. The standard will be effective for us in the first quarter of our fiscal year ending July 31, 2020. Adoption requires application of the new guidance for all periods presented. We are currently evaluating the impact of the adoption of this standard on our consolidated financial statements.

Revenue from contracts with customers

In May 2014, the FASB issued ASU No. 2014-09, “Revenue from Contracts with Customers (Topic 606)”. This update affects any entity that either enters into contracts with customers to transfer goods or services or enters into contracts for the transfer of nonfinancial assets. This update will supersede existing revenue recognition requirements and most industry-specific guidance. This update also supersedes some cost guidance, including revenue recognition guidance for construction-type and production-type contracts. The update’s core principle is that a company will recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the company expects to be entitled in exchange for those goods or services. In doing so, companies will need to use more judgment and make more estimates than under today’s guidance. These may include identifying performance obligations in the contract, estimating the amount of variable consideration to include in the transaction price and allocating the transaction price to each separate performance obligation. This update should be applied either on a retrospective or modified retrospective basis. This update was originally effective for us in the first quarter of our fiscal year ending July 31, 2018. Early adoption was not permitted. In August 2015, the FASB approved a one year delay of the effective date of the new revenue standard for public entities. Therefore, this update would be effective for us in the first quarter of our fiscal year ending July 31, 2019. The standard permits entities to early adopt, but only as of the original effective date (i.e. one year earlier). We are currently evaluating the impact of the adoption of this update on our consolidated financial statements.

3. Business Combinations

Oncura Partners Diagnostics, LLC, or Oncura

On January 8, 2016, the Company wholly acquired Oncura Partners Diagnostics, LLC, a privately held provider of remote, real-time ultrasound imaging and teleconsulting services currently focused on the veterinary medicine market. Oncura is included within

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the Ultrasound reportable segment. The purchase price was \$20.2 million, comprised of an upfront cash payment of \$8.4 million, post-closing adjustments of \$0.4 million, the relief of liabilities owed to Analogic of \$1.3 million, and the fair value of contingent consideration at the time of acquisition of \$10.1 million. The acquisition has been accounted for as an acquisition of a business.

We finalized the purchase accounting for the Oncura acquisition during the second quarter of fiscal year 2017. The following table summarizes the purchase price allocation based on estimates of the fair values of the separately identifiable assets acquired and liabilities assumed as of the acquisition date. The fair value measurements of intangibles, property, plant and equipment, deferred revenue, and contingent consideration were based upon significant inputs not observable in the market and therefore represent fair value measurements based on Level 3 inputs, as defined in *Note 7, Fair Value Measurements*.

(in millions)	
Cash	\$ 0.4
Accounts receivable	0.3
Inventory	0.2
Other assets	0.4
Property, plant, and equipment	0.4
Goodwill	16.4
Intangible assets:	
Tradename (estimated useful life of 5 years)	\$ 1.0
Customer relationships (estimated useful life of 6 years)	3.1
Total intangible assets	4.1
Total assets acquired	22.2
Accounts payable and accrued expenses	(0.9)
Deferred revenue	(1.1)
Total liabilities assumed	(2.0)
Total purchase price	<u>\$20.2</u>

We estimated the fair value of identifiable acquisition-related intangible assets primarily based on discounted cash flow projections that will arise from these assets. We use significant judgment with regard to assumptions used in the determination of fair value such as discount rates and the determination of the estimated useful lives of the intangible assets.

In connection with this acquisition, we recorded an acquisition date fair value contingent consideration obligation of \$10.1 million within long-term contingent consideration, in the Consolidated Balance Sheets. This obligation is payable upon the achievement of certain revenue and gross margin targets over a four year period starting on May 1, 2016. There is no limit on the earnout that can be paid out. The \$10.1 million fair value was estimated through a Monte Carlo valuation model that incorporates probability adjusted assumptions relating to the achievement of these targets and the likelihood of us making payments. This fair value measurement is based upon significant inputs not observable in the market and therefore represents a Level 3 input measurement. Subsequent changes in the fair value of this obligation will be recognized as adjustments to the contingent consideration liability and reflected within our Consolidated Statement of Operations within general and administrative operating expenses. During the six months ended January 31, 2017 and fiscal year 2016, the estimated fair value of our contingent consideration obligation changed by \$(8.1) million and \$0.1 million. The total fair value of our contingent consideration obligation was \$2.1 million and \$10.2 million as of January 31, 2017 and July 31, 2016. For additional information related to the fair value of this obligation, please refer to *Note 7, Fair Value Measurements*.

We recorded goodwill of \$16.4 million related to the Oncura acquisition representing the value of the opportunities from the addition of Oncura's product and service portfolio within the veterinary industry. The goodwill from this acquisition will be deductible for tax purposes over the statutory 15 year period.

During the three and six months ended January 31, 2017, we did not incur acquisition costs. During the three and six months ended January 31, 2016, we incurred acquisition costs of approximately \$0.4 million, which consisted primarily of legal and due diligence expenses that are included in our general and administrative expenses in our Consolidated Statements of Operations.

The pro forma financial information for the three and six months ended January 31, 2017 and 2016, including revenue and net income, is immaterial, and has not been separately presented.

4. Accounts receivable, net

Our accounts receivable arise primarily from products sold and services provided in North America, Europe and Asia. The balance in accounts receivable represents the amount due from our domestic and foreign original equipment manufacturers, or OEM, customers, distributors and end users. We perform ongoing credit evaluations of our customers' financial condition and continuously monitor collections and payments from our customers and maintain a provision for estimated credit losses based upon specific

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customer collection issues that have been identified. We accrue reserves against trade receivables for estimated losses that may result from a customer's inability to pay. Amounts determined to be uncollectible are charged or written off against the reserve. To date, our historical write-offs of accounts receivable have been minimal.

Our top ten customers combined accounted for approximately 63% and 61% of our total net revenue for each of the three months ended January 31, 2017 and 2016, respectively and 63% and 62% of our total net revenue for the six months ended January 31, 2017 and 2016 respectively. Set forth in the table below are customers which individually accounted for 10% or more of our net revenue.

	Three Months Ended January 31,		Six Months Ended January 31,	
	2017	2016	2017	2016
Koninklijke Philips Electronics N.V., or Philips	14%	13%	13%	13%
Siemens AG	11%	13%	12%	14%
L-3 Communications Corporation, or L-3	10%	*	10%	*
Toshiba Corporation, or Toshiba	11%	11%	10%	11%

Note (*): Total net revenue was less than 10% in this period.

The following table summarizes our customers with net accounts receivable balances greater than or equal to 10% of our total net accounts receivable balance:

	As of January 31, 2017	As of July 31, 2016
L-3	13%	17%
Philips	18%	15%
Toshiba	10%	*

5. Inventory

The components of inventory, net of allowance for obsolete, unmarketable or slow-moving inventories, are summarized as follows:

(in millions)	As of January 31, 2017	As of July 31, 2016
Raw materials	\$ 72.4	\$ 68.6
Work in process	45.3	45.6
Finished goods	26.1	31.3
Total inventory	\$ 143.8	\$ 145.5

6. Intangible assets and goodwill

Intangible assets

Intangible assets include the value assigned to intellectual property and other technology, patents, customer contracts and relationships, and trade names. The estimated useful lives for all of these intangible assets, excluding a trade name determined to have an indefinite life, range between 1 to 14 years. Indefinite-lived intangible assets consist of trade names acquired in business combinations. The carrying values of our indefinite-lived intangible assets were \$7.6 million at both January 31, 2017 and July 31, 2016.

Finite-lived intangible assets are summarized as follows:

(in millions)	Weighted Average Amortization Period	As of January 31, 2017			As of July 31, 2016		
		Cost	Accumulated Amortization/ Write-Offs	Net	Cost	Accumulated Amortization	Net
Developed technologies	10 years	\$29.2	\$ 16.5	\$12.7	\$29.9	\$ 15.1	\$14.8
Customer relationships	13 years	46.8	27.2	19.6	47.1	25.2	21.9
Trade names	3 years	1.8	1.1	0.7	1.9	1.0	0.9
Total finite-lived intangible assets		\$77.8	\$ 44.8	\$33.0	\$78.9	\$ 41.3	\$37.6

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Amortization expense related to acquired intangible assets was \$2.0 million and \$4.0 million for the three and six months ended January 31, 2017, respectively. Amortization expense related to acquired intangible assets was \$2.0 million and \$4.0 for the three and six months ended January 31, 2016, respectively.

During the second quarter of fiscal year 2017, management noted impairment indicators related to the Pathfinder intangible assets which had a carrying value of \$0.6 million. Pathfinder is part of our Security and Detection operating segment. Management performed an impairment test based on the projected future cash flows and recorded an impairment charge of \$0.6 million, including a write-off of developed technology of \$0.5 million and a write-off of trade name of \$0.1 million. We recorded these amounts in the asset impairment charges caption in our accompanying unaudited condensed consolidated statements of operations.

The estimated future amortization expense related to intangible assets for the five succeeding fiscal years is expected to be as follows:

(in millions)	Estimated Future Amortization Expense
Remaining 2017	\$ 3.9
2018	6.8
2019	5.6
2020	5.2
2021	4.8
Thereafter	6.7
	<u>\$ 33.0</u>

Goodwill

Analogic has goodwill balances of \$64.1 million at January 31, 2017 and \$73.9 million at July 31, 2016. We review periodically or more frequently if indicators are present or changes in circumstances suggest that it is more likely than not that impairment may exist and we perform a formal goodwill impairment test in the second quarter of each fiscal year.

Changes in the carrying amount of goodwill by reportable segments for the six months ended January 31, 2017 are as follows:

(in millions)	Medical Imaging	Ultrasound	Security and Detection	Total Goodwill
Balance as of July 31, 2016 Goodwill	\$ 1.9	\$ 71.5	\$ 0.5	\$ 73.9
Impairment losses	—	(9.8)	—	(9.8)
Balance as of January 31, 2017 Goodwill	1.9	71.5	0.5	73.9
Accumulated impairment losses	—	(9.8)	—	(9.8)
	<u>\$ 1.9</u>	<u>\$ 61.7</u>	<u>\$ 0.5</u>	<u>\$ 64.1</u>

We have four reporting units with goodwill—Medical Imaging, Ultrasound, Oncura, and Security and Detection and three reportable segments—Medical Imaging, Ultrasound, and Security and Detection. We performed the annual impairment test for our goodwill and other intangible assets with indefinite lives as of December 31, 2016. 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 and as a basis for determining whether it is necessary to perform the quantitative impairment test. Alternatively, we may elect to bypass the qualitative assessment and proceed to the two-step quantitative impairment test. If we choose to perform a qualitative assessment and determine it is more likely than not that the carrying value of the net assets is more than the fair value of the related operations, the two-step impairment process is then performed; otherwise, no further testing is required.

Our quantitative impairment assessment considered both the market approach and income approach to calculate the fair value of the reporting unit, with different weights assigned to each. Under the market approach, the fair value of the reporting unit is based on trading multiples of a peer group of companies, which was determined based on an analysis of the selected guideline public companies' business enterprise value ("BEV") plus a control premium, which was determined based on an analysis of control premiums for recent relevant acquisitions. Under the income approach, the fair value of the reporting unit is based on the present value of estimated future cash flows, which are determined, based upon the Company's most recent strategic operating plan and considering market participant assumptions. The income approach is dependent on a number of significant management assumptions including estimates of future revenues, costs and expenses, and a number of significant valuation inputs including discount rates, working

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capital rates and tax rates. For our Medical Imaging, Ultrasound, Oncura and Security and Detection reporting units, we used the two-step quantitative impairment test. For the Security and Detection reporting unit, we performed the market approach and determined that the fair value of our Security and Detection reporting unit was in excess of its carrying value, and concluded that there was no impairment. For our Medical Imaging and Ultrasound reporting units we used both the market approach and income approach and determined that there was no impairment of goodwill. For our Medical Imaging reporting unit, we determined that the estimated fair value of the Medical Imaging reporting unit substantially exceeds its carrying value. For our Ultrasound reporting unit, we determined that our Ultrasound reporting unit was at risk of failing the first step of the goodwill impairment test in future reporting periods due to forecast revisions and changes in strategy in our ultrasound business. For example, an increase in the discount rate applied to the Ultrasound cash flows of 300 basis points could result in a failure of Step 1 of the impairment test. Also, a decrease in the revenue compound annual growth rate within the Ultrasound cash flow forecast of 200 basis points could result in a failure of Step 1 of the impairment test. Our Ultrasound reporting unit had excess fair value over carrying value of approximately 25% as of our annual test date and held \$55.1 million of allocated goodwill as of December 31, 2016.

For our Oncura reporting unit, recent changes in our strategy caused us to decrease future forecasted revenues from our prior estimates. As a result, we determined that the associated goodwill was impaired and recorded an estimated charge of \$9.8 million in the second quarter of fiscal year 2017. We recorded this amount in the asset impairment charges caption in our accompanying unaudited condensed consolidated statements of operations. The amount of this charge is subject to finalization in the third quarter of fiscal year 2017. We would recognize any necessary adjustment to this estimate in the third quarter of fiscal year 2017, as we finalize the second step of the goodwill impairment test, in accordance with ASC Topic 350, *Intangibles - Goodwill and Other*. Also as a result of our decreased revenue forecast for Oncura, we recorded an adjustment to the associated contingent considerations liability, which resulted in a gain of \$8.1 million recorded within General and Administrative expenses.

The aggregate amount of goodwill that remains associated with our Oncura reporting unit is \$6.6 million as of January 31, 2017. In addition, the remaining book value of our other intangible assets allocated to our Oncura reporting unit is approximately \$3.3 million as of January 31, 2017. In accordance with ASC Topic 360, we tested our Oncura amortizable intangible assets as of December 31, 2016 for recoverability on an undiscounted cash flow basis, and determined that these assets were recoverable.

We compared the fair value of a tradename that has an indefinite life using the relief from royalty approach to its carrying value as of December 31, 2016. The relief from royalty approach utilized an after-tax royalty rate and a discount rate. The after-tax royalty rate was determined based on royalty research and margin analysis, while the discount rate was determined after consideration of market rates of return on debt and equity capital, the weighted average return on invested capital, and the risk associated with achieving forecasted sales for the tradename. We determined that the fair value of the tradename was in excess of its carrying value.

The current economic environment and the uncertainties regarding its impact on our business and our estimates for forecasted revenue and spending levels made for purposes of our goodwill and trade name impairment testing may not be accurate predictions of the future. If our assumptions regarding forecasted revenue or margin growth rates of each reporting unit and trade name are not achieved, we may be required to record an impairment charge for the goodwill and trade name in future periods, whether in connection with our next annual impairment testing in the second quarter of the fiscal year ending July 31, 2018, or prior to that if any such change constitutes a triggering event outside of the quarter from when the annual goodwill and trade name impairment test is performed. Changes in our forecasts, or decreases in the value of our common stock could cause book values of certain operations to exceed their fair values which may result in goodwill impairment charges in future periods. It is not possible at this time to determine if any such future impairment charge would result or, if it does, whether such charge would be material.

7. Fair value measurements

Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or the most advantageous market for the asset transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. We use a fair value hierarchy based on three levels of inputs, of which the first two are considered observable and the last unobservable, that may be used to measure fair value:

- Level 1 – Quoted prices in active markets for identical assets or liabilities.
- Level 2 – Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities, quoted prices in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.
- Level 3 – Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

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The following tables provide the assets and liabilities carried at fair value and measured on a recurring basis at January 31, 2017 and July 31, 2016:

(in millions)	Fair Value Measurements at January 31, 2017			
	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets				
Cash and cash equivalents	\$ 153.0	\$ 153.0	\$ —	\$ —
Plan assets for deferred compensation	6.5	6.5	—	—
Total assets at fair value	\$ 159.5	\$ 159.5	\$ —	\$ —
Liabilities				
Contingent consideration	\$ 4.1	\$ —	\$ —	\$ 4.1
Foreign currency forward contracts	—	—	—	—
Total liabilities at fair value	\$ 4.1	\$ —	\$ —	\$ 4.1
(in millions)	Fair Value Measurements at July 31, 2016			
	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets				
Cash and cash equivalents	\$ 118.7	\$ 118.7	\$ —	\$ —
Plan assets for deferred compensation	5.9	5.9	—	—
Total assets at fair value	\$ 124.6	\$ 124.6	\$ —	\$ —
Liabilities				
Contingent consideration	\$ 12.2	\$ —	\$ —	\$ 12.2
Foreign currency forward contracts	0.3	—	0.3	—
Total liabilities at fair value	\$ 12.5	\$ —	\$ 0.3	\$ 12.2

Assets held in the deferred compensation plan will be used to pay benefits under our non-qualified deferred compensation plan. The investments primarily consist of mutual funds which are publicly traded on stock exchanges. Accordingly, the fair value of these assets is categorized as Level 1 within the fair value hierarchy.

The fair value of the liabilities arising from our foreign currency forward contracts is determined by valuation models based on market observable inputs, including forward and spot prices for currencies. Accordingly, the fair value of these liabilities is categorized as Level 2 within the fair value hierarchy.

The fair value of our contingent consideration obligation is based on significant unobservable inputs, including management estimates and assumptions, and is measured based on the probability-weighted present value of the payments expected to be made. Accordingly, the fair value of this liability is categorized as Level 3 within the fair value hierarchy.

The fair value of the contingent payments associated with the acquisition of PocketSonic, Inc., or PocketSonic, was calculated utilizing 100% probability for the earn out associated with the Section 510(k) clearance obtained from the Food and Drug Administration, or FDA, on April 9, 2014 and the first commercial shipment as defined in the purchase agreement, in the fiscal year ending July 31, 2016, or fiscal year 2016. Each quarter we revalue the contingent consideration obligations associated with the acquisition of PocketSonic to its then current fair value and record changes in the fair value to the Consolidated Statements of Operations. Changes in contingent consideration result from changes in the assumptions regarding probabilities of the estimated timing of launch, volume sales target, payments and the discount rate used to estimate the fair value of the liability. The assumptions used in estimating fair value require significant judgment. The use of different assumptions and judgments could result in a materially different estimate of fair value. There was no change in the fair value of our contingent consideration obligation during the three and six months ended January 31, 2017. As of January 31, 2017 and July 31, 2016 the fair value of the contingent consideration obligation was reported in Other current liabilities as \$2.0 million, in the Consolidated Balance Sheets. We anticipate paying out the \$2.0 million contingent liability by the end of the third quarter during fiscal year 2017. Please refer to *Note 3. Business combination* in our Annual Report on Form 10-K for fiscal year 2016, as filed with the SEC on September 27, 2016 for more information on the acquisition of Pocketsonics.

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The fair value of the contingent payment obligation associated with the acquisition of Oncura was valued using a Monte Carlo simulation. The fair value of the contingent payment obligation of Oncura will be revalued each quarter to its then fair value and we will record changes in the fair value as contingent consideration expense within our Consolidated Statement of Operations within general and administrative operating expenses. Changes in contingent consideration expense result from changes in the assumptions regarding probabilities of the estimated future sales volume and gross margin targets and the discount rate used to estimate the fair value of the liability. The assumptions used in estimating the fair value require significant judgment. The use of different assumptions and judgments could result in a different estimate of fair value. There was a \$8.2 million and \$8.1 million decrease in the fair value of our contingent consideration obligation during the three and six months ended January 31, 2017, due to revisions in our forecasted revenues of the Oncura business, which reduced the amount of contingent consideration we expect to pay. As of January 31, 2017, the fair value of the contingent consideration obligation associated with the Oncura acquisition was \$1.1 million within short-term contingent consideration and \$1.0 million within long-term contingent consideration, in the Consolidated Balance Sheets. For more information on the acquisition of Oncura, please refer to *Note 3. Business combination* in our Annual Report on Form 10-K for fiscal year 2016, as filed with the SEC on September 27, 2016.

8. Derivative instruments

Certain of our foreign operations have revenue and expenses transacted in currencies other than the U.S. dollar. In order to mitigate foreign currency exchange risk, we use forward contracts to lock in exchange rates associated with a portion of our forecasted international expenses.

As of January 31, 2017, we have forward contracts outstanding with notional amounts totaling \$14.3 million. These contracts are designated as cash flow hedges, and the unrealized loss of \$0.0 million, net of tax, on these contracts are reported in Accumulated other comprehensive income as of January 31, 2017. Assets and liability derivatives designated as hedging instruments are presented in other assets and other liabilities, respectively, on our Consolidated Balance Sheets. At January 31, 2017 we had a derivative liability of \$0.0 million included in other liabilities on our Consolidated Balance Sheet.

As of July 31, 2016, we have forward contracts outstanding with notional amounts totaling \$18.6 million. These contracts are designated as cash flow hedges, and the unrealized loss of \$0.2 million, net of tax, on these contracts are reported in Accumulated other comprehensive income as of July 31, 2016. At July 31, 2016 we had a derivative liability of \$0.3 million included in other liabilities on our Consolidated Balance Sheet.

Realized gains and (losses) on the cash flow hedges are recognized in income in the period when the payment of expenses is recognized. During the three and six months ended January 31, 2017 we recorded approximately \$0.2 million and \$0.3 million of realized loss, respectively, included in our Consolidated Statements of Operations. During the three and six months ended January 31, 2016 we recorded \$0.2 million and \$0.5 million of realized loss, respectively.

9. Common stock repurchases

On May 26, 2016, our board of directors authorized the repurchase of up to \$15.0 million of our common stock. This amount is in addition to \$1.0 million remaining under the \$30 million stock repurchase authorized by our board of directors on June 2, 2014. The purchases will be made from time to time depending on market conditions and other factors. The Company's repurchase program has no expiration date. The Board's authorization of the share repurchase program does not obligate the Company to acquire any particular amount of common stock, and the program may be suspended or discontinued at any time at the Company's discretion. No shares have been repurchased under this program in the three and six months ended January 31, 2017.

10. Accumulated other comprehensive income

Components of comprehensive (loss) income include net income and certain transactions that have generally been reported in the Consolidated Statements of Changes in Stockholders' Equity. Other comprehensive (loss) income consists of reported foreign currency translation gains and losses (net of taxes), actuarial gains and losses on pension plan assets (net of taxes), and changes in the unrealized value on foreign currency forward contracts (net of taxes). Deferred taxes are not provided on cumulative translation adjustments where we expect earnings of a foreign subsidiary to be indefinitely reinvested. The income tax effect of currency translation adjustments related to foreign subsidiaries that are not considered indefinitely reinvested is recorded as a component of deferred taxes with an offset to other comprehensive (loss) income.

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The following table summarizes components of Accumulated other comprehensive (loss) income for the six months ended January 31, 2017:

(in millions)	Unrealized Gain on Foreign Currency Forward Contracts	Unrealized Losses on Pension Plan	Currency Translation Adjustment	Accumulated Other Comprehensive Income
Balance as of July 31, 2016	\$ (0.2)	\$ (4.9)	\$ (3.4)	\$ (8.5)
Pre-tax change before reclassification to earnings	—	0.2	(2.5)	(2.3)
Amount reclassified to earnings	0.2	—	—	0.2
Income tax benefit (provision)	—	(0.1)	(0.1)	(0.2)
Balance as of January 31, 2017	\$ (0.0)	\$ (4.8)	\$ (6.0)	\$ (10.8)

The ineffective portion of the unrealized losses on foreign currency forward contracts and unrealized gains or losses on currency translation adjustment are included in other expense, net on our Consolidated Statements of Operations.

11. Share-based compensation

The following table presents share-based compensation expense included in our Consolidated Statements of Operations:

(in millions)	Three Months Ended January 31,		Six Months Ended January 31,	
	2017	2016	2017	2016
Cost of product sales	\$ 0.1	\$ 0.1	\$ 0.2	\$ 0.3
Cost of engineering sales	0.1	0.1	0.1	0.1
Research and product development	0.5	0.6	0.9	1.1
Selling and marketing	0.5	0.3	0.9	0.7
General and administrative	1.4	0.7	2.2	2.0
Total share-based compensation expense before tax	2.6	1.8	4.2	4.2
Income tax effect	(0.8)	(0.5)	(1.3)	(1.2)
Share-based compensation expense included in net income	<u>\$ 1.8</u>	<u>\$ 1.3</u>	<u>\$ 2.9</u>	<u>\$ 3.0</u>

Stock options

We estimate the fair value of stock options using the Black-Scholes valuation model. Key input assumptions used to estimate the fair value of stock options include the exercise price of the award, the expected option term, the expected volatility of our stock over the option's expected term, the risk-free interest rate over the option's expected term, and our expected annual dividend yield. Estimates of fair value are not intended to predict actual future events or the value ultimately realized by persons who receive equity awards.

No stock options were granted during the three and six months ended January 31, 2017 and January 31, 2016, respectively.

The total intrinsic value of options exercised during the three and six months ended January 31, 2017 was \$1.5 million and \$2.2 million, respectively.

Restricted stock and restricted stock units

We estimate the fair value of restricted stock units, or RSUs, that vest based on service conditions using the quoted closing price of our common stock on the date of grant. Share-based compensation expense is amortized over each award's vesting period on a straight-line basis for all awards with service and performance conditions that vest at the end of the performance cycle, while the accelerated method applies to other awards with both service and performance conditions.

For our non-GAAP earnings per share, or EPS awards, the compensation cost is amortized over the performance period on a straight-line basis, net of forfeitures, because such awards vest only at the end of the performance period. The compensation cost is based on the number of shares that are deemed probable of vesting at the end of the three-year performance cycle. This probability assessment is done each quarter and changes in estimates can result in significant expense fluctuations due to the cumulative catch-up adjustment. We estimate the fair value of the non-GAAP EPS awards using the quoted closing price of our common stock on the date of grant.

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For our relative total shareholder return, or TSR awards, which are based on market performance of our stock as compared to an industry peer group, the compensation cost is amortized over the performance period on a straight-line basis net of forfeitures, because the awards vest only at the end of the measurement period and the probability of actual shares expected to be earned is considered in the grant date valuation. As a result, the expense is not adjusted to reflect the actual shares earned. We estimate the fair value of the TSR awards using the Monte-Carlo simulation model.

We granted 0 and 28,148 TSR awards and 0 and 62,032 non-GAAP EPS awards during the three and six months ended January 31, 2017, respectively. We granted 1,711 and 24,821 TSR awards and 2,320 and 32,444 non-GAAP EPS awards during the three and six months ended January 31, 2016, respectively. The fair value of our TSR performance-based awards at the date of grant was estimated using the Monte-Carlo simulation model with the following assumptions:

	Three Months Ended January 31,		Six Months Ended January 31,	
	2017	2016	2017	2016
Stock price (1)	\$ —	\$ 81.90	\$90.23	\$84.06
Expected volatility (2)	0.00%	27.6%	27.0%	26.4%
Risk-free interest rate (3)	0.00%	1.16%	0.85%	1.04%
Expected annual dividend yield (4)	0.00%	0.00%	0.00%	0.00%
Weighted average grant date fair value of time-based restricted stock awards	\$92.30	\$ 81.90	\$89.48	\$83.99
Weighted average grant date fair value of performance based restricted stock awards	\$ —	\$ 100.82	\$87.05	\$98.81

- (1) The stock price is the closing price of our common stock on the date of grant.
- (2) The expected volatility for each grant is determined based on the historical volatility for the peer group companies and our common stock over a period equal to the remaining term of the performance period from the date of grant for all awards.
- (3) The risk-free interest rate is determined based on the yield of zero-coupon U.S. Treasury securities for a period that is commensurate with the performance period.
- (4) Dividends are considered reinvested when calculating TSR. The dividend yield is therefore considered to be 0%.

The total fair value of RSUs that vested during the three and six months ended January 31, 2017 was \$0.6 million and \$3.2 million, respectively.

The total fair value of RSUs that vested during the three and six months ended January 31, 2016 was \$2.4 million and \$4.4 million, respectively.

As of January 31, 2017, the unrecognized compensation cost, net of estimated forfeitures, related to unvested stock options and restricted stock was \$12.9 million. This cost will be recognized over an estimated weighted average amortization period of 1.4 years and assumes target performance for the non-GAAP EPS awards.

12. Restructuring charges

Fiscal Year 2017 Restructuring Plan

On March 6, 2017, the Company announced a restructuring of its Ultrasound business designed to improve profitability and provide consistent long term growth. The Company intends to focus on its core markets of Urology and Surgery as well as specific areas of the Point of Care market where its products have a competitive advantage. The Company will consolidate the activities currently conducted in Vancouver, British Columbia with its existing operations in Copenhagen, Denmark and Peabody, Massachusetts and plans to exit the Vancouver facility by the end fiscal 2017. The Company intends to re-size its U.S. sales, global marketing as well as general and administration organizations in-line with its objectives. These activities will result in a workforce reduction of approximately 130 employees and is expected to be substantially completed by the end of fiscal 2017.

The Company expects to incur restructuring related charges of up to \$5.0 million in fiscal 2017 of which \$0.5 million was recorded in the second quarter of FY17.

Fiscal Year 2016 Restructuring Plan

On September 16, 2015, the Company announced our fiscal year 2016 restructuring plan, or 2016 Restructuring Plan. This plan includes the transition of certain manufacturing activities from our Peabody, Massachusetts location to our existing facility in Shanghai, China, and a reduction in force in order to align our research and development investment with expected customer funding. We had pre-tax

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adjustment of approximately (\$0.2) million to restructuring during the three and six months ended January 31, 2017. We incurred pre-tax charges of \$3.1 million and \$6.4 million during the three and six months ended January 31, 2016, respectively, primarily relating to severance and personnel related costs for terminated employees. We expect that the 2016 Restructuring Plan will be substantially completed during fiscal year 2017.

Current Period Activity

The following table summarizes accrued restructuring activities for the three months ended January 31, 2017:

(in millions)	Employee Severance and Benefits (A)	Other Restructuring Costs (A)	Total
Balance at October 31, 2016	\$ 2.5	\$ —	\$ 2.5
Restructuring charge	0.5		0.5
Adjustments	(0.2)	—	(0.2)
Cash payments	(1.3)	—	(1.3)
Balance at January 31, 2017	<u>\$ 1.5</u>	<u>\$ —</u>	<u>\$ 1.5</u>

- (A) Restructuring charges in fiscal year 2017 includes \$0.5 million with respect to Fiscal Year 2017 actions. All other activity pertains to the Fiscal Year 2016 Restructuring Plan.

The following table summarizes accrued restructuring activities for the six months ended January 31, 2017:

(in millions)	Employee Severance and Benefits (A)	Other Restructuring Costs (A)	Total
Balance at July 31, 2016	\$ 5.2	\$ —	\$ 5.2
Restructuring charge	0.5		0.5
Adjustments	(0.2)	—	(0.2)
Cash payments	(4.0)	—	(4.0)
Balance at January 31, 2017	<u>\$ 1.5</u>	<u>\$ —</u>	<u>\$ 1.5</u>

- (A) Restructuring charges in fiscal year 2017 includes \$0.5 million with respect to Fiscal Year 2017 actions. All other activity pertains to the Fiscal Year 2016 Restructuring Plan.

Restructuring and related charges, including actions associated with acquisitions, by segment are as follows:

(in millions)	For Three Months Ended January 31,		For Six Months Ended January 31,	
	2017	2016	2017	2016
Medical Imaging	\$ 0.09	\$ 1.9	\$ 0.11	\$ 4.0
Ultrasound	0.17	0.6	0.18	1.3
Security and Detection	0.01	0.6	0.01	1.2
Total restructuring and related charges	<u>\$ 0.27</u>	<u>\$ 3.1</u>	<u>\$ 0.30</u>	<u>\$ 6.5</u>

Accrued restructuring charges are classified on the Consolidated Balance Sheets in the Current Liabilities section.

13. Net income per common share

Basic net income per share is computed using the weighted average number of common shares outstanding during the period. Diluted net income per share is computed using the sum of the weighted average number of common shares outstanding during the period and, if dilutive, the weighted average number of potential shares of common stock, including unvested restricted stock and the assumed exercise of stock options using the treasury stock method.

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Basic and diluted net income per share are calculated as follows:

(in millions, except per share data and share data in thousands)	Three Months Ended January 31,		Six Months Ended January 31,	
	2017	2016	2017	2016
Net income (loss)	\$ 7.5	\$ (3.0)	\$ 10.0	\$ (1.6)
Weighted average number of common shares outstanding-basic	12,466	12,418	12,442	12,422
Effect of dilutive securities:	—	—	—	—
Stock options and restricted stock units	214	—	270	—
Weighted average number of common shares outstanding-diluted	12,680	12,418	12,712	12,422
Basic net income (loss) per share	\$ 0.60	\$ (0.24)	\$ 0.81	\$ (0.13)
Diluted net income (loss) per share	\$ 0.59	\$ (0.24)	\$ 0.79	\$ (0.13)
Anti-dilutive shares related to outstanding stock options and unvested restricted stock (A)	372	326	372	357

- (A) These shares related to outstanding stock options and unvested restricted stock were not included in our calculations of diluted earnings per share, as the effect of including them would be anti-dilutive.

14. Income taxes

The following table presents the provision for income taxes and our effective tax rate for the three and six months ended January 31, 2017 and 2016:

(in millions except percentages)	Three Months Ended January 31,		Six Months Ended January 31,	
	2017	2016	2017	2016
Provision for income taxes	\$ 2.0	\$ 1.0	\$ 2.9	\$ 1.1
Effective tax rate	21%	-51%	23%	-244%

The effective income tax rate on operations is based upon the estimated income for the year, the composition of the income in different countries, and adjustments, if any, in the applicable quarterly periods for the potential tax consequences, benefits, resolutions of tax audits or other tax contingencies.

Our effective tax rate for the three and six months ended January 31, 2017 is lower than the statutory rate of 35% primarily due to income generated outside the United States in countries with lower tax rates, tax credits in the United States and Canada, and the manufacturing deduction in the United States. The tax provision for the three and six months ended January 31, 2017 includes discrete tax benefits totaling \$0.4 million.

Our effective tax rate for the three and six months ended January 31, 2016 is lower than the statutory rate of 35% primarily due to income generated outside the United States in countries with lower tax rates, tax credits in Canada, and a non-recurring discrete item. The tax provision for the three and six months ended January 31, 2016 includes discrete tax benefits totaling \$1.4 million and \$1.3 million, respectively.

We are subject to U.S. Federal income tax as well as the income tax of multiple state and foreign jurisdictions. As of January 31, 2017, we have concluded all U.S. Federal income tax matters through the year ended July 31, 2012.

We accrue interest and, if applicable, penalties for any uncertain tax positions. This interest and penalty expense is treated as a component of income tax expense. At January 31, 2017 and July 31, 2016, we had approximately \$0.5 million and \$0.4 million accrued for interest and penalties on unrecognized tax benefits.

At January 31, 2017, we had \$7.1 million of unrecognized tax benefits for uncertain tax positions and \$0.5 million of related accrued interest and penalties. We are unable to reasonably estimate the amount and period in which these liabilities might be paid.

We do not provide for U.S. Federal income taxes on undistributed earnings of consolidated foreign subsidiaries, as such earnings are intended to be indefinitely reinvested in those operations. Determination of the potential deferred income tax liability on these undistributed earnings is not practicable because such liability, if any, is dependent on circumstances that exist if and when remittance occurs. The circumstances that would affect the calculations would be the source location and amount of the distribution, the underlying tax rate already paid on the earnings, foreign withholding taxes and the opportunity to use foreign tax credits.

15. Segment information

Our business is strategically aligned into three segments: Medical Imaging, Ultrasound, and Security and Detection. Our business segments are described as follows:

- *Medical Imaging* primarily includes systems and subsystems for CT and MRI medical imaging equipment as well as state-of-the-art, selenium-based detectors for screening of breast cancer and other diagnostic applications in mammography.
- *Ultrasound* includes ultrasound systems and transducers primarily in the urology, surgery, and point-of-care markets.
- *Security and Detection* includes advanced threat detecting CT systems utilizing our expertise in advanced imaging technology, primarily used in the checked baggage screening at airports worldwide.

The tables below present information about our reportable segments:

(in millions)	Three Months Ended January 31,		Six Months Ended January 31,	
	2017	2016	2017	2016
Product revenue:				
Medical Imaging	\$ 71.2	\$ 72.4	\$137.7	\$136.8
Ultrasound	40.3	42.6	75.9	79.1
Security and Detection	18.8	10.9	37.0	24.2
Total product revenue	<u>\$ 130.3</u>	<u>\$ 125.9</u>	<u>\$250.6</u>	<u>\$240.1</u>
Engineering revenue:				
Medical Imaging	\$ 1.2	\$ 1.1	\$ 1.9	\$ 1.7
Ultrasound	—	0.7	0.2	0.9
Security and Detection	—	0.2	—	0.2
Total engineering revenue	<u>\$ 1.2</u>	<u>\$ 2.0</u>	<u>\$ 2.1</u>	<u>\$ 2.8</u>
Net revenue:				
Medical Imaging	\$ 72.4	\$ 73.5	\$139.6	\$138.5
Ultrasound	40.3	43.3	76.1	80.0
Security and Detection	18.8	11.1	37.0	24.4
Total net revenue	<u>\$ 131.5</u>	<u>\$ 127.9</u>	<u>\$252.7</u>	<u>\$242.9</u>
Income from operations:				
Medical Imaging (A)	\$ 12.2	\$ 11.6	\$ 18.9	\$ 18.0
Ultrasound (B)	(4.5)	(9.9)	(10.3)	(14.5)
Security and Detection (C)	1.8	(0.2)	4.8	—
Total income from operations	9.5	1.5	13.4	3.5
Total other income (loss), net	0.03	(3.5)	(0.4)	(4.0)
Income (loss) before income taxes	<u>\$ 9.5</u>	<u>\$ (2.0)</u>	<u>\$ 13.0</u>	<u>\$ (0.5)</u>

(in millions)	As of January 31, 2017	As of July 31, 2016
Identifiable total assets by segment:		
Medical Imaging	\$ 179.9	\$191.1
Ultrasound	142.2	152.5
Security and Detection	43.3	49.8
Total reportable segment assets	365.4	393.4
Corporate assets (D)	198.9	165.6
Total identifiable assets	<u>\$ 564.3</u>	<u>\$559.0</u>

(A) Includes restructuring charges of \$0.09 million and \$1.9 million for three months ended January 31, 2017 and January 31, 2016, respectively and \$0.11 million and \$4.0 million for six months January 31, 2017 and January 31, 2016.

(B) Includes restructuring charges of \$0.17 million and \$0.6 million for three months ended January 31, 2017 and January 31, 2016, respectively and \$0.18 million and \$1.3 million for six months January 31, 2017 and January 31, 2016.

Includes contingent consideration charges of \$(8.2) million and \$(8.1) million related to Oncura for three and six months ended January 31, 2017, respectively, asset impairment charges of \$9.8 million related to Oncura for three and six months ended January 31, 2017, charges for the BK Medical matter of \$10.1 million for three and six months ended January 31, 2016.

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- (C) Includes restructuring charges of \$0.01 million and \$0.6 million for three months ended January 31, 2017 and January 31, 2016, respectively and \$0.01 million and \$1.2 million for six months January 31, 2017 and January 31, 2016.
- Includes asset impairment charges of \$0.6 million related to Pathfinder for three and six months ended January 31, 2017.
- (D) Includes cash and cash equivalents of \$139.9 million and \$97.3 million as of January 31, 2017 and July 31, 2016, respectively.

16. Guarantees, commitments and contingencies

Guarantees and Indemnification Obligations

Our standard OEM and supply agreements entered in the ordinary course of business typically contain an indemnification provision pursuant to which we indemnify, hold harmless, and agree to reimburse the indemnified party for losses suffered or incurred by the indemnified party in connection with any U.S. patent or any copyright or other intellectual property infringement claim by any third party with respect to our products. Such provisions generally survive termination or expiration of the agreements. The potential amount of future payments we could be required to make under these indemnification provisions is, in some instances, unlimited. Our costs to defend lawsuits or settle claims related to these indemnification agreements have been insignificant to date. As a result, we believe that our estimated exposure on these agreements is currently minimal. Accordingly, we have no liabilities recorded for these agreements as of January 31, 2017.

Generally, we warrant that our products will perform in all material respects in accordance with our standard published specifications in effect at the time of delivery of the products to the customer for a period ranging from 12 to 60 months from the date of delivery. We provide for the estimated cost of product and service warranties based on specific warranty claims, claim history, and engineering estimates, where applicable.

The following table presents our product warranty liability as of January 31, 2017:

(in millions)	As of January 31, 2017
Beginning balance	\$ 6.3
Provision	0.3
Settlements made in cash or in kind during the period	(0.5)
Ending balance	\$ 6.1

At January 31, 2017 and July 31, 2016, we had deferred revenue for extended product warranty contracts of \$0.3 million and \$0.2 million, respectively.

Revolving Credit Agreements

On November 23, 2015, we entered into a five-year revolving credit agreement, or Credit Agreement, with the financial institutions identified therein as lenders, which included JPMorgan Chase Bank, N.A., TD Bank, N.A., Wells Fargo Bank, N.A., HSBC Bank, N.A., and People's United Bank, N.A. The Credit Agreement provides \$100.0 million in available credit and expires on November 23, 2020, when all outstanding borrowings must be paid in full. The credit facility does not require amortization of principal and may be reduced before maturity in whole or in part at our option without penalty. Upon entry into the Credit Agreement, we terminated without penalty a \$100.0 million five-year, revolving credit agreement entered into on October 11, 2011 and previously paid in full in accordance with its terms. Borrowings under the Credit Agreement may be used for general corporate purposes, including permitted acquisitions. The amount of available credit can be increased under specified circumstances up to \$200.0 million in aggregate. We are the sole borrower under the Credit Agreement. The obligations under the credit facility are guaranteed as required to be by our material domestic subsidiaries as designated by us from time to time or as required under the Credit Agreement. There are no pledges of the capital stock or assets of our international subsidiaries.

Interest rates on borrowings outstanding under the credit facility range from 1.25% to 1.75% above the LIBOR rate, or, at our option range from 0.00% to 1.00% above a defined base rate, the amount in each case varying based upon our leverage ratio. A quarterly commitment fee ranging from 0.20% to 0.35% per annum is applicable on the undrawn portion of the credit facility, based upon our leverage ratio.

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The Credit Agreement limits our and our subsidiaries' ability to, among other things: incur additional indebtedness; incur liens or guarantee obligations; pay dividends or make other distributions; make investments; dispose of assets; and engage in transactions with affiliates except on an arms-length basis. In addition, the Credit Agreement requires us to maintain the following financial ratios:

- A leverage ratio, defined as consolidated funded indebtedness to consolidated trailing four quarters earnings before interest, taxes, depreciation and amortization, or EBITDA, with the adjustments as stipulated in the Credit Agreement, of no greater than 2.75:1.00 (with a temporary step-up in the event of certain acquisitions); and
- An interest coverage ratio, defined as the ratio of consolidated trailing four quarters adjusted EBITDA to consolidated interest charges of no less than 3.00:1.00 at any time.

As of January 31, 2017, our leverage ratio was 0.004:1.00 and our interest coverage ratio was not applicable as we had no attributable interest expense. As of January 31, 2017, we were in full compliance with all financial and operating covenants contained in the Credit Agreement.

Any failure to comply with the financial or operating covenants of the credit facility would prevent us from being able to borrow and would also constitute a default, permitting the lenders to, among other things, accelerate repayment of outstanding borrowings, including all accrued interest and fees, and to terminate the credit facility. A change in control, as defined in the Credit Agreement, would also constitute an event of default, permitting the lenders to accelerate repayment and terminate the Credit Agreement.

In connection with entering into the Credit Agreement, we incurred approximately \$0.5 million of transactions costs, which are being amortized over the five-year life of the credit facility.

As of January 31, 2017 and July 31, 2016, we had approximately \$1.2 million in other revolving credit facilities with banks available for direct borrowings.

We did not have any borrowing outstanding under any of our credit facilities at January 31, 2017 and July 31, 2016, respectively.

Legal Claims

We are subject to litigation, claims, investigations and audits arising from time to time in the ordinary course of our business. Although legal proceedings are inherently unpredictable, we believe that we have valid defenses with respect to those matters currently pending against us and intend to defend ourselves vigorously. The outcome of these matters, individually and in the aggregate, is not expected to have a material impact on our cash flows, results of operations, or financial position. We record losses when estimable and probable in accordance with U.S. GAAP.

On January 3, 2017, the Company's subsidiary Ultrasonix Medical Corporation ("UMC") received a notice of civil claim as a defendant. The lawsuit relates to the lease of a corporate office in Burnaby, British Columbia, of which UMC never took possession. The lawsuit claims that UMC is indebted to the landlord for unpaid and accelerated rent in an amount of approximately CAD 1.0 million, plus costs, plus interest on unpaid rent commencing in April 2014. Subsequent to the second quarter ended January 31, 2017, the Company filed a response in which it contests both liability and the extent of damages. It is reasonably possible that we will have a loss in connection with this matter, but currently we are unable to estimate the amount of liability, if any, that may be incurred related to this matter.

17. Subsequent events

We declared a dividend of \$0.10 per share of common stock on February 28, 2017, which will be paid on March 31, 2017 to stockholders of record on March 17, 2017.

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

The following discussion provides an analysis of our financial condition and results of operations and should be read in conjunction with the unaudited consolidated financial statements and notes thereto included elsewhere in this report. The discussion contains statements, which, to the extent that they are not a recitation of historical facts, constitute “forward-looking statements” pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. All statements, other than statements of historical fact, including, statements about product development, market and industry trends, strategic initiatives, regulatory approvals, sales, profits, expenses, price trends, research and development expenses and trends, and capital expenditures, we make in this document or in any document incorporated by reference are forward-looking. Without limiting the foregoing, the words “believes,” “anticipates,” “plans,” “expects,” “seeks,” “estimates,” and similar expressions are intended to identify forward looking statements. Such forward-looking statements involve known and unknown risks, uncertainties, and other factors, which may cause our actual results, performance, or achievements to differ materially from the projected results. See *Part I, Item 1A. Risk Factors* of our Annual Report on Form 10-K for fiscal year 2016 as filed with the U.S. Securities and Exchange Commission, or SEC on September 27, 2016 for a discussion of the primary risks and uncertainties known to us.

In addition, any forward-looking statements represent management’s views only as of the date of this Quarterly Report on Form 10-Q was filed with the SEC and should not be relied upon as representing management’s views as of any subsequent date. While management may elect to update forward-looking statements at some point in the future, it specifically disclaims any obligation to do so, even if its views change, except as required by law.

We report our financial condition and results of operations on a fiscal year basis ending July 31. The three months ended January 31, 2017 and 2016 represent the second quarters of fiscal years 2017 and 2016, respectively.

Our Management’s Discussion and Analysis is presented in six sections as follows:

- Executive Summary
- Results of Operations
- Liquidity and Capital Resources
- Commitments, Contractual Obligations, and Off-Balance Sheet Arrangements
- Recent Accounting Pronouncements
- Critical Accounting Policies

Executive Summary

Introduction

Analogic Corporation designs, manufactures, and commercializes innovative real-time guidance, diagnostic imaging and threat detection technologies to advance the practice of medicine and save lives. We design, manufacture and sell advanced medical imaging, ultrasound and security systems and subsystems to original equipment manufacturers, or OEMs, and end users primarily for the healthcare and airport security markets.

Our business is strategically aligned into three segments: Medical Imaging, Ultrasound, and Security and Detection. Our business segments are described as follows:

- *Medical Imaging* primarily includes systems and subsystems for CT and MRI medical imaging equipment as well as state-of-the-art, selenium-based detectors for screening of breast cancer and other diagnostic applications in mammography.
- *Ultrasound* includes ultrasound systems and transducers primarily used in the urology, surgery, and point-of-care markets.
- *Security and Detection* includes advanced threat detection CT systems utilizing our expertise in advanced medical imaging technology, primarily used in the checked baggage screening at airports worldwide.

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Financial Results

The following table summarizes our financial results:

(in millions, except per share amounts and percentages)	Three Months Ended January 31,		Percentage Change	Six Months Ended January 31,		Percentage Change
	2017	2016		2017	2016	
Total net revenues	\$ 131.5	\$ 127.9	3%	\$252.7	\$242.8	4%
Gross profit	\$ 57.7	\$ 58.8	-2%	\$109.3	\$109.7	0%
Gross margin	43.9%	46.0%		43.3%	45.2%	
Income from operations	\$ 9.5	\$ 1.5	533%	\$ 13.4	\$ 3.5	283%
Operating margin	7.2%	1.2%		5.3%	1.4%	
Net income (loss)	\$ 7.5	\$ (3.0)	-350%	\$ 10.0	\$ (1.6)	-725%
Diluted net income (loss) per share	\$ 0.59	\$ (0.24)	-349%	\$ 0.79	\$ (0.13)	-708%

For a discussion of seasonal aspects of our business please refer to *Part 1, Item 1. Business* of our Annual Report on Form 10-K for fiscal year 2016, as filed with the SEC on September 27, 2016.

Results of Operations

Three and six months ended January 31, 2017 compared to the three and six months ended January 31, 2016

Net revenue

Product revenue

Product revenue by segment is summarized as follows:

(in millions except percentages)	Three Months Ended January 31,		Percentage Change	Six Months Ended January 31,		Percentage Change
	2017	2016		2017	2016	
Medical Imaging	\$ 71.2	\$ 72.4	-2%	\$137.7	\$136.8	1%
Ultrasound	40.3	42.6	-6%	75.9	79.1	-4%
Security and Detection	18.8	10.9	73%	37.0	24.2	53%
Total product revenue	\$ 130.3	\$ 125.9	3%	\$250.6	\$240.1	4%

Medical Imaging

During the three months ended January 31, 2017 compared to the same period in 2016, our Medical Imaging revenue decreased by 2%, primarily due to the unfavorable timing of Digital Mammography shipments.

During the six months ended January 31, 2017 compared to the same period in 2016, our Medical Imaging revenue was essentially flat.

Ultrasound

During the three months ended January 31, 2017 compared to the same period in 2016, our Ultrasound revenue decreased by 6%, primarily due to a decrease in direct Ultrasound shipments and customer demand of legacy OEM probes.

During the six months ended January 31, 2017 compared to the same period in 2016, our Ultrasound revenue decreased by 4%, primarily due to decreased customer demand of legacy OEM probes, partially offset by an increase in direct Ultrasound shipments.

Security and Detection

During the three months ended January 31, 2017 compared to the same period in 2016, our Security and Detection revenue increased by 73%, due to increased volume in high speed and Rapid DNA systems.

During the six months ended January 31 2017 compared to the same period in 2016, our Security and Detection revenue increased by 53%, due to increased volume across all product lines.

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Engineering revenue

Engineering revenue by segment is summarized as follows:

(in millions except percentages)	Three Months Ended January 31,		Percentage Change	Six Months Ended January 31,		Percentage Change
	2017	2016		2017	2016	
Medical Imaging	\$ 1.2	\$ 1.1	9%	1.9	\$ 1.7	12%
Ultrasound	—	0.7	-100%	0.2	0.9	-78%
Security and Detection	—	0.2	-100%	—	0.2	-100%
Total engineering revenue	\$ 1.2	\$ 2.0	-40%	\$ 2.1	\$ 2.8	-25%

The change in engineering revenue for the three and six months ended January 31, 2017 compared to the same periods in 2016, respectively, was primarily due to timing of work done on customer-funded engineering projects in all three of our reported segments.

Customer-funded engineering projects in each of the segments can vary substantially from period to period in terms of resource requirements, type, size, length of project, and profitability.

Gross margin

Product gross margin

Product gross margin is summarized as follows:

(in millions except percentages)	Three Months Ended January 31,		Percentage Change	Six Months Ended January 31,		Percentage Change
	2017	2016		2017	2016	
Product gross profit	\$ 57.6	\$ 57.8	0%	\$ 109.1	\$ 109.0	0%
Product gross margin	44.2%	45.9%		43.5%	45.4%	

Product gross margin decreased by 1.7 points and 1.9 points, during the three and six months ended January 31, 2017 compared to the same periods in 2016, respectively, primarily due to product/segment mix.

Engineering gross margin

Engineering gross margin is summarized as follows:

(in millions except percentages)	Three Months Ended January 31,		Percentage Change	Six Months Ended January 31,		Percentage Change
	2017	2016		2017	2016	
Engineering gross profit	\$ 0.1	\$ 1.0	-90%	\$ 0.2	\$ 0.7	-71%
Engineering gross margin	6.7%	49.9%	-87%	11.1%	26.2%	-58%

The decrease in the engineering gross margin during the three and six months ended January 31, 2017 compared to the same periods in 2016, respectively, was due to the mix of engineering projects.

Operating expenses

Operating expenses are summarized as follows:

(in millions except percentages)	Three Months Ended January 31,		Percentage Change	Percentage of Net Revenue	
	2017	2016		2017	2016
Research and product development	\$ 16.2	\$ 16.6	-2.4%	12%	13%
Selling and marketing	17.3	15.2	13.8%	13%	12%
General and administrative	4.0	22.3	-82.1%	3%	17%
Restructuring	0.3	3.1	-90.3%	0%	2%
Asset impairment charges	10.4	—	100.0%	8%	0%
Total operating expenses	\$ 48.2	\$ 57.2	-15.7%	29%	45%

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(in millions except percentages)	Six Months Ended January 31,		Percentage Change	Percentage of Net Revenue	
	2017	2016		2017	2016
Research and product development	\$ 32.1	\$ 33.8	-5.0%	13%	14%
Selling and marketing	35.5	30.5	16.4%	14%	13%
General and administrative	17.6	35.5	-50.4%	7%	15%
Restructuring	0.3	6.4	-95.3%	0%	3%
Asset impairment charges	10.4	—	100.0%	4%	0%
Total operating expenses	\$ 95.9	\$ 106.2	-9.7%	34%	44%

Operating expenses for the three and six months ended January 31, 2017 decreased by \$9.0 million, or 15.7%, and \$10.3 million, or 9.7%, compared to the same periods in 2016, respectively.

Research and product development expenses decreased by \$0.4 million, or 2.4% and \$1.7 million, or 5.0% during the three and six months ended January 31, 2017, compared to the same periods in 2016, respectively, due to timing of material related spending.

Selling and marketing expenses increased by \$2.1 million, or 13.8% during the three months ended January 31, 2017 compared to the same period in 2016, due to a \$2.5 million increase in headcount related spending. Selling and marketing expenses increased by \$5.0 million, or 16.4% during the six months ended January 31, 2017 compared to the same period in 2016, due to a \$5.6 million increase in headcount related spending.

General and administrative expenses decreased by \$18.3 million, or 82.1% during the three months ended January 31, 2017 compared to the same periods in 2016, primarily due to a gain recorded in 2017 for the decrease in contingent consideration of \$8.2 million related to Oncura, due to revisions in our forecasted revenues of the Oncura business, which reduced the amount of contingent consideration we expect to pay, and charges for the BK Medical matter of \$10.1 million in 2016. General and administrative expenses decreased by \$17.9 million, or 50.4% during the six months ended January 31, 2017 compared to the same periods in 2016, primarily due to the decrease in contingent consideration of \$8.1 million related to Oncura, and charges for the BK Medical matter of \$10.1 million in 2016. For more information on the BK Medical matter, please refer to *Note 11. Commitments, guarantees and contingencies* in our Annual Report on Form 10-K for fiscal year 2016, as filed with the SEC on September 27, 2016.

Restructuring expenses were \$0.3 million and \$0.3 million during the three and six months ended January 31, 2017, compared to \$3.1 million and \$6.4 million the same periods in 2016, respectively, primarily due to expenses in 2016 related to the Fiscal Year 2016 Restructuring Plan. Please refer to *Note 12. Restructuring Charges* for more information on the Fiscal Year 2016 Restructuring Plan.

During the second quarter of fiscal year 2017, management noted impairment indicators related to the Pathfinder intangible assets which had a carrying value of \$0.6 million. Pathfinder is part of our Security and Detection operating segment. Management performed an impairment test based on the projected future cash flows and recorded an impairment charge of \$0.6 million, including a write-off of developed technology of \$0.5 million and a write-off of trade name of \$0.1 million. We recorded these amounts in the asset impairment charges caption in our accompanying unaudited condensed consolidated statements of operations.

We review periodically or more frequently if indicators are present or changes in circumstances suggest that impairment may exist for impairment indicators and perform a formal goodwill impairment test in the second quarter of each fiscal year. We performed the annual impairment test for our goodwill and other intangible assets with indefinite lives as of December 31, 2016. In conjunction with our annual goodwill impairment test on all reporting units, the fair value of each reporting unit exceeded its carrying value, with the exception of the Oncura reporting unit. For our Oncura reporting unit, recent changes in our strategy caused us to decrease future forecasted revenues from our prior estimates. As a result, we determined that the associated goodwill was impaired and recorded an estimated charge of \$9.8 million in the second quarter of fiscal year 2017. We recorded this amount in the asset impairment charges caption in our accompanying unaudited condensed consolidated statements of operations. The amount of this charge is subject to finalization in the third quarter of fiscal year 2017. We would recognize any necessary adjustment to this estimate in the third quarter of fiscal year 2017, as we finalize the second step of the goodwill impairment test, in accordance with ASC Topic 350, *Intangibles—Goodwill and Other*. Also as a result of our decreased revenue forecast for Oncura, we recorded an adjustment to the associated contingent consideration liability, which resulted in a gain of \$8.1 million recorded within General and Administrative expenses. The aggregate amount of goodwill that remains associated with our Oncura reporting unit is \$6.6 million as of January 31, 2017. In addition, the remaining book value of our other intangible assets allocated to our Oncura reporting unit is approximately \$3.3 million as of January 31, 2017. In accordance with ASC Topic 360, we tested our Oncura amortizable intangible assets as of December 31, 2016 for recoverability on an undiscounted cash flow basis, and determined that these assets were recoverable.

We have four reporting units with goodwill—Medical Imaging, Ultrasound, Oncura, and Security and Detection, and we have three reportable segments—Medical Imaging, Ultrasound, and Security and Detection. We performed the annual impairment test for our goodwill and other intangible assets with indefinite lives as of December 31, 2016. 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 and as a basis for determining whether it is necessary to perform the quantitative impairment test. Alternatively, we may elect to bypass the qualitative assessment and proceed to the two-step quantitative impairment test. If we choose to perform a qualitative assessment and determine it is more likely than not that the carrying value of the net assets is more than the fair value of the related operations, the two-step impairment process is then performed; otherwise, no further testing is required.

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Our quantitative impairment assessment considered both the market approach and income approach to calculate the fair value of the reporting unit, with different weights assigned to each. Under the market approach, the fair value of the reporting unit is based on trading multiples of a peer group of companies, which was determined based on an analysis of the selected guideline public companies' business enterprise value ("BEV") plus a control premium, which was determined based on an analysis of control premiums for recent relevant acquisitions. Under the income approach, the fair value of the reporting unit is based on the present value of estimated future cash flows, which are determined, based upon the Company's most recent strategic operating plan and considering market participant assumptions. The income approach is dependent on a number of significant management assumptions including estimates of future revenues, costs and expenses, and a number of significant valuation inputs including discount rates, working capital rates and tax rates. For our Medical Imaging, Ultrasound, Oncura and Security and Detection reporting units, we used the two-step quantitative impairment test. For the Security and Detection reporting unit, we performed the market approach and determined that the fair value of our Security and Detection reporting units was in excess of its carrying value, and concluded that there was no impairment. For our Medical Imaging and Ultrasound reporting units, we used both the market approach and income approach and determined that there was no impairment of goodwill. For our Medical Imaging reporting unit, we determined that the estimated fair value of the Medical Imaging reporting unit substantially exceeds its carrying value. For our Ultrasound reporting unit, we determined that our Ultrasound reporting unit was at risk of failing the first step of the goodwill impairment test in future reporting periods due to forecast revisions and changes in strategy in our ultrasound business. For example, an increase in the discount rate applied to the Ultrasound cash flows of 300 basis points could result in a failure of Step 1 of the impairment test. Also, a decrease in the revenue compound annual growth rate within the Ultrasound cash flow forecast of 200 basis points could result in a failure of Step 1 of the impairment test. Our Ultrasound reporting unit had excess fair value over carrying value of approximately 25% as of our annual test date and held \$55.1 million of allocated goodwill as of December 31, 2016.

We compared the fair value of a tradename that has an indefinite life using the relief from royalty approach to its carrying value as of December 31, 2016. The relief from royalty approach utilized an after-tax royalty rate and a discount rate. The after-tax royalty rate was determined based on royalty research and margin analysis, while the discount rate was determined after consideration of market rates of return on debt and equity capital, the weighted average return on invested capital, and the risk associated with achieving forecasted sales for the tradename. We determined that the fair value of the tradename was in excess of its carrying value.

The current economic environment and the uncertainties regarding its impact on our business and our estimates for forecasted revenue and spending levels made for purposes of our goodwill and trade name impairment testing may not be accurate predictions of the future. If our assumptions regarding forecasted revenue or margin growth rates of each reporting unit and trade name are not achieved, we may be required to record an impairment charge for the goodwill and trade name in future periods, whether in connection with our next annual impairment testing in the second quarter of the fiscal year ending July 31, 2018, or prior to that if any such change constitutes a triggering event outside of the quarter from when the annual goodwill and trade name impairment test is performed. Changes in our forecasts, or decreases in the value of our common stock could cause book values of certain operations to exceed their fair values which may result in goodwill impairment charges in future periods. It is not possible at this time to determine if any such future impairment charge would result or, if it does, whether such charge would be material.

Other income (expense), net

Other income (expense), net is summarized as follows:

(in millions)	Three Months Ended		Six Months Ended	
	January 31,	2016	January 31,	2016
	2017		2017	2016
Interest income, net	\$ 0.11	\$ —	\$ 0.2	\$ 0.1
Other, net	(0.08)	(3.5)	(0.6)	(4.0)
Total other income (expense), net	\$ 0.03	\$ (3.5)	\$ (0.4)	\$ (3.9)

Other income (expense), net was \$0.03 million and (\$0.4) million during the three and six months ended January 31, 2017 compared to (\$3.5) million and (\$3.9) million the same periods in 2016, respectively, predominantly due to interest expense of \$3.2 million in 2016 related to the BK Medical matter. For more information on the BK Medical matter, please refer to *Note 11. Commitments, guarantees and contingencies* in our Annual Report on Form 10-K for fiscal year 2016, as filed with the SEC on September 27, 2016.

Provision for income taxes

The following table presents the provision for income taxes and our effective tax rate for the three and six months ended January 31, 2017 and 2016:

(in millions except percentages)	Three Months Ended January 31,		Six Months Ended January 31,	
	2017	2016	2017	2016
Provision for income taxes	\$ 2.0	\$ 1.0	\$ 2.9	\$ 1.1
Effective tax rate	21%	-51%	23%	-244%

The effective income tax rate on operations is based upon the estimated income for the year, the composition of the income in different countries, and adjustments, if any, in the applicable quarterly periods for the potential tax consequences, benefits, resolutions of tax audits or other tax contingencies.

Our effective tax rate for the three and six months ended January 31, 2017 is lower than the statutory rate of 35% primarily due to income generated outside the United States in countries with lower tax rates, tax credits in the United States and Canada, and the manufacturing deduction in the United States. The tax provision for the three and six months ended January 31, 2017 includes discrete tax benefits totaling \$0.4 million.

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Our effective tax rate for the three and six months ended January 31, 2016 is lower than the statutory rate of 35% primarily due to income generated outside the United States in countries with lower tax rates, tax credits in Canada, and a non-recurring discrete item. The tax provision for the three and six months ended January 31, 2016 includes discrete tax benefits totaling \$1.4 million and \$1.3 million, respectively.

We are subject to U.S. Federal income tax as well as the income tax of multiple state and foreign jurisdictions. As of January 31, 2017, we have concluded all U.S. Federal income tax matters through the year ended July 31, 2012.

We accrue interest and, if applicable, penalties for any uncertain tax positions. This interest and penalty expense is treated as a component of income tax expense. At January 31, 2017 and July 31, 2016, we had approximately \$0.5 million and \$0.4 million accrued for interest and penalties on unrecognized tax benefits.

At January 31, 2017, we had \$7.1 million of unrecognized tax benefits for uncertain tax positions and \$0.5 million of related accrued interest and penalties. We are unable to reasonably estimate the amount and period in which these liabilities might be paid.

We do not provide for U.S. Federal income taxes on undistributed earnings of consolidated foreign subsidiaries, as such earnings are intended to be indefinitely reinvested in those operations. Determination of the potential deferred income tax liability on these undistributed earnings is not practicable because such liability, if any, is dependent on circumstances that exist if and when remittance occurs. The circumstances that would affect the calculations would be the source location and amount of the distribution, the underlying tax rate already paid on the earnings, foreign withholding taxes and the opportunity to use foreign tax credits.

Net income and diluted net income per share

Net income and diluted net income per share are summarized as follows:

(in millions except percentages)	Three Months Ended January 31,		Six Months Ended January 31,	
	2017	2016	2017	2016
Net income (loss)	\$ 7.5	\$ (3.0)	\$10.0	\$ (1.6)
% of net revenue	6%	-2%	4%	-1%
Diluted net income (loss) per share from operations	\$ 0.59	\$ (0.24)	\$0.79	\$(0.13)

The increase in net income and diluted net income per share for the three and six months ended January 31, 2017 compared to the same periods in 2016, respectively, was primarily due to higher revenues and lower operating expenses, partially offset by lower gross margin and a higher provision for income taxes.

Liquidity and Capital Resources

Key liquidity and capital resource information are summarized as follows:

(in millions)	As of January 31, 2017	As of July 31, 2016	Percentage Change
Cash and cash equivalents (A)	\$ 153.0	\$118.7	29%
Working capital	\$ 330.6	\$310.3	7%

(A) Includes approximately \$44.1 million and \$45.3 million of cash and cash equivalents held outside the U.S. at January 31, 2017 and July 31, 2016, respectively.

As of January 31, 2017, we had cash and cash equivalents of \$153.0 million, a \$34.3 million increase from July 31, 2016, as we generated \$40.7 million in cash from operations and \$3.1 million from the issuance of stock. This was offset by \$5.7 million paid for additions to property and equipment, \$2.5 million cash payment to shareholders for dividends, and \$1.0 million for the shares surrendered for taxes for vested employee restricted stock grants.

The increase in working capital from July 31, 2016 to January 31, 2017 was primarily attributable to an increase in cash of \$34.3 million, decrease in accrued restructuring charges of \$3.8 million, increase in prepaid expenses and other current assets of \$1.2 million, partially offset by a decrease in accounts receivable of \$20.8 million.

Cash and cash equivalents at January 31, 2017 and July 31, 2016 primarily consisted of demand deposits at highly rated banks and financial institutions. We periodically review our investment portfolio to determine if any investments are impaired due to changes in credit risk or other potential valuation concerns. We believe that our cash equivalents were appropriately valued at January 31, 2017 and July 31, 2016 and we are not aware of any market events that would impact their valuation. This could change in the future should new developments arise in the credit markets.

Cash flows

Sources and uses of cash flows are summarized as follows:

(in millions, except percentages)	Six Months Ended January 31,		Percentage Change
	2017	2016	
Net cash provided by operating activities	\$40.7	\$ 18.8	116%
Net cash used in investing activities	(5.7)	(12.5)	-54%
Net cash used in financing activities	(0.3)	(9.4)	-97%
Effect of exchange rate changes on cash	(0.4)	(0.7)	-43%
Net increase (decrease) in cash and cash equivalents	<u>\$34.3</u>	<u>\$ (3.8)</u>	<u>-1003%</u>

Operating activities

Net cash provided by operating activities during the six months ended January 31, 2017 primarily reflects our net income of \$10.0 million, \$20.0 million related to the collection of accounts receivable, \$12.9 million related to depreciation and amortization, and asset impairment charges of \$10.4 million. This increase was partially offset by a decrease in fair value of contingent consideration of \$8.1 million as well as a decrease in accrued liability of \$5.7 million, primarily due to timing of payments to accrued restructuring charges.

The cash flows provided by operating activities during the six months ended January 31, 2016 primarily reflects our net loss of \$1.6 million, \$20.1 million related to an increase in inventory due to the timing of shipments and to support growth in fiscal year 2016, and \$3.6 million related to a decrease in accrued income taxes. This decrease was partially offset by \$22.9 million related to the collection of accounts receivable, \$11.3 million related to depreciation and amortization, and \$9.9 million related to an increase in accrued liabilities.

Investing activities

Net cash used in investing activities during the six months ended January 31, 2017 was driven by purchases of property, plant and equipment of \$5.7 million.

The net cash used in investing activities during the six months ended January 31, 2016 was driven by capital expenditures of \$4.5 million and the acquisition of Oncura for an \$8 million net cash payment.

Financing activities

Net cash used in financing activities during the six months ended January 31, 2017 primarily reflected \$2.5 million of dividends paid to stockholders and \$1.0 million used for shares surrendered for taxes paid related to vested employee restricted stock, partially offset by proceeds from the issuance of common stock amounting to \$3.1 million associated with share-based compensation and CEO transition related exercise of stock options.

The net cash used in financing activities during the six months ended January 31, 2016 primarily reflected \$7.2 million used to repurchase common stock, \$2.5 million of dividends paid to stockholders and \$1.7 million used for shares surrendered for taxes paid related to vested employee restricted stock. This was partially offset by proceeds from the issuance of common stock amounting to \$2.3 million associated with stock option exercises.

We believe that our balances of cash and cash equivalents and cash flows expected to be generated by future operating activities will be sufficient to meet our cash requirements for at least the next 12 months.

Commitments, Contractual Obligations, and Off-Balance Sheet Arrangements

Our contractual obligations at January 31, 2017 related to our operating leases, purchase obligations, pension, and contingent consideration affect our liquidity and cash flows in future periods.

Operating Leases – Certain of our subsidiaries lease manufacturing and office space under non-cancelable operating leases. These leases contain renewal options. We lease certain other real property and equipment under operating leases which, in the aggregate, are not significant. At January 31, 2017 and July 31, 2016, total commitments related to our operating leases were \$5.9 million and \$6.5 million, respectively.

Purchase Obligations – We enter into certain long-term agreements with customers, which obligate us to purchase goods or services. At January 31, 2017 and July 31, 2016, total purchase obligations were \$32.5 million and \$23.9 million, respectively.

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Pension – Our Canadian subsidiary, Analogic Canada Corporation, formerly known as ANRAD Corporation, sponsors a defined benefit retirement plan called the Analogic Canada Corporation Retirement Plan, or the “Analogic Canada Plan”. The Analogic Canada Plan was frozen to new accruals during fiscal year 2015. The Analogic Canada Plan provides benefits to employees based on a formula recognizing length of service and final average earnings. Please refer to *Note 14. Retirement Plans* in our Annual Report on Form 10-K for the fiscal year ending 2016 for details. The benefit obligation at January 31, 2017 and July 31, 2016 totaled \$4.3 million and \$4.4 million, respectively.

Contingent Consideration – In connection with the acquisition of Oncura, as of January 31, 2017, we recorded a contingent consideration obligation of \$2.1 million. In connection with the acquisition of PocketSonics, as of January 31, 2017, we recorded a contingent consideration obligation of \$2.0 million. Please refer to *Note 7. Fair value measurements* for more information.

Financing Arrangements

On November 23, 2015, we entered into a five-year revolving credit agreement, or Credit Agreement, with the financial institutions identified therein as lenders, which included JPMorgan Chase Bank, N.A., TD Bank, N.A., Wells Fargo Bank, N.A., HSBC Bank, N.A., and People’s United Bank, N.A. The Credit Agreement provides \$100.0 million in available credit and expires on November 23, 2020, when all outstanding borrowings must be paid in full. The credit facility does not require amortization of principal and may be reduced before maturity in whole or in part at our option without penalty. We did not have any borrowings outstanding under this Credit Agreement as of January 31, 2017. Please refer to *Note 16. Guarantees, commitments and contingencies* for more information on the Credit Agreement.

As of January 31, 2017 also have approximately \$1.2 million in other revolving credit facilities with banks available for direct borrowings.

Tax Related Obligations

At January 31, 2017, we had \$7.1 million of unrecognized tax benefits for uncertain tax positions and \$0.5 million of related accrued interest and penalties. We are unable to reasonably estimate the amount and period in which these liabilities might be paid. Please refer to *Note 14. Income taxes* to our consolidated financial statements for additional information regarding matters relating to income taxes, including unrecognized tax benefits.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements, as defined under SEC rules, during the periods presented.

Recent Accounting Pronouncements

For a discussion of new accounting standards please refer to *Note 2. Recent accounting pronouncements* to our consolidated financial statements included within this report.

Critical Accounting Policies

The accompanying discussion and analysis of our financial condition and results of operations is based on our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States of America, or U.S. GAAP. Our most critical accounting policies have a significant impact on the preparation of these consolidated financial statements. These policies include estimates and significant judgments that affect the reported amounts of assets, liabilities, revenue, and expenses, and related disclosures of contingent assets and liabilities.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

Our market risks and the ways we manage them were summarized in Item 7A. Quantitative and Qualitative Disclosures about Market Risk of our Annual Report on Form 10-K for fiscal year 2016, as filed with the SEC on September 27, 2016. There have been no material changes during the six months ended January 31, 2017 to our market risks or to our management of such risks.

Item 4. Controls and Procedures

Our management, with the participation of our principal executive officer and principal financial officer, evaluated the effectiveness of our disclosure controls and procedures as of January 31, 2017. The term “disclosure controls and procedures”, as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended, or the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized, and reported, within the time periods specified in the SEC’s rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the Company’s management, including its principal executive officer and principal financial officer, as appropriate, to allow timely decisions to be made regarding required disclosure. It should be noted that any system of controls and procedures, however well designed and operated, can provide only reasonable, and not absolute, assurance that the

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objectives of the system are met and that management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation of our disclosure controls and procedures as of January 31, 2017, our principal executive officer and principal financial officer concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level.

There were no changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the three months ended January 31, 2017 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Part II. OTHER INFORMATION

Item 1. Legal Proceedings

For a discussion of legal matters as of January 31, 2017, please refer to *Note 16. Guarantees, commitments and contingencies* to our consolidated financial statements included in this report.

Item 1A. Risk Factors

In addition to the other information set forth in this report, you should carefully consider the factors discussed in Part I, Item 1A. “Risk Factors” in our Annual Report on Form 10-K for fiscal year 2016, as filed with the SEC on September 27, 2016, which could materially affect our business, financial condition, and future operating results. The risks described in our Annual Report on Form 10-K for fiscal year 2016, as filed with the SEC on September 27, 2016, are not the only risks that we face. Additional risks and uncertainties not currently known to us or that we currently deem to be immaterial also may materially adversely affect our business, financial condition, and operating results. There have been no material changes to the risk factors set forth in our Annual Report on Form 10-K for fiscal year 2016, as filed with the SEC on September 27, 2016.

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

The following table contains information about purchases by us of our equity securities during the three months ended January 31, 2017:

<u>Period</u>	<u>Total Number of Shares Purchased (1)</u>	<u>Average Price Paid per Share (1)</u>	<u>Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs (1) (2)</u>	<u>Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs (000's)</u>
11/1/2016-11/30/2016	—	\$ —	—	\$ 16,006
12/1/2016-12/31/2016	—	\$ —	1,974	\$ 16,006
1/1/2017-1/31/2017	—	\$ —	527	\$ 16,006
Total	—	\$ —	2,501	\$ 16,006

- (1) During the second quarter of fiscal year 2017 we did not repurchase shares of our common stock in open-market transactions. No shares were purchased in Q2 FY17 pursuant to a repurchase program authorized by our board of directors that was announced on June 2, 2014 to repurchase up to \$30 million of our common stock. The repurchase program does not have a fixed expiration date.

On May 26, 2016, our board of directors authorized the repurchase of up to \$15.0 million of our common stock. No shares have been repurchased under this program.

- (2) Includes 2,501 shares, consisting of 1,974 shares and 527 shares of our common stock, surrendered by employees in order to meet tax withholding obligations in connection with the vesting of restricted stock in December 2016 and January 2017, respectively.

Item 5. Other information

On March 7, 2017, the Company and James Ryan executed a severance agreement (the “Severance Agreement”), as well as a non-competition and non-solicitation agreement attached as Exhibit A to the Severance Agreement. The full text of the Severance Agreement, as well as the exhibits thereto, is attached as Exhibit 10.1 to this quarterly report on Form 10-Q and incorporated herein by reference. The following description of the Severance Agreement is qualified in its entirety by reference to the Severance Agreement.

Under the Severance Agreement, if Mr. Ryan’s employment is terminated by the Company other than for cause, other than by reason of Mr. Ryan’s death or disability, and other than in connection with a change in control, then provided Mr. Ryan has executed a general release in favor of the Company and certain others and reaffirms Mr. Ryan’s continuing obligations under the non-competition and non-solicitation agreement attached to his Severance Agreement and any other restrictive covenant agreements between Mr. Ryan and the Company (the “Severance Conditions”), the Company will (a) beginning on the 60th day following the date of termination, pay to Mr. Ryan a sum equal to twelve (12) months of base salary at Mr. Ryan’s most recent base salary rate, such payment to be made in approximately equal installments according to the Company’s then-current payroll practices, (b) provide continued medical and dental coverage for a period of twelve (12) months following the date of termination, and (c) pay to Mr. Ryan a sum equal to his actual incentive award, if any, as calculated according to the annual incentive plan for the fiscal year in which Mr. Ryan’s termination occurs.

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If, within twenty four (24) months following a change in control, Mr. Ryan's employment is (i) terminated by the Company without cause and not for death or disability, or (ii) if Executive resigns his employment for good reason, the Company shall, subject to the Severance Conditions, pay Mr. Ryan (a) the amounts set forth in the preceding paragraph at the times provided therein, and (b) an amount equal to sixty percent (60%) of Mr. Ryan's most recent annualized base salary, payable on the sixtieth (60th) day following the date of termination.

If Mr. Ryan's employment is terminated by the Company for cause, or by reason of Mr. Ryan's death or disability, or by the Company other than for cause on or after the second anniversary of the start date, the Severance Agreement will terminate without further obligations to Mr. Ryan, other than the payment of accrued obligations.

Item 6. Exhibits

The exhibits listed on the Exhibit Index immediately preceding such exhibits, which is incorporated herein by reference, are filed or furnished as part of this Quarterly Report on Form 10-Q.

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.

Date: March 13, 2017

ANALOGIC CORPORATION

/s/ Fred B. Parks

Fred B. Parks
President and Chief Executive Officer
(Principal Executive Officer)

Date: March 13, 2017

/s/ Mark T. Frost

Mark T. Frost
Senior Vice President, Chief Financial Officer, and Treasurer
(Principal Financial Officer)

EXHIBIT INDEX

<u>Exhibit</u>	<u>Description</u>
3.1	By-laws of Analogic Corporation, a Massachusetts corporation; as amended through January 19, 2017.
*10.1	Severance Agreement between Analogic Corporation and James Ryan, dated March 7, 2017.
31.1	Certification of Principal Executive Officer pursuant to Rule 13a-14(a)/Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2	Certification of Principal Financial Officer pursuant to Rule 13a-14(a)/Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1	Certification of Principal 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 Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101	The following materials from Analogic Corporation's Quarterly Report on Form 10-Q for the quarter ended January 31, 2017 are formatted in XBRL (Extensible Business Reporting Language): (i) Consolidated Balance Sheets as of January 31, 2017 and July 31, 2016, (ii) Consolidated Statements of Operations for the Three and Six Months Ended January 31, 2017 and 2016, (iii) Consolidated Statements of Comprehensive Income for the Three and Six Months Ended January 31, 2017 and 2016, (iv) Consolidated Statements of Cash Flows for the Six Months Ended January 31, 2017 and 2016 and (v) Notes to Consolidated Financial Statements.

* Management contract or compensatory plan or arrangement

BY-LAWS
of
ANALOGIC CORPORATION
A Massachusetts Corporation

As amended through January 19, 2017

BY-LAWS

of

ANALOGIC CORPORATION

ARTICLE I

Stockholders

Section 1. Annual Meeting. The annual meeting of the stockholders of the Corporation shall be held on the date and at the time fixed, from time to time, by the Directors, provided that the date so fixed is within six months of the end of the fiscal year of the Corporation. The annual meeting shall be held at such place within the United States as may be designated in the notice of meeting. If the day fixed for the annual meeting shall fall on a legal holiday, the meeting shall be held on the next succeeding day not a legal holiday. In the event that no date for the annual meeting is established, a special meeting may be held in place thereof, and any business transacted at such special meeting in lieu of annual meeting shall have the same effect as if transacted or held at the annual meeting.

Section 2. Special Meetings. Special meetings of the stockholders may be called by the President or by the Directors, and shall be called by the Clerk, or in case of the death, absence, incapacity or refusal of the Clerk, by any other officer, upon written application of one or more stockholders who are entitled to vote at the meeting and who hold at least one-tenth part in interest of the capital stock entitled to vote at the meeting, stating the time, place and purposes of the meeting.

Section 3. Place of Meetings. All meetings of stockholders shall be held at the principal office of the Corporation unless a different place (within the United States) is fixed by the Directors or the President and stated in the notice of the meeting.

Section 4. Notices. Notice of all meetings of stockholders shall be given as follows, to wit: a written notice, stating the place, day and hour thereof, and the purposes for which the meeting is to be held shall be given by the Clerk or by the person calling the meeting at least ten (10) days before the meeting to each stockholder entitled to vote thereat and to each stockholder who, by law, the Articles of Organization, or these By-Laws, is entitled to such notice, by leaving such notice with him or at his residence or usual place of business, or by mailing it postage prepaid and addressed to such stockholder at his address as it appears upon the books of the Corporation. No notice need be given to any stockholder if a written waiver of notice, executed before or after the meeting by the stockholder or his attorney thereunto authorized is filed with the records of the meeting.

Section 5. Quorum. The holders of record of a majority in interest of the stock of the Corporation then issued and outstanding and entitled to vote, appearing in person or by proxy shall constitute a quorum, but a lesser number may adjourn the meeting from time to time without further notice.

Section 6. Voting and Proxies. Each stockholder shall have one vote for each share of stock entitled to vote, and a proportionate vote for any fractional share entitled to vote, held by him of record according to the records of the Corporation, unless otherwise provided by the Articles of Organization. Stockholders may vote either in person or by written proxy dated not more than six months before the meeting named therein. Proxies shall be filed with the Clerk or other person responsible for recording the proceedings of the meeting before being voted. Except as otherwise limited therein, proxies shall entitle the persons named therein to vote at the meeting specified therein and at any adjourned session of such meeting but shall not be valid after final adjournment of the meeting. A proxy with respect to stock held in the name of two or more persons shall be valid if executed by one of them unless at or prior to exercise of the proxy the Corporation receives a specific written notice to the contrary from any one of them. A proxy purporting to be executed by or on behalf of a stockholder shall be deemed valid unless challenged at or prior to its exercise.

Section 7. Action at Meeting. When a quorum is present, action of the stockholders on any matter properly brought before such meeting shall require the affirmative vote of the holders of a majority of the stock present or represented and entitled to vote and voting on such matter (or if there are two or more classes of stock entitled to vote as separate classes, then in the case of each such class, the holders of a majority of the stock of that class present or represented and entitled to vote and voting on a matter), provided that such majority shall be at least a majority of the number of shares required to constitute a quorum for action on such matter, except where a greater vote is required by law, the Articles of Organization or these By-Laws. Any election by stockholders shall be determined by a plurality of the votes cast by the stockholders entitled to vote at the election. No ballot shall be required for such election unless requested by a stockholder present or represented at the meeting and entitled to vote in the election.

Section 8. Special Action. Any action to be taken by stockholders may be taken without a meeting if all stockholders entitled to vote on the matter consent to the action by a writing filed with the records of the meetings of stockholders. Such consent shall be treated for all purposes as a vote at the meeting.

Section 9. Record Date. The Directors may fix in advance a time which shall be not more than sixty (60) days prior to (a) the date of any meeting of stockholders, (b) the date for the payment of any dividend or the making of any distribution to stockholders, or (c) the last day on which the consent or dissent of stockholders may be effectively expressed for any purpose, as the record date for determining the stockholders having the right to notice of and to vote at such meeting and any adjournment thereof, the right to receive such dividend or distribution, or the right to give such consent or dissent. In such case only stockholders of record on such record date shall have such right, notwithstanding any transfer of stock on the books of the Corporation after the record date. Without fixing such record date the Directors may for any of such purposes close the transfer books for all or any part of such period.

ARTICLE II

Directors

Section 1. Powers. The business of the Corporation shall be managed by a Board of Directors which may exercise all the powers of the Corporation except as otherwise provided by law, by the Articles of Organization or by these By-Laws. In the event of a vacancy in the Board of Directors, the remaining Directors, except as otherwise provided by law, may exercise the powers of the full Board until the vacancy is filled.

Section 2. Number and Election. A board of directors of such number, not less than five, nor more than eleven, as shall be fixed by the board before each annual meeting of the stockholders, shall be elected by the stockholders at the annual meeting. Notwithstanding anything to the contrary in Section 7 of Article I, and except as provided in Section 3 of this Article II, each director shall be elected by the vote of the majority of the votes cast with respect to the director at any meeting for the election of directors at which a quorum is present; *provided that* if, as of a date that is fourteen (14) days in advance of the date the Corporation files its definitive proxy statement with respect to such meeting (regardless of whether or not thereafter revised or supplemented) with the Securities and Exchange Commission, the number of nominees is greater than the number of directors to be elected, the directors shall be elected by a plurality of the votes cast by the stockholders entitled to vote on the election of directors. For purposes of this Section, a majority of the votes cast means that the number of shares voted "for" a director must be greater than the number of votes cast "against" that director.

Section 3. Vacancies. In the case of any vacancy in the Board of Directors from death, resignation, disqualification or other cause, including a vacancy resulting from enlargement of the Board, the election of a Director to fill such vacancy shall be by vote of a majority of the Directors then in office, whether or not constituting a quorum. The Director thus elected shall hold office for (1) the unexpired portion of the term of the Director whose place shall be vacant or (2) the unexpired portion of the term of the class of Director added to the Board, as the case may be, and, in either case, until the election of his successor.

Section 4. Change in Size of Board. Subject to the rights of holders of any class or series of Preferred Stock, the number of Directors may be changed from time to time either by the shareholders or the Board of Directors.

Section 5. Election and Tenure. Until the division of Directors into classes is terminated as provided below, the Directors of the Corporation shall be divided into three classes: Class I, Class II, and Class III. Each class shall consist as nearly as may be possible, of one-third of the whole number of the Board of Directors. At the 2008 Annual Meeting of Stockholders, the Class I Directors shall be elected by the shareholders for terms expiring at the 2011 Annual Meeting of Stockholders; at the 2009 Annual Meeting of Stockholders, the Class II Directors shall be elected by the shareholders for terms expiring at the 2010 Annual Meeting of Stockholders; at the 2010 Annual Meeting of Stockholders, both the Class II and Class III Directors shall be elected by the shareholders for terms expiring at the 2011 Annual Meeting of Stockholders; and at the 2011 Annual Meeting of Stockholders and at each Annual Meeting of Stockholders thereafter, all Directors shall be elected by the shareholders for terms expiring at the next Annual Meeting of Stockholders (or, in each case above, until their successors shall be elected and qualified or their earlier death, resignation or removal). From and after the 2011 Annual Meeting of Stockholders, the Directors shall no longer be divided into classes. For so long as the Directors are divided into classes, (a) if the number of Directors changes, any increase or decrease in Directors shall be apportioned among the classes so as to maintain all classes as equal in number as possible, and any additional Director elected to any class shall hold office for a term which shall coincide with the terms of the other Directors in such class and until his successor is duly elected and qualified, (b) no decrease in the number of Directors constituting the Board of Directors shall shorten the term of any incumbent Director and (c) any Director elected to fill a vacancy shall hold office for the remainder of the full term of the class of Directors in which the vacancy occurred or the new directorship was created and until such Director's successor shall have been elected and qualified. Any Director may resign by delivering his written resignation to the Corporation at its principal office, or to the Chairman of the Board or Secretary.

Section 6. Removal. Subject to the rights of holders of any class or series of Preferred Stock, the removal of any Director or Directors or the entire Board of Directors may be effected only by the affirmative vote of a majority of (a) the Directors then in office, for cause, or (b) the shares outstanding and entitled to vote in the election of the Directors, with or without cause. "Cause" for purposes of this Section 6 shall mean only (1) conviction of a felony, (2) declaration of unsound mind by order of court, (3) gross dereliction of duty, (4) commission of an action involving moral turpitude or (5) commission of an action which constitutes intentional misconduct or a knowing violation of law if such action in either event results both in an improper substantial personal benefit and a material injury to the Corporation. A Director may be removed by the shareholders or the Directors only at a meeting called for the purpose of removing him or her, and the meeting notice must state that the purpose, or one of the purposes, of the meeting is removal of the Director.

Section 7. Annual Meeting. Immediately after each annual meeting of stockholders, or the special meeting held in lieu thereof, and at the place thereof, if a quorum of the Directors elected at such meeting was present thereat, there shall be a meeting of the Directors without notice; but if such a quorum of the Directors elected thereat was not present at such meeting, or if present, do not proceed immediately thereafter to hold a meeting of the Directors, the annual meeting of the Directors shall be called in the manner hereinafter provided with respect to the call of special meetings of Directors.

Section 8. Regular Meetings. Regular meetings of the Directors may be held at such times and places as shall from time to time be fixed by resolution of the Board, and no notice need be given of regular meetings held at times and places so fixed; provided, however, that any resolution relating to the holding of regular meetings shall remain in force only until the next annual meeting of stockholders, or the special meeting held in lieu thereof, and that if at any meeting of Directors at which a resolution is adopted fixing the times or place or places for any regular meetings any Director is absent no meeting shall be held pursuant to such resolution until either each such absent Director has in writing or by telegram approved the resolution or seven (7) days have elapsed after copy of the resolution certified by the Clerk has been mailed, postage prepaid, addressed to each such absent Director at his last known home or business address.

Section 9. Special Meetings. Special meetings of the Directors may be called by the Chairman of the Board of Directors, the President, the Treasurer, or by any two Directors, and shall be held at the time and place designated in the call thereof.

Section 10. Notice of Meetings. Notice of all special meetings of the Directors shall be given to each Director by the Secretary, or if there be no Secretary, by the Assistant Secretary, or in case of the death, absence, incapacity or refusal of such persons, by the officer or one of the Directors calling the meeting. Notice shall be given to each Director in person or by telephone or by telegram sent to his business or home address at least twenty-four hours in advance of the meeting,

or by written notice mailed to his business or home address at least four (4) days in advance of the meeting. Notice need not be given to any Director if a written waiver of notice, executed by him before or after the meeting, is filed with the records of the meeting, or to any Director who attends the meeting without protesting prior thereto or at its commencement the lack of notice to him. A notice or waiver of notice of a Directors' meeting need not specify the purposes of the meeting.

Section 11. Quorum. At any meeting of the Directors a majority of the Directors then in office shall constitute a quorum. Less than a quorum may adjourn any meeting from time to time without further notice.

Section 12. Action at Meeting. At any meeting of the Directors at which a quorum is present, the action of the Directors on any matter brought before the meeting shall be decided by a vote of a majority of those present and voting, unless a different vote is required by law, the Articles of Organization, or these By-Laws.

Section 13. Action by Consent. Any action by the Directors may be taken without a meeting if a written consent thereto is signed by all the Directors and filed with the records of the Directors' meetings. Such consent shall be treated as a vote of the Directors for all purposes.

Section 14. Committees. The Directors may, by vote of a majority of the Directors then in office, elect from their number an executive or other committees and may by like vote delegate thereto some or all of their powers, except those which by law, the Articles of Organization, or these By-Laws they are prohibited from delegating. Except as the Directors may otherwise determine, any such committee may make rules for the conduct of its business, but, unless otherwise provided by the Directors or in such rules, its business shall be conducted as nearly as may be in the same manner as is provided by these By-Laws for the Directors.

Section 15. Nominations. Nominations for the election of Directors at an annual meeting of the stockholders may be made by the Board of Directors or a committee appointed by the Board of Directors or by any stockholder entitled to vote in the election of Directors at the meeting. Stockholders entitled to vote in such election may nominate one or more persons for election as Directors only if written notice of such stockholder's intent to make such nomination or nominations has been given either by personal delivery to, or by mail sent to and received by, the Clerk of the Corporation not later than ninety (90) days prior to the anniversary date of the immediately preceding annual meeting; provided, however, that in the event that the date of the annual meeting is advanced by more than thirty (30) days or delayed by more than sixty (60) days from such anniversary date, or if no annual meeting was held in the preceding year, notice by the shareholder must be so delivered and received by the later of (i) the ninetieth (90th) day prior to such annual meeting; or (ii) the tenth (10th) day following the day on which public announcement of the date of such meeting is first made by the Corporation. In no event shall an adjournment or recess of an annual meeting, or a postponement of an annual meeting for which notice has been given or with respect to which there has been a public announcement of the date of the meeting, commence a new time period (or extend any time period) for the giving of a shareholder's notice as described above. Such notice shall set forth: (a) the name and address of the stockholder who intends to make the nomination and of the persons or person to be nominated; (b) a representation that the stockholder is a holder of record of stock of the Corporation entitled to vote at such meeting and intends to appear in person or by proxy at the meeting to nominate the person or persons specified in the notice; (c) a description of all arrangements or understandings between the stockholder and each nominee and any other person or persons (naming such person or persons) pursuant to which the nomination or nominations are to be made by the stockholder; (d) such other information regarding each nominee proposed by such stockholder as would be required to be included in a proxy statement filed pursuant to the proxy rules of the Securities and Exchange Commission; and (e) the consent of each nominee to serve as a Director of the Corporation if so elected. The presiding officer of the meeting may refuse to acknowledge the nomination of any person not made in compliance with the foregoing procedure.

ARTICLE III

Officers

Section 1. Enumeration. The officers of the Corporation shall consist of a President, a Treasurer, a Clerk, and such other officers, including without limitation a Chairman of the Board, one or more Vice Presidents, Assistant Treasurers, Assistant Clerks, and Secretary as the Directors may determine. The Chairman of the Board may from time to time appoint a president, one or more vice presidents, a treasurer, and other officers, so-called, for any division of the Corporation and define their respective powers and duties, and he may remove any such officer at any time. Such divisional officers shall be subject at all times to the control of the Chairman of the Board, the President, the Board of Directors and of any other officer of the Corporation whom the Chairman of the Board, the President, or the Board may designate from time to time. Such divisional officers shall not be deemed to be officers of the Corporation for any purpose whatsoever, except to the extent required by federal securities laws.

Section 2. Election. The President, the Treasurer and the Clerk shall be elected annually by the Directors at their first meeting following the annual meeting of stockholders, or the special meeting held in lieu thereof. Other officers may be chosen by the Directors at such meeting or at any other meeting.

Section 3. Qualification. The Chairman of the Board of Directors must be, and the President may but need not be, a Director. No officer need be a stockholder. Any two or more offices may be held by the same person, provided that the President and Clerk shall not be the same person. The Clerk shall be a resident of Massachusetts unless the Corporation has a resident agent appointed for the purpose of service of process. Any officer may be required by the Directors to give bond for the faithful performance of his duties to the Corporation in such amount and with such sureties as the Directors may determine.

Section 4. Tenure. Except as otherwise provided by law, by the Articles of Organization or by these By-Laws, each of the President, the Treasurer and the Clerk shall hold office until the first meeting of the Directors following the annual meeting of stockholders, or the special meeting held in lieu thereof, and thereafter until his successor is chosen and qualified. Other officers shall hold office until the first meeting of the Directors following the annual meeting of stockholders, or the special meeting held in lieu thereof, unless a shorter term is specified in the vote choosing or appointing them. Any officer may resign by delivering his written resignation to the Corporation at its principal office, or to the President, Clerk or Secretary, and such resignation shall be effective upon receipt unless it is specified to be effective at some other time or upon the happening of some other event.

Section 5. Removal. The Directors may remove any officer with or without cause by a vote of a majority of the entire number of Directors then in office; provided that an officer may be removed for cause only after reasonable notice and opportunity to be heard by the Board of Directors prior to action thereon.

Section 6. Chief Executive Officer. The Chief Executive Officer shall be President except if and while the Board of Directors shall designate the Chairman of the Board to be the Chief Executive Officer. It shall be the duty of the Chief Executive Officer and he shall have the power to see that all orders and resolutions of the Board of Directors are carried into effect. As soon as reasonably possible after the close of each fiscal year, he shall submit to the Board of Directors a report of the operations of the Corporation for such year and a statement of its affairs and shall from time to time report to the Board of Directors all matters within his knowledge which the interests of the Corporation may require to be brought to its notice. The Chief Executive Officer shall perform such duties and have such powers additional to the foregoing as the Board of Directors shall from time to time designate.

Section 7. Chairman of the Board. The Chairman of the Board (if any) shall when present preside at all meetings of the stockholders and of the Board of Directors. He shall perform such duties and have such powers additional to the foregoing as the Board of Directors shall from time to time designate, or as elsewhere provided in these By-Laws or by law. In the absence from any such meeting of the Chairman of the Board, the President shall preside at the meeting.

Section 8. President. If there is no Chairman of the Board (or in the absence or disability of any such Chairman) his powers and duties shall be performed by the President. The President shall perform such duties and have such powers additional to the foregoing as the Board of Directors shall from time to time designate, or as elsewhere provided in these By-Laws or by law.

Section 9. Vice Presidents. In the absence or disability of the President, his powers and duties shall be performed by the Vice President, if only one, or, if more than one, by the one designated for the purpose by the Directors. Each Vice President shall have such other powers and perform such other duties as the Board of Directors shall from time to time designate.

Section 10. Treasurer. The Treasurer shall, subject to the direction of the Board of Directors, have general charge of the financial affairs of the Corporation and shall cause to be kept accurate books of account. He shall deposit all moneys and other valuable effects in the name and to the credit of the Corporation in such depositories as shall be designated by the Directors, or in the absence of such designation, in such depositories as he shall from time to time deem proper. He shall cause the funds of the Corporation to be disbursed as shall be ordered by the Directors, taking proper vouchers for such disbursements. He shall promptly render to the President and to the Directors such statements of his transactions and accounts as the President and Directors, respectively, may from time to time require. The Treasurer shall perform such duties and have such powers additional to the foregoing as the Directors may designate.

Section 11. Assistant Treasurers. In the absence or disability of the Treasurer, his powers and duties shall be performed by the Assistant Treasurer, if only one, or, if more than one, by the one designated for the purpose by the Directors. Each Assistant Treasurer shall have such other powers and perform such other duties as the Directors shall from time to time designate.

Section 12. Clerk. The Clerk shall record in books kept for the purpose all votes and proceedings of the stockholders and, if there be no Secretary or Assistant Secretary, of the Directors at their meetings. Unless the Directors shall appoint a transfer agent and/or registrar or other officer or officers for the purpose, the Clerk shall be charged with the duty of keeping, or causing to be kept, accurate records of all stock outstanding, stock certificates issued and stock transfers. Each Clerk shall have such other powers and perform such other duties as the Directors may from time to time designate.

Section 13. Assistant Clerks. In the absence of the Clerk from any meeting of the stockholders, or, if there be no Secretary or Assistant Secretary, from any meeting of the Directors, the Assistant Clerk, if one be elected, or, if there be more than one, the one designated for the purpose by the Directors, otherwise a Temporary Clerk designated by the person presiding at the meeting, shall perform the duties of the Clerk. Each Assistant Clerk shall have such other powers and perform such other duties as the Directors may from time to time designate.

Section 14. Secretary and Assistant Secretaries. If a Secretary is elected, he shall keep a record of the meetings of the Directors, and in his absence, an Assistant Secretary, if one be elected, or, if there be more than one, the one designated for the purpose by the Directors, otherwise a Temporary Secretary designated by the person presiding at the meeting, shall perform the duties of the Secretary. Each Assistant Secretary shall have such other powers and perform such other duties as the Directors may from time to time designate.

ARTICLE IV

Provisions Relating to Capital Stock

Section 1. Certificates of Shares of Stock. If shares are represented by certificates, such certificates shall be in such form as the Board of Directors may adopt, and at a minimum each certificate shall state on its face (a) the name of the Corporation and that it is organized under the laws of the Commonwealth of Massachusetts, (b) the name of the person to whom issued, and (c) the number and class of shares and the designation of the series, if any, that the certificate represents. If different classes of shares or different series within a class are authorized, then the variations in rights, preferences, and limitations applicable to each class and series, and the authority of the Board of Directors to determine variations for any future class or series, must be summarized on the front or back of each certificate. Alternatively, each certificate may state conspicuously on its front or back that the Corporation will furnish the shareholder this information on request in writing and without charge. Each certificate shall be signed, either manually or in facsimile, by the President or a Vice President and by the Treasurer or an Assistant Treasurer, or any two officers designated by the Board of Directors, and may bear the corporate seal or its facsimile. If a person who signed, either manually or in facsimile, a certificate no longer holds office when such certificate is issued, the certificate shall nevertheless be valid. Each

certificate that is subject to a restriction on transfer or registration of transfer of shares pursuant to the Articles of Organization, the By-Laws, or an agreement to which the Corporation is a party, shall have the existence of the restriction noted conspicuously on the front or back of the certificate. Subject to the restrictions, if any, noted on a certificate, and except with respect to uncertificated shares issued pursuant to Section 2 of this Article IV, the shares represented thereby shall be transferred on the books of the Corporation only by surrender to the Corporation or its transfer agent of the certificate therefor, properly endorsed or accompanied by a written assignment and power of attorney properly executed, with any necessary transfer stamps affixed, and with such proof of the authenticity of signature as the Corporation or its transfer agent may reasonably require.

Section 2. Uncertificated Shares of Stock. The Board of Directors may authorize the issue of some or all of the shares of any or all of the Corporation's classes or series without certificates. The authorization shall not affect shares already represented by certificates until they are surrendered to the Corporation. Within a reasonable time after the issue or transfer of shares without certificates, the Corporation shall send the shareholder a written statement of the information required by the Massachusetts Business Corporation Act, as in effect from time to time, to be on certificates.

Section 3. Record and Beneficial Owners. The Corporation shall be entitled to treat the person in whose name shares are registered in the records of the Corporation as the holder of the shares for all purposes, including the payment of dividends and the right to vote with respect thereto, or, if the Board of Directors has established a procedure by which the beneficial owner of shares that are registered in the name of a nominee will be recognized by the Corporation as the holder of such shares, the Corporation shall be entitled to treat the beneficial owner of shares as the holder of the shares to the extent of the rights granted by a nominee certificate on file with the Corporation. It shall be the duty of each stockholder to notify the Corporation of his or her address.

Section 4. Lost or Destroyed Certificates. The Board of Directors may, subject to Massachusetts General Laws, Chapter 106, Section 8-405, determine the conditions upon which a new certificate may be issued in place of any certificate alleged to have been lost, destroyed, or wrongfully taken. The Board of Directors may, in its discretion, require the owner of such certificate, or his or her legal representative, to give a bond, sufficient in its opinion, with or without surety, to indemnify the Corporation against any loss or claim which may arise by reason of the issue of the new certificate.

ARTICLE V

Stock in Other Corporations

Except as the Directors may otherwise designate, the Chairman of the Board, President, or Treasurer may on behalf of this Corporation waive notice of, vote, and appoint any person or persons to act as proxy or attorney in fact for this Corporation (with or without power of substitution) at, any meeting of stockholders or shareholders of any other corporation or organization, the securities of which may be held by this Corporation.

ARTICLE VI

Inspection of Records

Books, accounts, documents, and records of the Corporation shall be open to inspection by any Director at all times during the usual hours of business. The original, or attested copies, of the Articles of Organization, By-Laws, and records of all meetings of the incorporators and stockholders and the stock and transfer records, which shall contain the names of all stockholders and the record address and the amount of stock held by each, shall be kept in Massachusetts at the principal office of the Corporation, or at any office of its transfer agent or of the Clerk. Said copies and records need not all be kept in the same office. They shall be available at all reasonable times to the inspection of any stockholder for any proper purpose, but not to secure a list of stockholders for the purpose of selling said list or copies thereof or of using the same for a purpose other than in the interest of the applicant, as a stockholder, relative to the affairs of the Corporation.

ARTICLE VII

Checks, Notes, Drafts and Other Instruments

Checks, notes, drafts, and other instruments for the payment of money drawn or endorsed in the name of the Corporation may be signed by any officer or officers or person or persons authorized by the Board of Directors to sign the same. No officer or person shall sign any such instruments as aforesaid unless authorized by the Board of Directors to do so.

ARTICLE VIII

Seal

The seal of the Corporation shall, subject to alteration by the Directors, bear its name, the word "Massachusetts", and the year of its incorporation.

ARTICLE IX

Fiscal Year

Except as from time to time otherwise determined by the Directors, the fiscal year of the Corporation shall be the twelve months ending on the 31st day of July of each year.

ARTICLE X

Powers of Officers to Contract with the Corporation

Any and all of the Directors and officers of the Corporation, notwithstanding their official relations to it, may enter into and perform any contract or agreement of any nature between the Corporation and themselves, or any and all of the individuals from time to time constituting the Board of Directors of the Corporation, or any firm or corporation in which any such Director may be interested, directly or indirectly, whether such individual, firm, or corporation thus contracting with the Corporation shall thereby derive personal or corporate profits or benefits or otherwise; provided, that (i) the material facts of such interest are disclosed or are known to the Board of Directors or committee thereof which authorizes such contract or agreement; (ii) if the material facts as to such person's relationship or interest are disclosed or are known to the stockholders entitled to vote thereon, and the contract is specifically approved in good faith by a vote of the stockholders; or (iii) the contract or agreement is fair as to the Corporation as of the time it is authorized, approved, or ratified by the Board of Directors, a committee thereof, or the stockholders. Any Director of the Corporation who is interested in any transaction as aforesaid may nevertheless be counted in determining the existence of a quorum at any meeting of the Board of Directors which shall authorize or ratify any such transaction. This Article shall not be construed to invalidate any contract or other transaction which would otherwise be valid under the common or statutory law applicable thereto.

ARTICLE XI

Indemnification

Section 1. Definitions. For purposes of this Article XI the following terms shall have the meanings indicated:

“Corporate status” describes the status of a person who is or was a Director, Officer, employee, agent, trustee, or fiduciary of the Corporation or of any other corporation, partnership, joint venture, trust, employee benefit plan, or other enterprise which such person is or was serving at the express written request of the Corporation.

“Court” means the court in which the Proceeding in respect of which indemnification is sought by a Covered Person shall have been brought or is pending, or another court having subject matter jurisdiction and personal jurisdiction over the parties.

“Covered Person” means a person who is a present or former Director or Officer of the Corporation and shall include such person’s legal representatives, heirs, executors and administrators.

“Disinterested” describes any individual, whether or not that individual is a Director, Officer, employee, or agent of the Corporation, who is not, and was not, and is not threatened to be, made a party to the Proceeding in respect of which indemnification, advancement of Expenses, or other action is sought by a Covered Person.

“Expenses” shall include, without limitation, all reasonable attorneys’ fees, retainers, court costs, transcript costs, fees of experts, witness fees, travel expenses, duplicating costs, printing and binding costs, telephone charges, postage, delivery service fees, and all other disbursements or expenses of the types customarily incurred in connection with prosecuting, defending, preparing to prosecute or defend, investigating, or being or preparing to be a witness in a Proceeding.

“Good Faith” shall mean a Covered Person having acted in good faith and in a manner such Covered Person reasonably believed to be in the best interests of the Corporation or, in the case of an employee benefit plan, the best interests of the participants or beneficiaries of said plan, as the case may be, and, with respect to any Proceeding which is criminal in nature, having had no reasonable cause to believe such Covered Person’s conduct was unlawful.

“Independent Counsel” means a law firm, or a member of a law firm, that is experienced in matters of corporation law and may include law firms or members thereof that are regularly retained by the Corporation but not by any other party to the Proceeding giving rise to a claim for indemnification hereunder. Notwithstanding the foregoing, the term “Independent Counsel” shall not include any person who, under the standards of professional conduct then prevailing and applicable to such counsel, would have a conflict of interest in representing either the Corporation or Covered Person in an action to determine the Covered Person’s rights under this Article.

“Officer” means the President, Vice Presidents, Treasurer, Assistant Treasurer(s), Secretary, Assistant Secretary, and such other executive officers as are appointed by the Board of Directors of the Corporation and explicitly entitled to indemnification hereunder.

“Proceeding” includes any actual, threatened, or completed action, suit, arbitration, alternate dispute resolution mechanism, investigation (including any internal corporate investigation), administrative hearing, or any other proceeding, whether civil, criminal, administrative, or investigative, other than one initiated by the Covered Person, but including one initiated by a Covered Person for the purpose of enforcing such Covered Person’s rights under this Article to the extent provided in Section 14 of this Article. “Proceeding” shall not include any counterclaim brought by any Covered Person other than one arising out of the same transaction or occurrence that is the subject matter of the underlying claim.

Section 2. Right to Indemnification in General

(a) Covered Persons. The Corporation shall indemnify, and may advance Expenses, to each Covered Person who is, was, or is threatened to be made a party or otherwise involved in any Proceeding, as provided in this Article and to the fullest extent permitted by applicable law in effect on the date hereof, and to such greater extent as applicable law may hereafter from time to time permit.

The indemnification provisions in this Article shall be deemed to be a contract between the Corporation and each Covered Person who serves in any Corporate Status at any time while these provisions as well as the relevant provisions of the Massachusetts Business Corporation Act are in effect, and any repeal or modification thereof shall not affect any right or obligation then existing with respect to any state of facts then or previously existing or any Proceeding previously or thereafter brought or threatened based in whole or in part upon any such state of facts. Such a contract right may not be modified retroactively without the consent of such Covered Person.

(b) Employees and Agents. The Corporation may, to the extent authorized from time to time by the Board of Directors, grant indemnification and the advancement of Expenses to any employee or agent of the Corporation to the fullest extent of the provisions of this Article with respect to the indemnification and advancement of Expenses of Covered Persons.

(c) Adverse Adjudication. Notwithstanding any provision of this Article to the contrary, no indemnification shall be provided for any Covered Person with respect to any matter as to which he shall have been adjudicated in any Proceeding not to have acted in Good Faith.

Section 3. Proceedings other than Proceedings by or in the Right of the Corporation. Each Covered Person shall be entitled to the rights of indemnification provided in this Section 3 if, by reason of such Covered Person's Corporate Status, such Covered Person is, was, or is threatened to be made, a party to or is otherwise involved in any Proceeding, other than a Proceeding by or in the right of the Corporation. Each Covered Person shall be indemnified against Expenses, judgments, penalties, fines, and amounts paid in settlements, actually and reasonably incurred by such Covered Person or on such Covered Person's behalf in connection with such Proceeding or any claim, issue or matter therein, if such Covered Person acted in Good Faith.

Section 4. Proceedings by or in the Right of the Corporation. Each Covered Person shall be entitled to the rights of Indemnification provided in this Section 4 if, by reason of such Covered Person's Corporate Status, such Covered Person is, or is threatened to be made, a party to, or is otherwise involved in, any proceeding brought by or in the right of the Corporation to procure a judgment in its favor. Such Covered Person shall be indemnified against Expenses, judgments, penalties, and amounts paid in settlement, actually and reasonably incurred by such Covered Person or on such Covered Person's behalf in connection with such Proceeding if such Covered Person acted in Good Faith. Notwithstanding the foregoing, no such indemnification shall be made in respect of any claim, issue or matter in such Proceeding as to which such Covered Person shall have been adjudged to be liable to the Corporation if applicable law prohibits such indemnification; provided, however, that, if applicable law so permits, indemnification shall nevertheless be made by the Corporation in such event if and only to the extent that the Court which is considering the matter shall so determine.

Section 5. Indemnification of a Party Who is Wholly or Partly Successful. Notwithstanding any provision of this Article to the contrary, to the extent that a Covered Person is, by reason of such Covered Person's Corporate Status, a party to or is otherwise involved in and is successful, on the merits or otherwise, in any Proceeding, such Covered Person shall be indemnified to the maximum extent permitted by law, against all Expenses, judgments, penalties, fines, and amounts paid in settlement, actually and reasonably incurred by such Covered Person or on such Covered Person's behalf in connection therewith. If such Covered Person is not wholly successful in such Proceeding but is successful, on the merits or otherwise, as to one or more but less than all claims, issues or matters in such Proceeding, the Corporation shall indemnify such Covered Person to the maximum extent permitted by law, against all Expenses, judgments, penalties, fines, and amounts paid in settlement, actually and reasonably incurred by such Covered Person or on such Covered Person's behalf in connection with each successfully resolved claim, issue, or matter. For purposes of this Section 5 and without limitation, the termination of any claim, issue, or matter in such a Proceeding by dismissal, with or without prejudice, shall be deemed to be a successful result as to such claim, issue, or matter.

Section 6. Indemnification for Expenses of a Witness. Notwithstanding any provision of this Article to the contrary, to the extent that a Covered Person is, by reason of such Covered Person's Corporate Status, a witness in any Proceeding, such Covered Person shall be indemnified against all Expenses actually and reasonably incurred by such Covered Person or on such Covered Person's behalf in connection therewith.

Section 7. Advancement of Expenses. Notwithstanding any provision of this Article to the contrary, the Corporation shall advance all reasonable Expenses which, by reason of a Covered Person's Corporate Status, were incurred by or on behalf of such Covered Person in connection with any Proceeding, within thirty (30) days after the receipt by the Corporation of a statement or statements from such Covered Person requesting such advance or advances, whether prior to or after final disposition of such Proceeding. Such statement or statements shall reasonably evidence the Expenses incurred by the Covered Person and shall include or be preceded or accompanied by an undertaking by or on behalf of the Covered Person to repay any Expenses if it shall ultimately be determined that such Covered Person is not entitled to be indemnified against such Expenses. Any advance and undertaking to repay pursuant to this Section 7 may be interest free and made without reference to the financial ability of the Covered Person to make such repayment. Advancement of Expenses pursuant to this Section 7 shall not require approval of the Board of Directors or the stockholders of the Corporation, or of any other person or body. The Secretary of the Corporation shall promptly advise the Board in writing of the request for advancement of Expenses, of the amount and other details of the request and of the undertaking to make repayment provided pursuant to this Section 7.

Section 8. Notification and Defense of Claim. Promptly after receipt by a Covered Person of notice of the commencement of any Proceeding, such Covered Person shall, if a claim is to be made against the Corporation under this Article, notify the Corporation of the commencement of the Proceeding. The failure to notify the Corporation will not relieve the Corporation from any liability which it may have to such Covered Person otherwise than under this Article. With respect to any such Proceedings to which such Covered Person notifies the Corporation:

(a) The Corporation will be entitled to participate in the defense at its own expense.

(b) Except as otherwise provided below in this subparagraph (b), the Corporation (jointly with any other indemnifying party similarly notified) will be entitled to assume the defense with counsel reasonably satisfactory to the Covered Person. After notice from the Corporation to the Covered Person of its election to assume the defense of a suit, the Corporation will not be liable to the Covered Person under this Article for any legal or other expenses subsequently incurred by the Covered Person in connection with the defense of the Proceeding other than reasonable costs of investigation or as otherwise provided below in this subparagraph (b). The Covered Person shall have the right to employ his own counsel in such Proceeding but the fees and expenses of such counsel incurred after notice from the Corporation of its assumption of the defense shall be at the expense of the Covered Person except as provided in this paragraph. The fees and expenses of counsel shall be at the expense of the Corporation if (i) the employment of counsel by the Covered Person has been authorized by the Corporation, (ii) the Covered Person shall have concluded reasonably that there may be a conflict of interest between the Corporation and the Covered Person in the conduct of the defense of such action and such conclusion is confirmed in writing by the Corporation's outside counsel regularly employed by it in connection with corporate matters, or (iii) the Corporation shall not in fact have employed counsel to assume the defense of such proceeding. The Corporation shall be entitled to participate in, but shall not be entitled to assume the defense of any proceeding brought by or in the right of the Corporation or as to which the Covered Person shall have made the conclusion provided for in (ii) above and such conclusion shall have been so confirmed by the Corporation's said outside counsel.

(c) Notwithstanding any provision of this Article to the contrary, the Corporation shall not be obligated to indemnify the Covered Person under this Article for any amounts paid in settlement of any Proceeding effected without its written consent. The Corporation shall not settle any Proceeding or claim in any manner which would impose any penalty, limitation, or disqualification of the Covered Person for any purpose without such Covered Person's written consent. Neither the Corporation nor the Covered Person will unreasonably withhold their consent to any proposed settlement.

(d) If it is determined that the Covered Person is entitled to indemnification other than as afforded under subparagraph (b) above, payment to the Covered Person of the additional amounts for which he is to be indemnified shall be made within ten (10) days after such determination.

Section 9. Procedures.

(a) Method of Determination. A determination (as provided for by this Article or if required by applicable law in the specific case) with respect to a Covered Person's entitlement to indemnification shall be made either (a) by the Board of Directors by a majority vote of a quorum consisting of Disinterested Directors, or (b) in the event that a quorum of the Board of Directors consisting of Disinterested Directors is not obtainable or, even if obtainable, such quorum of Disinterested Directors so directs, by Independent Counsel in a written determination to the Board of Directors, a copy of which shall be delivered to the Covered Person seeking indemnification, or (c) by the vote of the holders of a majority of the Corporation's capital stock outstanding at the time entitled to vote thereon.

(b) Initiating Request. A Covered Person who seeks indemnification under this Article shall submit a request for indemnification, including such documentation and information as is reasonably available to such Covered Person and is reasonably necessary to determine whether and to what extent such Covered Person is entitled to indemnification.

(c) P resumptions. In making a determination with respect to entitlement to indemnification hereunder, the person or persons or entity making such determination shall presume that the Covered Person is entitled to indemnification under this Article.

(d) Burden of Proof. The Corporation shall have the burden of proof to overcome the presumption described by Section 9(c) above in connection with the making by any person, persons, or entity of any determination contrary to that presumption.

(e) Effect of Other Proceedings. The termination of any Proceeding or of any claim, issue, or matter therein, by judgment, order, settlement, or conviction, or upon a plea of guilty or of *nolo contendere* or its equivalent, shall not (except as otherwise expressly provided in this Article) of itself adversely affect the right of a Covered Person to indemnification or create a presumption that a Covered Person did not act in Good Faith.

Section 10. Action by the Corporation. Any action, payment, advance determination other than a determination made pursuant to Section 9(a) above, authorization, requirement, grant of indemnification, or other action taken by the Corporation pursuant to this Article shall be effective exclusively through any Disinterested person so authorized by the Board of Directors of the Corporation, including the President or any Vice President of the Corporation.

Section 11. Non-Exclusivity. The rights of indemnification and to receive advancement of Expenses as provided by this Article shall not be deemed exclusive of any other rights to which a Covered Person may at any time be entitled under applicable law, the Articles of Organization, these By-Laws, any agreement, a vote of stockholders, or a resolution of the Board of Directors, or otherwise. No amendment, alteration, rescission, or replacement of this Article or any provision hereof shall be effective as to a Covered Person with respect to any action taken or omitted by such Covered Person in such Covered Person's Corporate Status or with respect to any state of facts then or previously existing or any proceeding previously or thereafter brought or threatened based in whole or to the extent based in part upon any such state of facts existing prior to such amendment, alteration, rescission, or replacement.

Section 12. Insurance. The Corporation may maintain, at its expense, an insurance policy or policies to protect itself and any Covered Person, Officer, employee, or agent of the Corporation or another enterprise against liability arising out of this Article or otherwise, whether or not the Corporation would have the power to indemnify any such person against such liability under the Massachusetts Business Corporation Act.

Section 13. No Duplicative Payment. The Corporation shall not be liable under this Article to make any payment of amounts otherwise indemnifiable hereunder if and to the extent that a Covered Person has otherwise actually received such payment under any insurance policy, contract, agreement, or otherwise.

Section 14. Expenses of Adjudication. In the event that any Covered Person seeks a judicial adjudication, or an award in arbitration, to enforce such Covered Person's rights under, or to recover damages for breach of, this Article, such Covered Person shall be entitled to recover from the Corporation, and shall be indemnified by the Corporation against, any and all expenses (of the types described in the definition of Expenses in Section 1 of this Article) actually and reasonably incurred by such Covered Person in seeking such adjudication or arbitration, but only if such Covered Person prevails therein. If it shall be determined in such adjudication or arbitration that the Covered Person is entitled to receive part but not all of the indemnification of expenses sought, the expenses incurred by such Covered Person in connection with such adjudication or arbitration shall be appropriately prorated.

Section 15. Severability. If any provision or provisions of this Article shall be held to be invalid, illegal, or unenforceable for any reason whatsoever:

(a) the validity, legality, and enforceability of the remaining provisions of this Article (including without limitation, each portion of any Section of this Article containing any such provision held to be invalid, illegal, or unenforceable, that is not itself invalid, illegal, or unenforceable) shall not in any way be affected or impaired thereby; and

(b) to the fullest extent possible, the provisions of this Article (including, without limitation, each portion of any Section of this Article containing any such provision held to be invalid, illegal, or unenforceable, that is not itself invalid, illegal, or unenforceable) shall be construed so as to give effect to the intent manifested by the provision held invalid, illegal, or unenforceable.

ARTICLE XII

Amendments

Unless the Articles of Organization of the Corporation provide otherwise, these By-Laws may at any time be amended by vote of the stockholders, provided that notice of the substance of the proposed amendment is stated in the notice of the meeting. If authorized by the Articles of Organization, the Directors may also make, amend, or repeal these By-Laws in whole or in part, except with respect to any provision thereof which by law, the Articles of Organization, or these By-Laws requires action by the stockholders. If the Directors make, amend, or repeal any By-Law, notice thereof stating the substance of such change shall be given to all stockholders entitled to vote on amending the By-Laws not later than the time of giving notice of the next stockholders' meeting. Any By-Law adopted by the Directors may be amended or repealed by the requisite vote of the stockholders.

ARTICLE XIII

Control Share Acquisitions

The provisions of Chapter 110D of the Massachusetts General Laws relating to the regulation of control share acquisitions shall not apply to "control share acquisitions" of shares of capital stock of the Corporation as such are defined in Chapter 110D of the Massachusetts General Laws.

ARTICLE XIV

Business Combinations With Interested Shareholders

The Corporation shall not be governed by the provisions of Chapter 110F of the Massachusetts General Laws, an act relating to business combinations with interested stockholders.

SEVERANCE AGREEMENT

This SEVERANCE AGREEMENT (this “Agreement”) is made and entered into as of March 7, 2017 by and between James Ryan (“Executive”) and Analogic Corporation (the “Company”).

WHEREAS, Executive is employed as a senior executive of the Company, and the Company desires to retain the services of Executive; and

WHEREAS, the Company is entering into this Agreement in order to provide certain compensation and benefits to Executive in the event Executive’s employment with the Company is terminated under certain circumstances.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Company and Executive agree as follows:

Termination of Employment.

Death or Disability. Executive’s employment shall terminate automatically upon Executive’s death or Disability (as defined below). If the Company determines in good faith that the Disability of Executive has occurred during the Employment Period, it may provide Executive with written notice in accordance with Section 10.6 of this Agreement of its intention to terminate Executive’s employment. In such event, Executive’s employment with the Company shall terminate effective on the 30th day after receipt of such notice by Executive (the “Disability Effective Date”). “Disability” shall, unless otherwise required under applicable law, mean the inability of Executive to perform the essential functions of Executive’s position(s) with the Company on a full-time basis as a result of incapacity due to mental or physical illness, which inability exists for 12 or more weeks during any rolling 12-month period.

By the Company. The Company may terminate Executive’s employment at any time, with or without Cause; provided, however, that in the event the Company terminates Executive’s employment without Cause, the Company shall provide at least thirty (30) days’ prior written notice to Executive of such termination (the “Company’s Notice Period”). During the Company’s Notice Period, Executive shall remain an employee of the Company, receiving his then-applicable base salary and benefits, through the Date of Termination (as defined below). For purposes of this Agreement, “Cause” means (a) any intentionally dishonest, illegal, or insubordinate conduct which is materially injurious to the Company or any of its subsidiaries or which results in an improper substantial personal benefit, (b) material breach by Executive of any provision of any employment, nondisclosure, non-competition, or similar agreement or Company policy to which Executive is a party or is bound, (c) Executive’s material nonperformance or gross dereliction of duty, or (d) Executive’s conviction of or plea of guilty to a felony or any crime involving moral turpitude.

By Executive. In the event Executive terminates his employment other than in connection with his death or Disability, Executive shall provide at least thirty (30) days’ prior written notice to the Company of such termination; provided, however, that the Company may elect to terminate Executive’s employment at any point during such period, and such termination shall not constitute a termination by the Company (the applicable period, the “Executive’s Notice Period”). During Executive’s Notice Period, Executive shall remain an employee of the Company, and shall receive his then-applicable base salary and benefits, through the Date of Termination.

Date of Termination. “Date of Termination” means: (i) if Executive’s employment ends other than for death or Disability, Executive’s last day of employment with the Company and, (ii) if Executive’s employment is terminated by reason of death or Disability, the date of Executive’s death or the Disability Effective Date, as the case may be.

Obligations of the Company upon Termination.

Termination for Any Reason or No Reason. In the event of the termination of Executive's employment for any reason or for no reason, the Company will pay to Executive (or to his estate) (i) the portion of his annualized base salary that has accrued prior to such termination and has not yet been paid, (ii) an amount equal to the value of his accrued unused vacation days, (iii) reimbursement for expenses properly incurred by Executive on behalf of the Company prior to such termination and properly documented in accordance with Company policy, and (iv) to the extent not theretofore paid or provided, any other amounts or benefits required to be paid or provided or which Executive is eligible to receive under any plan or agreement of or with the Company through the Date of Termination (all such amounts, collectively, the "Accrued Obligations"). The Accrued Obligations will be paid as required by law but in any event promptly after termination or as provided by any applicable plan or agreement.

Termination by the Company Other Than for Cause; Other Than by Reason of Executive's Death or Disability; and Other than in Connection with a Change in Control Event. Subject to Executive's execution of a separation and release of claims agreement ("Release Agreement") containing, among other things, a general release of claims against the Company, its affiliates (including, without limitation, any subsidiary, and together, the "Affiliated Entities"), and each of its and their officers, directors, employees, agents and attorneys, and Executive's reaffirmation of his continuing obligations under the Proprietary Information and Inventions Agreement that he previously signed in connection with his employment by the Company, the Non-Competition and Non-Solicitation Agreement (referenced below), and any other restrictive covenant agreements between Executive and the Company, in a form provided by the Company at the time of Executive's departure that is the then-current standard form used by the Company for departing executives, and such Release Agreement becoming irrevocable within sixty (60) days following the Date of Termination (the "Severance Conditions"), if Executive's employment is terminated by the Company other than (i) for Cause; or (ii) by reason of Executive's death or Disability, and other than in connection with a Change in Control Event (as defined below), then in addition to the Accrued Obligations, the Company shall:

Beginning on the sixtieth (60th) day following the Date of Termination pay to Executive a sum equal to twelve (12) months of base salary at Executive's most recent base salary rate, such payment to be made in approximately equal installments according to the Company's then-current payroll practices (except as otherwise provided below in the case of amounts that are subject to a prior deferral election).

Provide continued coverage under the Company's group medical and dental plans (the "Health Plans"), if and to the extent permitted by such plans and subject to their terms, and also subject to Executive paying his normal proportion of the cost thereof, for a period of twelve (12) months following the Date of Termination, and if the Health Plans do not permit such continued coverage, and if Executive should be eligible for and properly elect health care continuation coverage pursuant to the Consolidated Omnibus Budget Reconciliation Act of 1985 ("COBRA"), pay that portion of Executive's COBRA premium payments (and, if applicable, for family coverage) for health coverage that is paid by the Company to active and similarly-situated employees who receive the same type of coverage, for a period of twelve (12) months following the Date of Termination, unless the provision of the foregoing benefits will violate the nondiscrimination requirements of applicable law, in which case the Company payments will not apply. Any obligations under this Section 2.2.2 shall cease at such earlier time as Executive becomes eligible for coverage under another employer's group medical plan, and Executive shall immediately inform the Company in writing of such occurrence.

Pay to Executive a sum equal to his actual incentive award, if any, as calculated according to the Company's Annual Incentive Program for the fiscal year in which Executive's termination occurs, payable at such time, in such amount (if any), and in the manner provided thereunder.

Termination By the Company for Cause; By Reason of Executive's Death or Disability; Or By Executive Other than for Good Reason in Connection with a Change in Control Event. If Executive's employment is terminated by the Company for Cause, or by reason of Executive's death or Disability, or by Executive for any reason other than for Good Reason (as defined below) in connection with a Change in Control Event, this Agreement shall terminate without further obligations to Executive or Executive's legal representatives under this Agreement, other than for payment of the Accrued Obligations.

Effect of Termination on Other Positions. If, on the Date of Termination, Executive is a member of the Company's Board of Directors (the "Board") or the board of directors of any Affiliated Entity, or holds any other office or position with the Company or any Affiliated Entity, Executive shall, unless otherwise requested by the Company, be deemed to have resigned from all such offices and positions as of the Date of Termination. Executive agrees to execute such documents and take such other actions as the Company may request to reflect such resignation.

Change in Control.

If, within twenty four (24) months following a Change in Control Event (the "CIC Period"), Executive's employment is terminated by the Company without Cause and not for death or Disability, or if Executive resigns his employment for Good Reason, the Company shall, subject to the Severance Conditions, pay Executive, or pay on Executive's behalf, (i) the amounts set forth in Sections 2.1 and 2.2 above at the times provided therein and (ii) an amount equal to sixty percent (60%) of Executive's most recent annualized base salary, payable on the sixtieth (60th) day following the Date of Termination.

Notice of Termination. Following a Change in Control Event, any termination by the Company for Cause or by Executive for Good Reason pursuant to this Agreement shall be communicated by a Notice of Termination (as defined below) to the other party. A "Notice of Termination" means a written notice that (i) indicates the specific termination provision in this Agreement relied upon, (ii) to the extent applicable, sets forth in reasonable detail the facts and circumstances claimed to provide a basis for termination of Executive's employment under the provision so indicated, and (iii) if the date of termination is other than the date of receipt of such notice, specifies the date of termination (which shall be not more than 15 days after the giving of such notice). The failure by Executive or the Company to set forth in the Notice of Termination any fact or circumstance that contributes to a showing of Good Reason or Cause, as the case may be, shall not waive any right of Executive or the Company or preclude Executive or the Company from asserting such fact or circumstance in enforcing Executive's or the Company's rights.

Change in Control Event. "Change in Control Event" means:

consummation of any merger or consolidation in which (i) the Company is a constituent party or (ii) a subsidiary of the Company is a constituent party and the Company issues shares of its capital stock pursuant to such merger or consolidation (except, in the case of both clauses (i) and (ii) above, any such merger or consolidation involving the Company or a subsidiary in which the shares of capital stock of the Company outstanding immediately prior to such merger or consolidation continue to represent, or are converted into or exchanged for shares of capital stock that represent, immediately following such merger or consolidation and in approximately the same relative proportions, at least 51% by voting power of the capital stock of (x) the surviving or resulting corporation or (y) if the surviving or resulting corporation is a wholly owned subsidiary of another corporation immediately following such merger or consolidation, of the parent corporation of such surviving or resulting corporation);

the issuance, sale or transfer, in a single transaction or series of related transactions, of capital stock representing at least 51% of the voting power of the outstanding capital stock of the Company immediately following such transaction;

the sale of all or substantially all of the assets of the Company; or

a change in the composition of the Board that results in the Continuing Directors (as defined below) no longer constituting a majority of the Board (or, if applicable, the Board of Directors of a successor corporation to the Company), where the term “Continuing Director” means at any date a member of the Board (x) who was a member of the Board on the date of the initial adoption of the Plan by the Board or (y) who was nominated or elected subsequent to such date by at least a majority of the directors who were Continuing Directors at the time of such nomination or election or whose election to the Board was recommended or endorsed by at least a majority of the directors who were Continuing Directors at the time of such nomination or election; provided, however, that there shall be excluded from this clause (y) any individual whose initial assumption of office occurred as a result of an actual or threatened election contest with respect to the election or removal of directors or other actual or threatened solicitation of proxies or consents, by or on behalf of a person other than the Board.

“Good Reason” means (i) the assignment to Executive of any responsibilities or duties inconsistent in any respect with Executive’s Position and Duties (as defined below), excluding any action that is remedied by the Company promptly after receipt of written notice given by Executive; (ii) any failure by the Company to provide any of the Ongoing Compensation (as defined below), excluding any failure that is remedied by the Company promptly after receipt of written notice given by Executive; (iii) the Company requiring Executive to be based at any location other than those locations described in the Position and Duties; or (iv) any purported termination by the Company of Executive’s employment other than for Cause, death, or Disability.

“Position and Duties” means (i) a position (including, without limitation, offices, titles, and reporting requirements), authority, duties, and responsibilities that are at least commensurate in all material respects with the most significant of, and the highest grade or level of, those that were held or exercised by Executive or assigned to Executive at any time during the 120-day period immediately preceding the Change in Control Event, and (ii) services that are performed at the location where Executive was employed immediately preceding the effective date of the Change in Control Event or any other location less than 35 miles from Peabody, Massachusetts.

“Ongoing Compensation” means, in connection with the CIC Period, (i) an annualized base salary paid in accordance with the Company’s usual and customary payroll practices, equal to the annualized base salary in effect immediately prior to the Change in Control Event; (ii) eligibility for annual and long term bonuses in connection with the Company’s then existing incentive plans; (iii) eligibility (including for Executive’s family, as the case may be) to participate in and receive benefits under, all incentive, savings, retirement and welfare plans, practices, policies, and programs generally applicable to the other similarly situated executives, but in no event shall such plans, practices, policies, and programs provide Executive’s (or Executive’s family) with incentive opportunities, savings opportunities, retirement benefits opportunities or welfare benefits that are, in each case, less favorable, in the aggregate, than the most favorable of the corresponding opportunities that were provided by the Company for Executive under such plans, practices, policies, and programs as were in effect at any time during the 120-day period immediately preceding the Change in Control Event; (iv) prompt reimbursement for all reasonable business expenses incurred by Executive in accordance with the practices, policies and procedures of the Company; and (v) paid vacation in accordance with the most favorable plans, practices, policies and programs of the Company as were in effect for Executive at any time during the 120-day period immediately preceding the Change in Control Event.

280G.

Notwithstanding any other provision of this Agreement or any other plan, arrangement or agreement to the contrary, if any of the payments or benefits provided or to be provided by the Company or its affiliates to Executive or for Executive’s benefit pursuant to the terms of this Agreement or otherwise (“Covered Payments”) constitute parachute payments (“Parachute Payments”) within the meaning of Section 280G of the Internal Revenue Code of 1986, as amended (the “Code”) and would, but for this Section 3.7 be subject to the excise tax imposed under Section 4999 of the Code (or any successor provision thereto) or any similar tax imposed by state or local law or any

interest or penalties with respect to such taxes (collectively, the “Excise Tax”), then prior to making the Covered Payments, a calculation shall be made comparing (A) the Net Benefit (as defined below) to Executive of the Covered Payments after payment of the Excise Tax to (B) the Net Benefit to Executive if the Covered Payments are limited to the extent necessary to avoid being subject to the Excise Tax. Only if the amount calculated under (A) above is less than the amount under (B) above will the Covered Payments be reduced to the minimum extent necessary to ensure that no portion of the Covered Payments is subject to the Excise Tax (that amount, the “Reduced Amount”). “Net Benefit” shall mean the present value of the Covered Payments net of all federal, state, local, foreign income, employment and excise taxes.

If there is a reduction pursuant to this Agreement, the Covered Payment reduction contemplated by the preceding section 3.7.1 shall be implemented by determining the “Parachute Payment Ratio” (as defined below) for each “parachute payment” and then reducing the “parachute payments” in order beginning with the “parachute payment” with the highest Parachute Payment Ratio. For “parachute payments” with the same Parachute Payment Ratio, such “parachute payments” shall be reduced based on the time of payment of such “parachute payments,” with amounts having later payment dates being reduced first. For “parachute payments” with the same Parachute Payment Ratio and the same time of payment, such “parachute payments” shall be reduced on a pro rata basis (but not below zero) prior to reducing “parachute payments” with a lower Parachute Payment Ratio. The term “Parachute Payment Ratio” shall mean a fraction the numerator of which is the value of the applicable “parachute payment” that must be taken into account by Executive for purposes of Section 4999(a) of the Code, and the denominator of which is the actual amount to be received by Executive in respect of the applicable “parachute payment”. For example, in the case of an equity grant that is treated as contingent on the change in control because the time at which the payment is made or the payment vests is accelerated, the denominator shall be determined by reference to the fair market value of the equity at the acceleration date, and not in accordance with the methodology for determining the value of accelerated payments set forth in Treasury Regulation Section 1.280G-1Q/A-24(b) or (c).

Any determination required under this Section 3.7, including whether any payments or benefits are parachute payments, shall be made by the Company in its sole discretion. Executive shall provide the Company with such information and documents as the Company may reasonably request in order to make a determination under this Section. The Company’s determination shall be final and binding on Executive.

No Mitigation. In no event, except as set forth expressly in this or another agreement signed by Executive, shall Executive be obligated to seek other employment or take any other action by way of mitigation of the amounts payable to Executive under any of the provisions of this Agreement and, subject to the aforesaid exception, such amounts shall not be reduced whether or not Executive obtains other employment.

Restrictive Covenants. As a condition of the effectiveness of this Agreement, Executive shall, contemporaneous with his execution of this Agreement, execute and deliver to the Company the Non-Competition and Non-Solicitation Agreement attached hereto as Exhibit A.

Payments Subject to Section 409A. Subject to the provisions in this Section 6, any severance payments or benefits under this Agreement shall begin only upon the date of Executive’s “separation from service” (determined as set forth below) which occurs on or after the date of termination of employment. The following rules shall apply with respect to distribution of the payments and benefits, if any, to be provided to Executive under this Agreement:

It is intended that each installment of the severance payments and benefits provided under this Agreement shall be treated as a separate “payment” for purposes of Section 409A of the Internal Revenue Code and the guidance issued thereunder (“Section 409A”). Neither Executive nor the Company shall have the right to accelerate or defer the delivery of any such payments or benefits except to the extent specifically permitted or required by Section 409A.

If, as of the date of Executive's "separation from service" from the Company, Executive is not a "specified employee" (within the meaning of Section 409A), then each installment of the severance payments and benefits shall be made on the dates and terms set forth in this Agreement

If, as of the date of Executive's "separation from service" from the Company, Executive is a "specified employee" (within the meaning of Section 409A), then:

Each installment of the severance payments and benefits due under this Agreement that, in accordance with the dates and terms set forth herein, will in all circumstances, regardless of when the separation from service occurs, be paid within the short-term deferral period (as defined under Section 409A) shall be treated as a short-term deferral within the meaning of Treasury Regulation Section 1.409A-1(b)(4) to the maximum extent permissible under Section 409A and shall be paid at the time and in the matter set forth in this Agreement; and

Each installment of the severance payments and benefits due under this Agreement that is not described in paragraph 6.3.1 above and that would, absent this subsection, be paid within the six-month period following Executive's "separation from service" from the Company shall not be paid until the date that is six months and one day after such separation from service (or, if earlier, Executive's death), with any such installments that are required to be delayed being accumulated during the six-month period and paid in a lump sum on the date that is six months and one day following Executive's separation from service and any subsequent installments, if any, being paid in accordance with the dates and terms set forth herein; provided, however, that the preceding provisions of this sentence shall not apply to any installment of severance payments and benefits if and to the maximum extent that such installment is deemed to be paid under a separation pay plan that does not provide for a deferral of compensation by reason of the application of Treasury Regulation 1.409A-1(b)(9)(iii) (relating to separation pay upon an involuntary separation from service). Any installments that qualify for the exception under Treasury Regulation Section 1.409A-1(b)(9)(iii) must be paid no later than the last day of Executive's second taxable year following the taxable year in which the separation from service occurs.

The determination of whether and when Executive's separation from service from the Company has occurred shall be made in a manner consistent with, and based on the presumptions set forth in, Treasury Regulation Section 1.409A-1(h). Solely for purposes of this paragraph (d), "Company" shall include all persons with whom the Company would be considered a single employer as determined under Treasury Regulation Section 1.409A-(h)(3).

All reimbursements and in-kind benefits provided under this Agreement shall be made or provided in accordance with the requirements of Section 409A to the extent that such reimbursements or in-kind benefits are subject to Section 409A, including, where applicable, the requirement that (i) any reimbursement is for expenses incurred during Executive's lifetime (or during a shorter period of time specified in this Agreement), (ii) the amount of expenses eligible for reimbursement during a calendar year may not affect the expenses eligible for reimbursement in any other calendar year, (iii) the reimbursement of an eligible expense will be made on or before the last day of the calendar year following the year in which the expense is incurred, and (iv) the right to reimbursement is not subject to set off or liquidation or exchange for any other benefit.

The Company may withhold (or cause to be withheld) from any payments made under this Agreement, all federal, state, city or other taxes as shall be required to be withheld pursuant to any law or governmental regulation or ruling.

Return of Company Property. Upon termination of employment for any reason, Executive shall promptly return to the Company any keys, credit cards, passes, confidential documents or material, computer equipment, or other property belonging to the Company, and Executive shall also return all writings, files, records, correspondence, notebooks, notes and other documents and things (including any copies thereof) containing confidential information or relating to the business or proposed business of the Company or the Affiliated Entities or

containing any trade secrets relating to the Company or the Affiliated Entities. For purposes of the preceding sentence, the term "trade secrets" shall have the meaning ascribed to it under the Uniform Trade Secrets Act. Executive agrees to represent in writing to the Company upon termination of employment that he has complied with the foregoing provisions of this Section.

Assistance with Claims. Executive agrees that, consistent with Executive's business and personal affairs, during and after his employment by the Company he will assist the Company and the Affiliated Entities in the defense of any claims, or potential claims that may be made or are threatened to be made against any of them in any action, suit or proceeding, whether civil, criminal, administrative or investigative (a "Proceeding"), and will assist the Company and the Affiliated Entities in the prosecution of any claims that may be made by the Company or the Affiliated Entities in any Proceeding, to the extent that such claims may relate to Executive's employment or the period of Executive's employment by the Company. The Company agrees to reimburse Executive for all of Executive's reasonable out-of-pocket expenses associated with such assistance, including travel expenses. Any amounts to be paid to Executive pursuant to this Section 8 shall be paid by the Company no later than thirty (30) days of the date on which Executive provides documentation to the Company that such expenses were incurred.

Successors. This Agreement is personal to Executive and shall not be assignable by Executive without the prior written consent of the Company. This Agreement and any rights and benefits hereunder shall inure to the benefit of and be enforceable by Executive's legal representatives, heirs or legatees. This Agreement and any rights and benefits hereunder shall inure to the benefit of and be binding upon the Company and its successors and assigns, including any corporation with which or into which the Company may be merged or which may succeed to its assets or business.

Miscellaneous

Entire Agreement/Modification/Choice of Law/Enforceability/Jury Waiver. Both Executive and the Company acknowledge that this Agreement is the entire agreement of the parties, and supersedes any prior or contemporaneous discussions, understandings, or agreements, with respect to the subject matter hereof. For the avoidance of doubt and without limiting the foregoing, (a) Executive shall not be eligible to receive severance or similar post-employment payments or benefits under any severance plan, program or policy maintained by the Company, and (b) the employment offer letter dated as of November 17, 2008, between Executive and the Company (the "Offer Letter") shall survive the execution and delivery of this Agreement and remain in full force and effect in accordance with its original terms; provided, however, that the provisions of the Offer Letter relating to severance and post-employment payments and benefits shall be superseded hereby in their entirety and shall hereafter cease to be of any force or effect. This Agreement may be amended only in a written agreement duly executed by the parties hereto. This Agreement shall be deemed to have been made in the Commonwealth of Massachusetts and shall be governed by and construed in accordance with the laws of such Commonwealth, without giving effect to conflict of law principles. Both parties agree that any action, demand, claim or counterclaim relating to the terms and provisions of this Agreement, or to its formation or breach, or to Executive's employment or the termination thereof, shall be commenced only in Massachusetts in a court of competent jurisdiction, and further acknowledge that venue for such actions shall lie exclusively in Massachusetts. Both parties hereby waive and renounce in advance any right to a trial by jury in connection with such legal action.

Withholding. The Company may withhold from any amounts payable under this Agreement such Federal, state, local or foreign taxes as shall be required to be withheld pursuant to any applicable law or regulation.

No Guarantee of any Tax Consequences. The Company makes no guarantee of any tax consequences with respect to any payment hereunder including, without limitation, under Section 409A of the Code.

Severability. The invalidity or unenforceability of any provision of this Agreement will not affect the validity or enforceability of any other provision of this Agreement, and this Agreement will be construed as if such invalid or unenforceable provision were omitted (but only to the extent that such provision cannot be appropriately reformed or modified).

Waiver of Breach. No waiver by any party hereto of a breach of any provision of this Agreement by any other party, or of compliance with any condition or provision of this Agreement to be performed by such other party, will operate or be construed as a waiver of any subsequent breach by such other party of any similar or dissimilar provisions and conditions at the same or any prior or subsequent time.

Notices. Notices and all other communications provided for in this Agreement shall be in writing and shall be delivered personally or sent by registered or certified mail, return receipt requested, postage prepaid, or prepaid overnight courier to the parties at the addresses set forth below (or such other addresses as shall be specified by the parties by like notice):

to the Company:

Analogic Corporation
8 Centennial Drive
Peabody, MA 01960
Attention: President and CEO

with a copy to:

Analogic Corporation
8 Centennial Drive
Peabody, MA 01960
Attention: Vice President and General Counsel

or to Executive:

At the most recent address maintained
by the Company in its personnel records

Each party, by written notice furnished to the other party, may modify the applicable delivery address, except that notice of change of address shall be effective only upon receipt. Such notices, demands, claims and other communications shall be deemed given in the case of delivery by overnight service with guaranteed next day delivery, the next day or the day designated for delivery; or in the case of certified or registered U.S. mail, five days after deposit in the U.S. mail; provided, however, that in no event shall any such communications be deemed to be given later than the date they are actually received.

Not Employment Contract. Executive acknowledges that this Agreement does not constitute a contract of employment, does not imply that the Company will continue his employment for any period of time and does not change the at-will nature of his employment.

Survivorship. Upon the expiration or other termination of this Agreement, the respective rights and obligations of the parties hereto shall survive such expiration or other termination to the extent necessary to carry out the intentions of the parties under this Agreement.

Counterparts. This Agreement may be executed in separate facsimile or electronic counterparts, each of which is deemed to be an original and all of which taken together constitute one and the same agreement.

Representations. Executive hereby acknowledges that he understands this Agreement and enters into this Agreement voluntarily.

IN WITNESS THEREOF, Executive has hereunto set his hand, and the Company has caused this Agreement to be executed in its name and on its behalf, all as of the day and year first above written.

ANALOGIC CORPORATION

JAMES RYAN

/s/

Fred B. Parks
President and CEO

/s/

NON-COMPETITION AND NON-SOLICITATION AGREEMENT

This Non-Competition and Non-Solicitation Agreement (the "Agreement") is made between Analogic Corporation (the "Company"), and James Ryan ("Executive").

In consideration of this Severance Agreement and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Executive and the Company agree as follows:

1. Non-Competition and Non-Solicitation. While Executive is employed by the Company and for a period of one year after the cessation of such employment for any reason, Executive will not directly or indirectly:

(a) Engage or assist others in engaging in any business or enterprise (whether as owner, partner, officer, director, employee, consultant, investor, lender or otherwise, except as the holder of not more than 1% of the outstanding stock of a publicly-held company) that (i) is competitive with the business of the Company or any of its subsidiaries, including but not limited to any business or enterprise that develops, manufactures, markets, licenses, sells or provides any product or service that competes with any product or service developed, manufactured, marketed, licensed, sold or provided, or planned to be developed, manufactured, marketed, licensed, sold or provided, by the Company or any of its subsidiaries while Executive was employed by the Company, and (ii) conducts business in any territory in which the Company or any of its subsidiaries conducts business, or plans to conduct business, at the time Executive ceases to be employed by the Company; or

(b) Either alone or in association with others, solicit, divert or take away, or attempt to divert or take away, the business or patronage of any of the clients, customers, or business partners of the Company or any of its subsidiaries which were contacted, solicited, or served by the Company or any of its subsidiaries during the 12-month period prior to the cessation of Executive's employment with the Company; or

(c) Either alone or in association with others (i) solicit, induce or attempt to induce, any employee or independent contractor of the Company or any of its subsidiaries to terminate his or her employment or other engagement with the Company or any of its subsidiaries, or (ii) hire, or recruit or attempt to hire, or engage or attempt to engage as an independent contractor, any person who was employed or otherwise engaged by the Company or any of its subsidiaries at any time during the term of Executive's employment with the Company; provided, that this clause (ii) shall not apply to the recruitment or hiring or other engagement of any individual whose employment or other engagement with the Company or any of its subsidiaries has been terminated for a period of six months or longer, or, in the case of an independent contractor, if engaging such independent contractor would not interfere with such independent contractor's provision of services to the Company or any of its subsidiaries.

(d) Extension. If Executive violates the provisions of any of the preceding paragraphs of this Section 1, Executive shall continue to be bound by the restrictions set forth in such paragraph until a period of one year has expired without any violation of such provisions.

2. Miscellaneous.

(a) Equitable Remedies. Executive acknowledges that the restrictions contained in this Agreement are necessary for the protection of the business and goodwill of the Company and its subsidiaries and are considered by Executive to be reasonable for such purpose. Executive agrees that any breach or threatened breach of this Agreement is likely to cause the Company and its subsidiaries substantial and irrevocable damage which is difficult to measure. Therefore, in the event of any such breach or threatened breach, Executive agrees that the Company, in addition to such

other remedies which may be available, shall have the right to obtain an injunction from a court restraining such a breach or threatened breach without posting a bond and the right to specific performance of the provisions of this Agreement and Executive hereby waives the adequacy of a remedy at law as a defense to such relief.

(b) Obligations to Third Parties. Executive acknowledges and represents that this Agreement and Executive's employment with the Company will not violate any continuing obligation Executive has to any former employer or other third party.

(c) Disclosure of this Agreement. Executive hereby authorizes the Company to notify others, including but not limited to customers of the Company and any of its subsidiaries and any of Executive's future employers or prospective business associates, of the terms and existence of this Agreement and Executive's continuing obligations hereunder.

(d) Not Employment Contract. Executive acknowledges that this Agreement does not constitute a contract of employment, does not imply that the Company will continue his employment for any period of time and does not change the at-will nature of his employment.

(e) Successors and Assigns. This Agreement shall be binding upon and inure to the benefit of both parties and their respective successors and assigns, including any corporation with which, or into which, the Company may be merged or which may succeed to the Company's assets or business, provided, however, that the obligations of Executive are personal and shall not be assigned by him. Executive expressly consents to be bound by the provisions of this Agreement for the benefit of the Company or any subsidiary or affiliate thereof to whose employ Executive may be transferred without the necessity that this Agreement be re-signed at the time of such transfer.

(f) Interpretation. If any restriction set forth in Section 1 is found by any court of competent jurisdiction to be unenforceable because it extends for too long a period of time or over too great a range of activities or in too broad a geographic area, it shall be interpreted to extend only over the maximum period of time, range of activities or geographic area as to which it may be enforceable.

(g) Severability. In case any provision of this Agreement shall be invalid, illegal or otherwise unenforceable, the validity, legality and enforceability of the remaining provisions shall in no way be affected or impaired thereby.

(h) Waivers. No delay or omission by the Company in exercising any right under this Agreement will operate as a waiver of that or any other right. A waiver or consent given by the Company on any one occasion is effective only in that instance and will not be construed as a bar to or waiver of any right on any other occasion.

(i) Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts (without reference to the conflicts of laws provisions thereof). Any action, suit, or other legal proceeding which is commenced to resolve any matter arising under or relating to any provision of this Agreement shall be commenced only in a court of the Commonwealth of Massachusetts (or, if appropriate, a federal court located within Massachusetts), and the Company and Executive each consents to the jurisdiction of such a court. THE COMPANY AND EXECUTIVE EACH HEREBY IRREVOCABLY WAIVES ANY RIGHT TO A TRIAL BY JURY IN ANY ACTION, SUIT OR OTHER LEGAL PROCEEDING ARISING UNDER OR RELATING TO ANY PROVISION OF THIS AGREEMENT.

(j) Entire Agreement; Amendment. This Agreement supersedes all prior agreements, written or oral, between Executive and the Company relating to the subject matter of this Agreement. This Agreement may not be modified, changed or discharged in whole or in part, except by an agreement in writing signed by Executive and the Company. Executive agrees that any change or changes in his duties, salary or compensation after the signing of this Agreement shall not affect the validity or scope of this Agreement.

(k) Captions. The captions of the sections of this Agreement are for convenience of reference only and in no way define, limit or affect the scope or substance of any section of this Agreement.

EXECUTIVE ACKNOWLEDGES THAT HE HAS CAREFULLY READ THIS AGREEMENT AND UNDERSTANDS AND AGREES TO ALL OF THE PROVISIONS IN THIS AGREEMENT.

ANALOGIC CORPORATION

Date: March 7, 2017

By: /s/
Fred B. Parks
President and CEO

Date: March 7, 2017

/s/
James Ryan

**CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER PURSUANT TO RULE 13a-14(a)/RULE 15d-14(a)
OF THE SECURITIES EXCHANGE ACT OF 1934, AS AMENDED**

I, Fred B. Parks, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Analogic 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(s) 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(s) 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: March 13, 2017

/s/ Fred B. Parks

Fred B. Parks
President and Chief Executive Officer
(Principal Executive Officer)

**CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER PURSUANT TO RULE 13a-14(a)/RULE 15d-14(a)
OF THE SECURITIES EXCHANGE ACT OF 1934, AS AMENDED**

I, Mark T. Frost, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Analogic 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(s) 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(s) 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: March 13, 2017

/s/ Mark T. Frost

Mark T. Frost
Senior Vice President, Chief Financial Officer, and Treasurer
(Principal Financial Officer)

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report on Form 10-Q of Analogic Corporation (the "Company") for the quarter ended January 31, 2017 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, Fred B. Parks, President and Chief Executive Officer of the Company, hereby certifies, pursuant to 18 U.S.C. Section 1350, that, to the best of his knowledge:

- (1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and
- (2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 13, 2017

/s/ Fred B. Parks

Fred B. Parks
President and Chief Executive Officer
(Principal Executive Officer)

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report on Form 10-Q of Analogic Corporation (the "Company") for the quarter ended January 31, 2017 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, Mark T. Frost, Senior Vice President, Chief Financial Officer, and Treasurer, of the Company, hereby certifies, pursuant to 18 U.S.C. Section 1350, that, to the best of his knowledge:

- (1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and
- (2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 13, 2017

/s/ Mark T. Frost

Mark T. Frost
Senior Vice President, Chief Financial Officer, and Treasurer
(Principal Financial Officer)