

**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 June 30, 2020

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 001-33155



IPG PHOTONICS CORP ORATION
(Exact name of registrant as specified in its charter)

Delaware (State or other jurisdiction of incorporation or organization)	04-3444218 (I.R.S. Employer Identification Number)
50 Old Webster Road , Oxford , Massachusetts (Address of principal executive offices)	01540 (Zip code)
(508) 373-1100 (Registrant's telephone number, including area code)	

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

Indicate by check mark whether the registrant has submitted electronically every Interactive Data file required to be submitted 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 such files). Yes No

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

Large Accelerated Filer	Accelerated Filer
Non-Accelerated Filer	Smaller Reporting Company
Emerging Growth Company	

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

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

Title of each class	Trading Symbol	Name of each exchange on which registered
Common Stock, par value \$0.0001 per share	IPGP	Nasdaq Global Select Market

As of August 3, 2020, there were 53,256,961 shares of the registrant's common stock outstanding.

TABLE OF CONTENTS

	Page
<u>Part I. Financial Information</u>	<u>1</u>
<u>Item 1. Financial Statements</u>	<u>1</u>
<u>Condensed Consolidated Balance Sheets: June 30, 2020 and December 31, 2019</u>	<u>1</u>
<u>Condensed Consolidated Statements of Income: Three and Six Months Ended June 30, 2020 and 2019</u>	<u>2</u>
<u>Condensed Consolidated Statements of Comprehensive Income: Three and Six Months Ended June 30, 2020 and 2019</u>	<u>3</u>
<u>Condensed Consolidated Statements of Cash Flows: Six Months Ended June 30, 2020 and 2019</u>	<u>4</u>
<u>Condensed Consolidated Statements of Equity: Three and Six Months Ended June 30, 2020 and 2019</u>	<u>5</u>
<u>Notes to Condensed Consolidated Financial Statements</u>	<u>6</u>
<u>Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations</u>	<u>16</u>
<u>Item 3. Quantitative and Qualitative Disclosures About Market Risk</u>	<u>27</u>
<u>Item 4. Controls and Procedures</u>	<u>29</u>
<u>Part II. Other Information</u>	<u>30</u>
<u>Item 1. Legal Proceedings</u>	<u>30</u>
<u>Item 1A. Risk Factors</u>	<u>30</u>
<u>Item 2. Unregistered Sales of Equity Securities and Use of Proceeds</u>	<u>30</u>
<u>Item 3. Defaults Upon Senior Securities</u>	<u>30</u>
<u>Item 4. Mine Safety Disclosures</u>	<u>30</u>
<u>Item 5. Other Information</u>	<u>31</u>
<u>Item 6. Exhibits</u>	<u>31</u>
<u>Signatures</u>	<u>31</u>

PART I—FINANCIAL INFORMATION
ITEM 1. UNAUDITED INTERIM FINANCIAL STATEMENTS

IPG PHOTONICS CORPORATION
CONDENSED CONSOLIDATED BALANCE SHEETS

	June 30, 2020	December 31, 2019
	(In thousands, except share and per share data)	
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 747,859	\$ 680,070
Short-term investments	501,040	502,546
Accounts receivable, net	203,568	238,479
Inventories	367,166	380,790
Prepaid income taxes	62,778	38,873
Prepaid expenses and other current assets	68,115	55,876
Total current assets	1,950,526	1,896,634
Deferred income taxes, net	30,544	31,395
Goodwill	81,911	82,092
Intangible assets, net	67,995	74,271
Property, plant and equipment, net	585,644	600,852
Other assets	42,116	45,192
Total assets	\$ 2,758,736	\$ 2,730,436
LIABILITIES AND EQUITY		
Current liabilities:		
Current portion of long-term debt	\$ 3,775	\$ 3,740
Accounts payable	42,261	27,329
Accrued expenses and other current liabilities	148,226	149,782
Income taxes payable	1,024	11,053
Total current liabilities	195,286	191,904
Deferred income taxes and other long-term liabilities	90,073	98,121
Long-term debt, net of current portion	36,071	37,968
Total liabilities	321,430	327,993
Commitments and contingencies (Note 12)		
IPG Photonics Corporation equity:		
Common stock, \$ 0.0001 par value, 175,000,000 shares authorized; 55,154,688 and 53,182,148 shares issued and outstanding, respectively, at June 30, 2020; 54,743,227 and 53,010,875 shares issued and outstanding, respectively, at December 31, 2019.	6	5
Treasury stock, at cost, 1,972,540 and 1,732,352 shares held at June 30, 2020 and December 31, 2019, respectively.	(293,960)	(265,730)
Additional paid-in capital	811,559	785,636
Retained earnings	2,103,248	2,028,734
Accumulated other comprehensive loss	(184,501)	(146,919)
Total IPG Photonics Corporation equity	2,436,352	2,401,726
Non-controlling interests	954	717
Total equity	2,437,306	2,402,443
Total liabilities and equity	\$ 2,758,736	\$ 2,730,436

See notes to condensed consolidated financial statements.

IPG PHOTONICS CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF INCOME

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
(In thousands, except per share data)				
Net sales	\$ 296,411	\$ 363,769	\$ 545,653	\$ 678,816
Cost of sales	159,962	183,532	306,328	349,668
Gross profit	136,449	180,237	239,325	329,148
Operating expenses:				
Sales and marketing	17,326	20,663	36,009	39,938
Research and development	31,584	34,872	63,422	67,368
General and administrative	26,399	28,538	53,523	55,750
Impairment of long-lived assets and other restructuring charges	1,165	—	1,165	—
Loss (gain) on foreign exchange	12,766	5,074	(6,799)	6,687
Total operating expenses	89,240	89,147	147,320	169,743
Operating income	47,209	91,090	92,005	159,405
Other income, net:				
Interest income, net	1,856	4,051	4,929	8,003
Other income, net	449	658	640	649
Total other income	2,305	4,709	5,569	8,652
Income before provision for income taxes	49,514	95,799	97,574	168,057
Provision for income taxes	11,148	23,278	22,442	40,620
Net income	38,366	72,521	75,132	127,437
Less: net income attributable to non-controlling interests	140	249	503	6
Net income attributable to IPG Photonics Corporation	\$ 38,226	\$ 72,272	\$ 74,629	\$ 127,431
Net income attributable to IPG Photonics Corporation per share:				
Basic	\$ 0.72	\$ 1.36	\$ 1.41	\$ 2.40
Diluted	\$ 0.71	\$ 1.34	\$ 1.39	\$ 2.36
Weighted average shares outstanding:				
Basic	53,040	53,042	53,083	53,076
Diluted	53,530	53,848	53,628	53,915

See notes to condensed consolidated financial statements.

IPG PHOTONICS CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
	(In thousands)			
Net income	\$ 38,366	\$ 72,521	\$ 75,132	\$ 127,437
Other comprehensive income, net of tax:				
Translation adjustments	35,534	13,800	(37,883)	18,958
Unrealized (loss) gain on derivatives	(1)	8	35	(5)
Total other comprehensive income (loss)	35,533	13,808	(37,848)	18,953
Comprehensive income	73,899	86,329	37,284	146,390
Comprehensive income attributable to non-controlling interests	93	267	237	27
Comprehensive income attributable to IPG Photonics Corporation	\$ 73,806	\$ 86,062	\$ 37,047	\$ 146,363

See notes to condensed consolidated financial statements.

IPG PHOTONICS CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS

	Six Months Ended June 30,	
	2020	2019
	(In thousands)	
Cash flows from operating activities:		
Net income	\$ 75,132	\$ 127,437
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and amortization	47,350	47,486
Deferred income taxes	1,591	2,628
Stock-based compensation	17,653	17,031
Impairment of long-lived assets	671	—
Unrealized (gain) loss on foreign currency transactions	(8,737)	4,185
Other	2,635	170
Provisions for inventory, warranty and bad debt	24,484	22,697
Changes in assets and liabilities that provided (used) cash, net of acquisitions:		
Accounts receivable	33,011	(21,056)
Inventories	(15,160)	(40,789)
Prepaid expenses and other assets	(2,193)	8,616
Accounts payable	13,245	(445)
Accrued expenses and other liabilities	(15,590)	(9,320)
Income and other taxes payable	(43,836)	(56,861)
Net cash provided by operating activities	130,256	101,779
Cash flows from investing activities:		
Purchases of and deposits on property, plant and equipment	(37,370)	(86,492)
Proceeds from sales of property, plant and equipment	460	288
Purchases of short-term and long-term investments	(421,321)	(339,828)
Proceeds from short-term investments	422,912	334,680
Acquisitions of businesses, net of cash acquired	—	(15,115)
Other	115	209
Net cash used in investing activities	(35,204)	(106,258)
Cash flows from financing activities:		
Principal payments on long-term borrowings	(1,862)	(1,827)
Proceeds from issuance of common stock under employee stock option and purchase plans less payments for taxes related to net share settlement of equity awards	8,271	(32)
Purchase of treasury stock, at cost	(28,230)	(2,284)
Payment of purchase price holdback from business combination	(1,650)	—
Net cash used in financing activities	(23,471)	(4,143)
Effect of changes in exchange rates on cash, cash equivalents and restricted cash	(4,523)	(2,759)
Net increase (decrease) in cash, cash equivalents and restricted cash	67,058	(11,381)
Cash, cash equivalents and restricted cash — Beginning of period	682,984	544,358
Cash, cash equivalents and restricted cash — End of period	\$ 750,042	\$ 532,977
Supplemental disclosure of cash flow information:		
Cash paid for interest	\$ 1,061	\$ 1,164
Cash paid for income taxes	\$ 53,670	\$ 73,855
Non-cash transactions:		
Demonstration units transferred from inventory to other assets	\$ 4,279	\$ 6,572
Inventory transferred to machinery and equipment	\$ 1,928	\$ 6,444
Changes in accounts payable related to property, plant and equipment	\$ 2,297	\$ 1,959
Leased assets obtained in exchange for new operating lease liabilities	\$ 1,440	\$ 10,698

See Note 4 for reconciliation of cash, cash equivalents and restricted cash between the condensed consolidated balance sheets and condensed consolidated statements of cash flows.

See notes to condensed consolidated financial statements.

IPG PHOTONICS CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF EQUITY

(In thousands, except share data)	Three Months Ended June 30,								
	Common Stock		Treasury Stock		Additional		Accumulated Other	Non-	Total
	Shares	Amount	Shares	Amount	Paid-In Capital	Retained Earnings	Comprehensive (Loss) Income	controlling Interest	Stockholders' Equity
Balance, April 1, 2019	53,108,213	\$ 5	(1,430,094)	\$ (224,998)	\$ 746,926	\$ 1,903,659	\$ (157,751)	\$ 447	\$ 2,268,288
Exercise of stock options and vesting of RSU's and PSU's	59,590	—	—	—	2,152	—	—	—	2,152
Common stock issued under employee stock purchase plan	31,483	—	—	—	3,965	—	—	—	3,965
Purchased common stock	(16,376)	—	(16,376)	(2,284)	—	—	—	—	(2,284)
Stock-based compensation	—	—	—	—	8,893	—	—	—	8,893
Net income	—	—	—	—	—	72,272	—	249	72,521
Foreign currency translation adjustments	—	—	—	—	—	—	13,800	18	13,818
Unrealized loss on derivatives, net of tax	—	—	—	—	—	—	8	—	8
Balance, June 30, 2019	53,182,910	\$ 5	(1,446,470)	\$ (227,282)	\$ 761,936	\$ 1,975,931	\$ (143,943)	\$ 714	\$ 2,367,361
Balance, April 1, 2020	53,127,181	\$ 6	(1,841,171)	\$ (278,446)	\$ 788,568	\$ 2,065,022	\$ (220,081)	\$ 861	\$ 2,355,930
Exercise of stock options and vesting of RSU's and PSU's	165,852	—	—	—	11,217	—	—	—	11,217
Common stock issued under employee stock purchase plan	20,484	—	—	—	2,550	—	—	—	2,550
Purchased common stock	(131,369)	—	(131,369)	(15,514)	—	—	—	—	(15,514)
Stock-based compensation	—	—	—	—	9,224	—	—	—	9,224
Net income	—	—	—	—	—	38,226	—	140	38,366
Foreign currency translation adjustments	—	—	—	—	—	—	35,581	(47)	35,534
Unrealized gain on derivatives, net of tax	—	—	—	—	—	—	(1)	—	(1)
Balance, June 30, 2020	53,182,148	\$ 6	(1,972,540)	\$ (293,960)	\$ 811,559	\$ 2,103,248	\$ (184,501)	\$ 954	\$ 2,437,306
(In thousands, except share data)	Six Months Ended June 30,								
	Common Stock		Treasury Stock		Additional		Accumulated Other	Non-	Total
	Shares	Amount	Shares	Amount	Paid In Capital	Retained Earnings	Comprehensive (Loss) Income	controlling Interest	Stockholders' Equity
Balance, January 1, 2019	52,941,607	\$ 5	(1,430,094)	\$ (224,998)	\$ 744,937	\$ 1,848,500	\$ (162,896)	\$ 687	\$ 2,206,235
Exercise of stock options and vesting of RSU's and PSU's	226,196	—	—	—	(3,997)	—	—	—	(3,997)
Common stock issued under employee stock purchase plan	31,483	—	—	—	3,965	—	—	—	3,965
Purchased common stock	(16,376)	—	(16,376)	(2,284)	—	—	—	—	(2,284)
Stock-based compensation	—	—	—	—	17,031	—	—	—	17,031
Net income	—	—	—	—	—	127,431	—	6	127,437
Foreign currency translation adjustments	—	—	—	—	—	—	18,958	21	18,979
Unrealized gain on derivatives, net of tax	—	—	—	—	—	—	(5)	—	(5)
Balance, June 30, 2019	53,182,910	\$ 5	(1,446,470)	\$ (227,282)	\$ 761,936	\$ 1,975,931	\$ (143,943)	\$ 714	\$ 2,367,361
Balance, January 1, 2020	53,010,875	\$ 5	(1,732,352)	\$ (265,730)	\$ 785,636	\$ 2,028,734	\$ (146,919)	\$ 717	\$ 2,402,443
Exercise of stock options and vesting of RSU's and PSU's	390,977	1	—	—	5,720	—	—	—	5,721
Common stock issued under employee stock purchase plan	20,484	—	—	—	2,550	—	—	—	2,550
Purchased common stock	(240,188)	—	(240,188)	(28,230)	—	—	—	—	(28,230)
Stock-based compensation	—	—	—	—	17,653	—	—	—	17,653
Recently adopted accounting standards	—	—	—	—	—	(115)	—	—	(115)
Net income	—	—	—	—	—	74,629	—	503	75,132
Foreign currency translation adjustments	—	—	—	—	—	—	(37,617)	(266)	(37,883)
Unrealized loss on derivatives, net of tax	—	—	—	—	—	—	35	—	35
Balance, June 30, 2020	53,182,148	\$ 6	(1,972,540)	\$ (293,960)	\$ 811,559	\$ 2,103,248	\$ (184,501)	\$ 954	\$ 2,437,306

See notes to condensed consolidated financial statements.

IPG PHOTONICS CORPORATION
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(In thousands, except share and per share data)

1. BASIS OF PRESENTATION AND SIGNIFICANT ACCOUNTING POLICIES

Basis of Presentation — The accompanying unaudited condensed consolidated financial statements have been prepared by IPG Photonics Corporation, or "IPG", "its" or the "Company". Certain information and footnote disclosures normally included in financial statements prepared in accordance with accounting principles generally accepted in the United States of America have been condensed or omitted pursuant to the rules and regulations of the Securities and Exchange Commission ("SEC"). The condensed consolidated financial statements include the Company's accounts and those of its subsidiaries. All intercompany balances have been eliminated in consolidation. These condensed consolidated financial statements should be read in conjunction with the consolidated financial statements and notes thereto in the Company's Annual Report on Form 10-K for the year ended December 31, 2019.

In the opinion of the Company's management, the financial information for the interim periods presented reflects all adjustments necessary for a fair presentation of the Company's financial position, results of operations and cash flows. The results reported in these condensed consolidated financial statements are not necessarily indicative of results that may be expected for the entire year.

Accounts Receivable and Allowance for Doubtful Accounts — The Company maintains an allowance for doubtful accounts to provide for the estimated amount of accounts receivable that will not be collected. The allowance is based upon an estimate of expected credit losses over the life of outstanding receivables. The estimate involves an assessment of customer creditworthiness, historical payment experience, an assumption of future expected credit losses, and the age of outstanding receivables.

Activity related to the allowance for doubtful accounts was as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
Balance, beginning of period	\$ 2,135	\$ 2,296	\$ 2,547	\$ 1,799
Provision for bad debts, net of recoveries	(162)	188	(349)	795
Uncollectable accounts written off	(71)	—	(71)	(89)
Foreign currency translation	97	44	(128)	23
Balance, end of period	<u>\$ 1,999</u>	<u>\$ 2,528</u>	<u>\$ 1,999</u>	<u>\$ 2,528</u>

The Company has evaluated subsequent events through the time of filing this Quarterly Report on Form 10-Q with the SEC.

2. RECENT ACCOUNTING PRONOUNCEMENTS

Adopted Pronouncements —

In June 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2016-13, "Measurement of Credit Losses on Financial Instruments" ("ASU 2016-13"), which adds an impairment model (known as the current expected credit loss ("CECL") model) that is based on expected losses rather than incurred losses. Under the new guidance, an entity recognizes as an allowance for its estimate of expected credit losses, which the FASB believes will result in more timely recognition of such losses. The ASU is also intended to reduce the complexity by decreasing the number of credit impairment models that entities use to account for debt instruments. The Company adopted ASU 2016-03, along with its subsequent clarifications, as of January 1, 2020. The cumulative effect of the changes made to the Company's condensed consolidated January 1, 2020 balance sheet for the adoption of ASU 2016-13 was as follows:

	Balance at December 31, 2019	Adoption of ASU 2016-13	Balance at January 1, 2020
Balance Sheet			
Accounts receivable, net	\$ 238,479	\$ (148)	\$ 238,331
Deferred income taxes, net	31,395	33	31,428
Retained earnings	2,028,734	(115)	2,028,619

IPG PHOTONICS CORPORATION
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS - (Continued)
(In thousands, except share and per share data)

3. REVENUE FROM CONTRACTS WITH CUSTOMERS

Sales are derived from products for different applications: fiber lasers, diode lasers, diodes and systems for materials processing, fiber lasers and amplifiers for advanced applications, fiber amplifiers for communications applications, and fiber lasers for medical applications.

The following tables represent a disaggregation of revenue from contracts with customers:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
<u>Sales by Application</u>				
Materials processing	\$ 271,708	\$ 345,591	\$ 489,782	\$ 646,676
Other applications	24,703	18,178	55,871	32,140
Total	<u>\$ 296,411</u>	<u>\$ 363,769</u>	<u>\$ 545,653</u>	<u>\$ 678,816</u>

Sales by Product

High Power Continuous Wave ("CW") Lasers	\$ 157,478	\$ 213,411	\$ 276,794	\$ 392,430
Medium Power CW Lasers	10,692	15,415	21,945	31,013
Pulsed Lasers	42,577	40,813	74,416	72,250
Quasi-Continuous Wave ("QCW") Lasers	13,708	15,967	23,581	30,133
Laser and Non-Laser Systems	24,942	39,383	43,576	72,014
Other Revenue including Amplifiers, Service, Parts, Accessories and Change in Deferred Revenue	47,014	38,780	105,341	80,976
Total	<u>\$ 296,411</u>	<u>\$ 363,769</u>	<u>\$ 545,653</u>	<u>\$ 678,816</u>

Sales by Geography

North America	\$ 53,901	\$ 64,140	\$ 121,240	\$ 128,947
Europe:				
Germany	17,634	23,664	35,045	42,283
Other including Eastern Europe/CIS	46,547	61,131	103,779	130,331
Asia and Australia:				
China	145,216	163,590	213,815	277,956
Japan	14,672	17,406	28,357	33,020
Other	16,874	28,929	39,697	60,667
Rest of World	1,567	4,909	3,720	5,612
Total	<u>\$ 296,411</u>	<u>\$ 363,769</u>	<u>\$ 545,653</u>	<u>\$ 678,816</u>

Timing of Revenue Recognition

Goods and services transferred at a point in time	\$ 282,159	\$ 342,037	\$ 515,595	\$ 634,130
Goods and services transferred over time	14,252	21,732	30,058	44,686
Total	<u>\$ 296,411</u>	<u>\$ 363,769</u>	<u>\$ 545,653</u>	<u>\$ 678,816</u>

One of our customers accounted for 8 % and 12 % of our net sales for the six months ended June 30, 2020 and 2019, respectively. The same customer accounted for 26 % and 24 % of our net accounts receivable as of June 30, 2020 and December 31, 2019, respectively.

The Company enters into contracts to sell lasers and spare parts, for which revenue is generally recognized upon shipment or delivery, depending on the terms of the contract. The Company also provides installation services and extended warranties. The Company frequently receives consideration from a customer prior to transferring goods to the customer under the terms of a sales contract. The Company records customer deposits related to these prepayments, which represent a contract liability. The Company also records deferred revenue related to installation services when consideration is received before the services have

IPG PHOTONICS CORPORATION
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS - (Continued)
(In thousands, except share and per share data)

been performed. The Company recognizes customer deposits and deferred revenue as net sales after control of the goods or services has been transferred to the customer and all revenue recognition criteria are met. The Company bills customers for extended warranties upon entering into the agreement with the customer, resulting in deferred revenue. The timing of customer payments on contracts for the sale of customized robotic systems generally differs from the timing of revenue recognized, resulting in contract assets and liabilities. Contract assets are included within prepaid expense and other current assets on the condensed consolidated balance sheets. Contract liabilities are included within accrued expenses and other current liabilities on the condensed consolidated balance sheets.

The following table reflects the changes in the Company's contract assets and liabilities for the six months ended June 30, 2020 and 2019:

	June 30, 2020	December 31, 2019	Change	June 30, 2019	December 31, 2018	Change
Contract assets						
Contract assets	\$ 8,349	\$ 9,645	\$ (1,296)	\$ 8,460	\$ 10,102	\$ (1,642)
Contract liabilities						
Contract liabilities - current	54,587	59,531	(4,944)	61,506	52,606	8,900
Contract liabilities - long-term	2,242	1,820	422	1,720	1,413	307

During the three months ended June 30, 2020 and 2019 the Company recognized revenue of \$ 16,447 and \$ 11,092 , respectively, that was included in contract liabilities at the beginning of each period. During the six months ended June 30, 2020 and 2019, the Company recognized revenue of \$ 31,443 and \$ 36,252 , respectively, that was included in contract liabilities at the beginning of each period.

The Company has elected the practical expedient in ASC 606-10-50-14, whereby the performance obligations for contracts with an original expected duration of one year or less are not disclosed. The following table represents the Company's remaining performance obligations from contracts that are recognized over time as of June 30, 2020:

	Remaining Performance Obligations						
	2020 ^(a)	2021	2022	2023	2024	Thereafter	Total
Revenue expected to be recognized for extended warranty agreements	\$ 2,509	\$ 1,870	\$ 775	\$ 534	\$ 251	\$ 55	\$ 5,994
Revenue to be earned over time from contracts to sell robotic systems	16,514	5,499	—	—	—	—	22,013
Total	\$ 19,023	\$ 7,369	\$ 775	\$ 534	\$ 251	\$ 55	\$ 28,007

(a) For the six-month period beginning July 1, 2020.

4. RESTRICTED CASH

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported within the condensed consolidated balance sheets to the total of the same amounts shown in the condensed consolidated statements of cash flows.

	June 30, 2020	2019	December 31, 2019	2018
Cash and cash equivalents	\$ 747,859	\$ 530,013	\$ 680,070	\$ 544,358
Restricted cash included in prepaid expenses and other current assets	2,183	—	—	—
Restricted cash included in other assets	—	2,964	2,914	—
Cash, cash equivalents and restricted cash in the condensed consolidated statements of cash flows	\$ 750,042	\$ 532,977	\$ 682,984	\$ 544,358

5. FAIR VALUE MEASUREMENTS

The Company's financial instruments consist of cash equivalents, short-term and long-term investments, accounts receivable, auction rate securities, accounts payable, drawings on revolving lines of credit, long-term debt, interest rate swaps and contingent purchase consideration.

IPG PHOTONICS CORPORATION
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS - (Continued)
(In thousands, except share and per share data)

The valuation techniques used to measure fair value are based upon observable and unobservable inputs. Observable inputs reflect market data obtained from independent sources, while unobservable inputs reflect internal market assumptions. These two types of inputs create the following fair value hierarchy: Level 1, defined as observable inputs such as quoted prices for identical instruments in active markets; Level 2, defined as inputs other than quoted prices in active markets that are either directly or indirectly observable; and Level 3, defined as unobservable inputs for which little or no market data exists, therefore requiring an entity to develop its own assumptions. The Company classifies its financial instruments according to the prescribed criteria.

The following table presents fair value information related to the Company's assets and liabilities measured at amortized cost on the condensed consolidated balance sheets with the exception of the interest rate swap, which is measured at fair value:

	Fair Value Measurements at June 30, 2020			
	Total	Level 1	Level 2	Level 3
Assets				
Cash equivalents:				
Money market fund deposits and term deposits	\$ 253,774	\$ 253,774	\$ —	\$ —
Commercial paper	72,836	—	72,836	—
Corporate bonds	22,825	—	22,825	—
Agency obligations	20,797	—	20,797	—
Short-term investments:				
Corporate bonds	315,551	—	315,551	—
Commercial paper	158,446	—	158,446	—
Municipal bonds	3,200	—	3,200	—
U.S. Treasury and agency obligations	24,997	—	24,997	—
Long-term investments and other assets:				
Auction rate securities	596	—	—	596
Interest rate swap	57	—	57	—
Total	<u>\$ 873,079</u>	<u>\$ 253,774</u>	<u>\$ 618,709</u>	<u>\$ 596</u>
Liabilities				
Long-term debt	<u>\$ 40,449</u>	<u>\$ —</u>	<u>\$ 40,449</u>	<u>\$ —</u>

	Fair Value Measurements at December 31, 2019			
	Total	Level 1	Level 2	Level 3
Assets				
Cash equivalents:				
Money market fund deposits and term deposits	\$ 155,080	\$ 155,080	\$ —	\$ —
Commercial paper	54,712	—	54,712	—
Short-term investments:				
Corporate bonds	259,422	259,422	—	—
Commercial paper	236,752	—	236,752	—
Certificate of deposit	6,501	6,501	—	—
Long-term investments and other assets:				
Auction rate securities	592	—	—	592
Interest rate swaps	13	—	13	—
Total	<u>\$ 713,072</u>	<u>\$ 421,003</u>	<u>\$ 291,477</u>	<u>\$ 592</u>
Liabilities				
Long-term debt	\$ 42,004	\$ —	\$ 42,004	\$ —
Contingent purchase consideration	273	—	—	273
Total	<u>\$ 42,277</u>	<u>\$ —</u>	<u>\$ 42,004</u>	<u>\$ 273</u>

IPG PHOTONICS CORPORATION
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS - (Continued)
(In thousands, except share and per share data)

The carrying amounts of money market fund deposits, term deposits, accounts receivable, accounts payable and drawings on revolving lines of credit are considered reasonable estimates of their fair market value due to the short maturity of most of these instruments or as a result of the competitive market interest rates which have been negotiated.

The fair value of the short-term investments considered held-to-maturity as of June 30, 2020 and December 31, 2019 was \$ 502,194 and \$ 502,675 , respectively, which include an unrealized gain of \$ 1,154 and unrealized gain of \$ 129 , respectively, as compared to the book value recorded on the condensed consolidated balance sheets for the same periods. There were no impairments for the investments considered held-to-maturity during the quarters ended June 30, 2020 and 2019. There were no current expected credit loss allowances for the investments considered held-to-maturity at June 30, 2020. The Company holds highly-rated held-to-maturity instruments that are within one year of maturity.

Auction rate securities and contingent consideration are measured at fair value on a recurring basis using significant unobservable inputs (Level 3). The fair value of the auction rate securities was determined using prices observed in inactive markets with limited observable data for the securities held by the Company. The auction rate securities are considered available-for-sale securities. They had a cost basis of \$ 596 and \$ 592 at June 30, 2020 and December 31, 2019, respectively. There were no impairments for the investments considered available-for-sale during the quarters ended June 30, 2020 and 2019.

The Company entered into an interest rate swap that is designated as a cash flow hedge associated with a long-term note issued during the second quarter of 2016 that will terminate with the long-term note in May 2023. The fair value at June 30, 2020 for the interest rate swap considered pricing models whose inputs are observable for the securities held by the Company.

At June 30, 2020 and December 31, 2019, the Company's long-term notes consisted of a variable rate note and a fixed rate note, and are reported at amortized cost on the condensed consolidated balance sheets. For disclosure purposes, the fair value of the long-term notes was estimated using a discounted cash flow model using observable market interest rates and are classified as a level 2. Based on the discounted cash flow model, the fair value of the long-term notes at June 30, 2020 was \$ 40,449 as compared to the book value of \$ 39,846 . At December 31, 2019, the book value approximated fair value.

The fair value of contingent consideration at December 31, 2019 was determined using an income approach at the respective business combination date and at the reporting date. That approach is based on significant inputs that are not observable in the market and include key assumptions such as assessing the probability of meeting certain milestones required to earn the contingent consideration.

The following table presents information about the Company's movement in Level 3 assets and liabilities measured at fair value:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
Auction rate securities				
Balance, beginning of period	\$ 594	\$ 850	\$ 592	\$ 847
Change in fair value and accretion	2	2	4	5
Balance, end of period	<u>\$ 596</u>	<u>\$ 852</u>	<u>\$ 596</u>	<u>\$ 852</u>
Contingent purchase consideration				
Balance, beginning of period	\$ —	\$ 294	\$ 273	\$ 898
Cash payments	—	—	(272)	(632)
Foreign exchange adjustment	—	6	(1)	34
Balance, end of period	<u>\$ —</u>	<u>\$ 300</u>	<u>\$ —</u>	<u>\$ 300</u>

IPG PHOTONICS CORPORATION
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS - (Continued)
(In thousands, except share and per share data)

The following table presents the effective maturity dates of held-to-maturity and available-for-sale debt investments as of June 30, 2020 and December 31, 2019:

	June 30, 2020		December 31, 2019	
	Book Value	Fair Value	Book Value	Fair Value
Investment maturity				
Held-to-maturity:				
Less than 1 year	\$ 501,040	\$ 502,194	\$ 502,546	\$ 502,675
Available-for-sale:				
Greater than 5 years	\$ 596	\$ 596	\$ 592	\$ 592

6. INVENTORIES

Inventories consist of the following:

	June 30, 2020	December 31, 2019
Components and raw materials	\$ 191,612	\$ 200,390
Work-in-process	39,630	49,620
Finished components and devices	135,924	130,780
Total	\$ 367,166	\$ 380,790

The Company recorded inventory provisions totaling \$ 5,990 and \$ 7,886 for the three months ended June 30, 2020 and 2019, respectively, and \$ 14,441 and \$ 12,649 for the six months ended June 30, 2020 and 2019, respectively. These provisions relate to the recoverability of the value of inventories due to technological changes and excess quantities. These provisions are reported as a reduction to components and raw materials and finished components and devices.

7. GOODWILL AND INTANGIBLES

The following table sets forth the changes in the carrying amount of goodwill:

	Six Months Ended June 30,	
	2020	2019
Balance at January 1	\$ 82,092	\$ 100,722
Goodwill arising from business combinations	—	9,426
Adjustment to goodwill during measurement period	—	448
Foreign exchange adjustment	(181)	272
Balance at June 30	\$ 81,911	\$ 110,868

During the fourth quarter of 2018, the Company acquired 100 % of the membership units of Genesis Systems Group, LLC ("Genesis"). During the first quarter of 2019, the working capital adjustment to the purchase price was finalized resulting in an increase in the purchase price of \$ 448 . The additional purchase price was allocated entirely to goodwill.

During the first quarter of 2019, the Company acquired the submarine networks division (SND) of Padtec SA, a communications equipment company based in Brazil. SND is a provider of submarine networking technology and systems. The Company paid \$ 19,560 to acquire SND, which represents the fair value on that date. Of the purchase price, \$ 1,956 was held back for potential post-closing adjustments related to obtaining government approval of licenses. The hold-back was paid on February 28, 2020 for achieving the licensure milestone in the amount of \$ 1,650 , adjusted for foreign exchange rates. In addition, \$ 2,934 (\$ 2,183 at June 30, 2020) was held back in a restricted bank account for potential post-closing adjustments related to indemnities provided by the seller. The restricted cash balance is recorded in the condensed consolidated balance sheets as presented in Note 4. The liability related to the amount due to the sellers if the indemnities are satisfied is included within accrued expenses and other current liabilities as of June 30, 2020 and within deferred income taxes and other long-term liabilities at December 31, 2019 on the condensed consolidated balance sheets. Any excess of the purchase price was allocated to goodwill. In the second half of 2019, the Company undertook a strategic analysis of investments in new markets and solutions, including the additional investment required to enter and obtain significant market share in the submarine

IPG PHOTONICS CORPORATION
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS - (Continued)
(In thousands, except share and per share data)

telecommunications industry. As a result of this analysis, in the fourth quarter of 2019, the Company decided to cease further investment in SND and is pursuing strategic alternatives for this business. As of December 31, 2019, the Company recognized a non-cash goodwill impairment loss of \$ 17,795 , which decreased the net assets to the estimated net realizable value.

Intangible assets, subject to amortization, consisted of the following:

	June 30, 2020				December 31, 2019			
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Weighted- Average Lives	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Weighted- Average Lives
Customer relationships	\$ 57,806	\$ (14,734)	\$ 43,072	11 years	\$ 57,866	\$ (11,993)	\$ 45,873	11 years
Technology, trademark and trade name	40,747	(18,442)	22,305	7 years	41,297	(16,128)	25,169	7 years
Production know-how	9,182	(7,806)	1,376	7 years	9,180	(7,415)	1,765	7 years
Patents	8,036	(6,794)	1,242	8 years	8,036	(6,572)	1,464	8 years
Total	\$ 115,771	\$ (47,776)	\$ 67,995		\$ 116,379	\$ (42,108)	\$ 74,271	

Amortization expense for the three months ended June 30, 2020 and 2019 was \$ 2,949 and \$ 3,648 , respectively. Amortization expense for the six months ended June 30, 2020 and 2019 was \$ 6,082 and \$ 6,964 , respectively. The estimated future amortization expense for intangibles for the remainder of 2020 and subsequent years is as follows:

2020 ^(a)	2021	2022	2023	2024	Thereafter	Total
\$ 5,902	\$ 11,616	10,752	\$ 9,853	\$ 7,507	\$ 22,365	\$ 67,995

(a) For the six-month period beginning July 1, 2020.

8. ACCRUED EXPENSES AND OTHER LIABILITIES

Accrued expenses and other liabilities consist of the following:

	June 30, 2020	December 31, 2019
Accrued compensation	\$ 53,533	\$ 48,881
Contract liabilities	54,587	59,531
Current portion of accrued warranty	23,845	23,114
Short-term lease liabilities	5,138	5,300
Other	11,123	12,956
Total	\$ 148,226	\$ 149,782

9. PRODUCT WARRANTIES

The Company typically provides one to five years parts and service warranties on lasers, laser and non-laser systems, and amplifiers. Most of the Company's sales offices provide support to customers in their respective geographic areas. Warranty reserves have generally been sufficient to cover product warranty repair and replacement costs.

The following table summarizes product warranty accrual activity recorded during the six months ended June 30, 2020 and 2019.

	2020	2019
Balance at January 1	\$ 48,866	\$ 51,422
Provision for warranty accrual	9,975	8,618
Warranty claims	(13,614)	(9,430)
Foreign currency translation	(155)	1
Balance at June 30	\$ 45,072	\$ 50,611

Accrued warranty reported in the accompanying condensed consolidated financial statements as of June 30, 2020 and December 31, 2019 consisted of \$ 23,845 and \$ 23,114 in accrued expenses and other liabilities, respectively, and \$ 21,227 and \$ 25,752 in other long-term liabilities, respectively.

IPG PHOTONICS CORPORATION
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS - (Continued)
(In thousands, except share and per share data)

10. FINANCING ARRANGEMENTS

The Company's borrowings under existing financing arrangements consist of the following:

	June 30, 2020	December 31, 2019
Long-term notes	\$ 39,846	\$ 41,708
Less: current portion	(3,775)	(3,740)
Total long-term debt	<u>\$ 36,071</u>	<u>\$ 37,968</u>

Term Debt:

At June 30, 2020, the Company has an unsecured long-term note with an outstanding principal balance of \$ 19,000 , of which, \$ 1,188 is the current portion. The interest on this unsecured long-term note is variable at 1.20 % above LIBOR and is fixed using an interest rate swap at 2.85 % per annum. The unsecured long-term note matures in May 2023, at which time the outstanding principal balance will be \$ 15,438 . Also at June 30, 2020, the Company has another long-term note that is secured by its corporate aircraft with an outstanding principal balance of \$ 20,846 , of which, \$ 2,587 is the current portion. The interest on this collateralized long-term note is fixed at 2.74 % per annum. The collateralized long-term note matures in July 2022, at which time the outstanding principal balance will be \$ 15,375 .

The future principal payments for the Company's Notes as of June 30, 2020 are as follows:

2020 ^(a)	\$ 1,879
2021	3,810
2022	18,126
2023	16,031
Total	<u>\$ 39,846</u>

^(a) For the six-month period beginning July 1, 2020.

Revolving Line of Credit Facilities:

The Company maintains a U.S. revolving line of credit of \$ 75,000 . On April 22, 2020, the Company amended the € 50,000 (\$ 56,141) line-of-credit in Germany, extending its maturity through July 31, 2023. Both facilities are available to certain foreign subsidiaries and allow for borrowings in the local currencies of those subsidiaries. The Company also maintains a € 2,000 (\$ 2,246) Italian overdraft facility. At June 30, 2020 and December 31, 2019, there were no amounts drawn on the U.S. line-of-credit, and there were \$ 1,174 and \$ 1,426 , respectively, of guarantees issued against the facility which reduce the amount of the facility available to draw. At June 30, 2020 and December 31, 2019, there were no amounts drawn on the Euro line-of-credit, and there were \$ 2,304 and \$ 1,422 , respectively, of guarantees issued against those facilities which reduce the amount available to draw. At June 30, 2020 and December 31, 2019, there were no amounts drawn on the Euro overdraft facility. After providing for the guarantees used, the total unused lines-of-credit and overdraft facilities are \$ 129,909 at June 30, 2020.

11. DERIVATIVE FINANCIAL INSTRUMENTS

The Company's only outstanding derivative financial instrument is an interest rate swap that is classified as a cash flow hedge of its variable rate debt. The fair value amounts in the condensed consolidated balance sheets were:

Notional Amounts ⁽¹⁾		Other Assets	
June 30, 2020	December 31, 2019	June 30, 2020	December 31, 2019
\$ 19,000	\$ 19,594	\$ 57	\$ 13

⁽¹⁾ Notional amounts represent the gross contract/notional amount of the derivatives outstanding.

IPG PHOTONICS CORPORATION
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS - (Continued)
(In thousands, except share and per share data)

The derivative gains and losses in the condensed consolidated financial statements for the three and six months ended June 30, 2020 and 2019, related to the Company's current and previous interest rate swap contracts were as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
Effective portion recognized in other comprehensive income, pretax:				
Interest rate swap	\$ (2)	\$ 11	\$ 44	\$ (3)

12. COMMITMENTS AND CONTINGENCIES

From time to time, the Company may be involved in disputes and legal proceedings in the ordinary course of its business. These proceedings may include allegations of infringement of intellectual property, commercial disputes and employment matters. As of June 30, 2020 and through the filing date of these condensed consolidated financial statements, the Company has no legal proceedings ongoing that management estimates could have a material effect on the Company's condensed consolidated financial statements.

13. INCOME TAXES

The effective tax rates were 22.5 % and 24.3 % for the three months ended June 30, 2020 and 2019, respectively, and 23.0 % and 24.2 % for the six months ended June 30, 2020, and 2019, respectively. There were discrete tax benefits of \$ 3,143 and \$ 575 for the three months ended June 30, 2020 and 2019, respectively, and \$ 5,930 and \$ 2,913 for the six months ended June 30, 2020 and 2019, respectively, primarily related to the tax deductions for equity-based compensation that exceeded compensation expense recognized and for an investment credit in Russia related to prior years for which an amended return was filed.

The Company accounts for its uncertain tax positions in accordance with the accounting standards for income taxes. The Company continues to classify interest and penalties related to unrecognized tax benefits as a component of the provision for income taxes. The following is a summary of the activity of the Company's unrecognized tax benefits for six months ended June 30, 2020 and 2019:

	2020	2019
Balance at January 1,	\$ 11,416	\$ 11,206
Additions for tax positions in current period	700	49
Foreign currency translation	(565)	199
Balance at June 30,	<u>\$ 11,551</u>	<u>\$ 11,454</u>

Substantially all of the liability for uncertain tax benefits related to various federal, state and foreign income tax matters would benefit the Company's effective tax rate, if recognized.

IPG PHOTONICS CORPORATION
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS - (Continued)
(In thousands, except share and per share data)

14. NET INCOME ATTRIBUTABLE TO IPG PHOTONICS CORPORATION PER SHARE

The following table sets forth the computation of diluted net income attributable to IPG Photonics Corporation per share:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
Net income attributable to IPG Photonics Corporation	\$ 38,226	\$ 72,272	\$ 74,629	\$ 127,431
Net income attributable to common stockholders	38,226	72,272	74,629	127,431
Weighted average shares	53,040	53,042	53,083	53,076
Dilutive effect of common stock equivalents	490	806	545	839
Diluted weighted average common shares	53,530	53,848	53,628	53,915
Basic net income attributable to IPG Photonics Corporation per share	\$ 0.72	\$ 1.36	\$ 1.41	\$ 2.40
Basic net income attributable to common stockholders	\$ 0.72	\$ 1.36	\$ 1.41	\$ 2.40
Diluted net income attributable to IPG Photonics Corporation per share	\$ 0.71	\$ 1.34	\$ 1.39	\$ 2.36
Diluted net income attributable to common stockholders	\$ 0.71	\$ 1.34	\$ 1.39	\$ 2.36

The computation of diluted weighted average common shares excludes common stock equivalents including non-qualified stock options, performance stock units ("PSUs") and restricted stock units ("RSUs"), because the effect of including them would be anti-dilutive. The anti-dilutive shares for the three and six months ended June 30, 2020 and 2019 are as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
Anti-dilutive weighted average shares outstanding - Non-qualified Options	561,100	603,000	597,200	524,000
Anti-dilutive weighted average shares outstanding - RSUs	107,400	54,000	240,700	138,600
Anti-dilutive weighted average shares outstanding - PSUs	24,800	44,300	19,300	38,500
Total anti-dilutive shares outstanding	693,300	701,300	857,200	701,100

On May 5, 2020, the Company announced that its Board of Directors authorized the purchase of up to \$ 200,000 of IPG common stock. This new authorization is additive to the Company's existing stock repurchase of \$ 125,000 repurchase program authorized in February 2019. Under the two share purchase authorizations, IPG may repurchase shares of common stock (a) in an amount not to exceed the lesser of the number of shares issued to employees and directors under the Company's various employee and director equity compensation and employee stock purchase plans in 2019 and 2020 or \$ 125,000 and (b) \$ 200,000 , in both cases exclusive of any fees, commissions or other expenses. Share repurchases may be made periodically in open-market transactions using the Company's working capital, and are subject to market conditions, legal requirements and other factors. The share purchase program authorization does not obligate the Company to repurchase any dollar amount or number of its shares, and repurchases may be commenced or suspended from time to time without prior notice.

For the three months ended June 30, 2020, the Company repurchased 131,369 shares of common stock under the February 2019 authorization with an average price of \$ 118.10 per share in the open market. The impact on the reduction of weighted average shares for the three months ended June 30, 2020 was 106,655 shares. For the six months ended June 30, 2020, the Company repurchased 240,188 shares of common stock under the February 2019 authorization with an average price of \$ 117.53 per share in the open market. The impact on the reduction of weighted average shares for the six months ended June 30, 2020 was 132,530 shares. As of June 30, 2020 the remaining amount authorized under the programs is up to \$ 256,000 , but may be less depending upon the equity compensation and employee stock purchase plan dilution during the programs.

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following discussion in conjunction with our condensed consolidated financial statements and related notes included elsewhere in this Quarterly Report on Form 10-Q. This discussion contains forward looking statements that are based on management's current expectations, estimates and projections about our business and operations. Our actual results may differ materially from those currently anticipated and expressed in such forward-looking statements. See "Cautionary Statement Regarding Forward-Looking Statements."

Overview

We develop, manufacture and sell high-performance fiber lasers, fiber amplifiers and diode lasers that are used for diverse applications, primarily in materials processing. We also manufacture and sell complementary products used with our lasers including optical delivery cables, fiber couplers, beam switches, optical processing heads, in-line sensors and chillers. In addition, we offer laser-based and non-laser based systems for certain markets and applications. Our portfolio of laser solutions are used in materials processing, communications, medical and advanced applications. We sell our products globally to original equipment manufacturers ("OEMs"), system integrators and end users. We market our products internationally, primarily through our direct sales force. Our major manufacturing facilities are located in the United States, Germany and Russia. We have sales service offices and applications laboratories worldwide.

We are vertically integrated such that we design and manufacture most of the key components used in our finished products, from semiconductor diodes to optical fiber preforms, finished fiber lasers, amplifiers and complementary products. Our vertically integrated operations allow us to reduce manufacturing costs, control quality, rapidly develop and integrate advanced products and protect our proprietary technology.

Factors and Trends That Affect Our Operations and Financial Results

In reading our financial statements, you should be aware of the following factors and trends that our management believes are important in understanding our financial performance.

COVID-19 Update. Global demand trends have been impacted adversely by the COVID-19 pandemic and therefore remain uncertain at this time. While we have seen a rebound in demand in China in the second quarter, this was partially offset by weakness in both Europe and North America. We believe demand trends will continue to be impacted by how significantly COVID-19 is affecting various regions of the world. This uncertainty continues to make forecasting our business challenging in the near to medium-term.

Currently, our three major production facilities in United States, Germany, and Russia remain open. We have implemented employee safety and sanitization protocols that have impacted productivity and efficiency. We have vertically integrated manufacturing, and many of the components one facility supplies to another facility are single sourced internally and not available from third party suppliers, for example our semiconductor diodes manufactured in Oxford, Massachusetts. While we have attempted to build safety stock of critical components at our various locations, if government restrictions to address the COVID-19 outbreak become more severe than we have experienced to date or if there was significant absenteeism as a result of a COVID-19 outbreak or resurgence in the places where we operate, it could impact our internal supply chain. We have implemented certain payroll and sick time policies to help support our employees impacted by COVID-19. These measures have and will continue to increase the cost of our operations but the magnitude and length of time of this impact is difficult to quantify at this time and may continue to be difficult to estimate in the future. If our revenues are reduced for an extended period or if our production output falls because of government restrictions or absenteeism, we may be required to reduce payroll-related costs and other expenses in the future through layoffs, furloughs or reduced hours, even though we have not done so to date.

We have not experienced significant supply disruption from third party component suppliers; however, we face some supply chain restraints primarily related to logistics, including available air cargo space and higher freight rates. Available cargo space on flights between the U.S. and Europe and Europe and Asia is limited as a result of COVID-19, increasing shipping time and cost. We may experience delays in the future if resurgences are experienced and governments implement new restrictions. We believe we have the ability to meet the near-term demand for our products, but the situation is fluid and subject to change.

We continue to monitor the rapidly evolving conditions and circumstances as well as guidance from international and domestic authorities, including public health authorities, and we may need to take additional actions based on their recommendations. The measures implemented by various authorities related to the COVID-19 outbreak have caused us to change our business practices including those related to where employees work, the distance between employees in our

facilities, limitations on in person meetings between employees and with customers, suppliers, service providers, and stakeholders as well as restrictions on business travel to domestic and international locations or to attend trade shows, investor conferences and other events. To date, we have been able to accommodate these changes to our business operations and continue to meet customer demand. If the guidance from relevant authorities becomes more restrictive in the future due to a resurgence of COVID-19 in a particular region, the effect on our operations could be more significant.

The COVID-19 pandemic has increased economic uncertainty and decreased demand for our products in many markets we serve and could continue for an unknown period of time. In these circumstances, there may be developments outside of our control, including the length and extent of the COVID-19 outbreak and government-imposed measures that may require us to adjust our operating plans. As such, given the dynamic nature of this situation, we cannot reasonably estimate the future impacts of COVID-19 on our financial condition, results of operations or cash flows. However, we do expect that it will have an adverse impact on our revenue as well as our overall profitability and may lead to an increase in inventory provisions, allowances for credit losses, and a volatile effective tax rate driven by changes in the mix of earnings across the Company's markets. Additionally, if the business impacts of COVID-19 carry on for an extended period, it could cause us to recognize impairments for goodwill and certain long-lived assets including amortizable intangible assets or right-of-use assets. In particular, the outbreak of COVID-19 has negatively affected new order flow in North America for our custom systems business. We are monitoring this business and if order flow does not improve in the near term, it may become a triggering event which causes us to evaluate the carrying value of goodwill related to that business.

Net sales. Our net sales have historically fluctuated from quarter to quarter. The increase or decrease in sales from a prior quarter can be affected by the timing of orders received from customers, the shipment, installation and acceptance of products at our customers' facilities, the mix of OEM orders and one-time orders for products with large purchase prices, competitive pressures, acquisitions, economic and political conditions in a certain country or region and seasonal factors such as the purchasing patterns and levels of activity throughout the year in the regions where we operate. Net sales can be affected by the time taken to qualify our products for use in new applications in the end markets that we serve. Our sales cycle varies substantially, ranging from a period of a few weeks to as long as one year or more, but is typically several months. The adoption of our products by a new customer or qualification in a new application can lead to an increase in net sales for a period, which may then slow until we penetrate new markets or obtain new customers.

Our business depends substantially upon capital expenditures by end users, particularly by manufacturers using our products for materials processing, which includes general manufacturing, automotive, other transportation, aerospace, heavy industry, consumer, semiconductor and electronics. Approximately 90% of our revenues for the first half of 2020 and 94% of our revenues for the full 2019 fiscal year were from customers using our products for materials processing. Although applications within materials processing are broad, the capital equipment market in general is cyclical and historically has experienced sudden and severe downturns. For the foreseeable future, our operations will continue to depend upon capital expenditures by end users of materials processing equipment and will be subject to the broader fluctuations of capital equipment spending.

In recent years, our net sales have been negatively impacted by tariffs and trade policy. New tariffs and other changes in U.S. trade policy could trigger retaliatory actions by affected countries, and certain foreign governments. The Chinese government has imposed retaliatory tariffs on a range of U.S. goods including certain optical and electronic products and components, which has impacted demand for our products, particularly for materials processing.

The average selling prices of our products generally decrease as the products mature. These decreases result from factors such as increased competition, decreased manufacturing costs and increases in unit volumes. We may also reduce selling prices in order to penetrate new markets and applications. Furthermore, we may negotiate discounted selling prices from time to time with certain customers that place high unit-volume orders.

The secular shift to fiber laser technology in large materials processing applications, such as cutting applications, had a positive effect on our sales trends in the past such that our sales trends were often better than other capital equipment manufacturers in both positive and negative economic cycles. As the secular shift to fiber laser technology matures in such applications, our sales trends are more susceptible to economic cycles which affect other capital equipment manufacturers.

Gross margin. Our total gross margin in any period can be significantly affected by total net sales in any period, by competitive factors, by product mix, and by other factors such as changes in foreign exchange rates relative to the U.S. Dollar, some of which are not under our control. For instance,

- As our products mature, we have experienced an increase in competition which has decreased average selling prices and reduced gross margin;

- Our gross margin can be significantly affected by product mix. Within each of our product categories, the gross margin is generally higher for devices with greater average power. These higher power products often have better performance, more difficult specifications to attain and fewer competing products in the marketplace;
- Higher power lasers also use a greater number of optical components, improving absorption of fixed overhead costs and enabling economies of scale in manufacturing;
- The gross margin for certain specialty products may be higher because there are fewer or sometimes no equivalent competing products;
- Customers that purchase devices in greater unit volumes generally are provided a lower price per device than customers that purchase fewer units. In general, lower selling prices to high unit volume customers reduce gross margin although this may be partially offset by improved absorption of fixed overhead costs associated with larger product volumes, which drive economies of scale in manufacturing; and
- Gross margin on systems and communication components can be lower than the gross margin for our laser and amplifier sources, depending on the configuration, volume and competitive forces, among other factors.

We expect that some new technologies, products and systems will have returns above our cost of capital but may have gross margins below our corporate average. If we are able to develop opportunities that are significant in size, competitively advantageous or leverage our existing technology base and leadership, our current gross margin levels may not be maintained. Instead, we aim to deliver industry-leading gross margin by growing sales by taking market share in existing markets or by developing new applications and markets we address, by reducing the cost of our products and by optimizing the efficiency of our manufacturing operations

A high proportion of our costs is fixed so costs are generally difficult to adjust or may take time to adjust in response to changes in demand. In addition, our fixed costs increase as we expand our capacity. If we expand capacity faster than is required by sales growth, gross margins could be negatively affected. Gross margins generally decline if production volumes are lower as a result of a decrease in sales or a reduction in inventory because the absorption of fixed manufacturing costs will be reduced. Gross margins generally improve when the opposite occurs. If both sales and inventory decrease in the same period, the decline in gross margin may be greater if we cannot reduce fixed costs or choose not to reduce fixed costs to match the decrease in the level of production. If we experience a decline in sales that reduces absorption of our fixed costs, as experienced during the three and six months ended June 30, 2020, or if we have production issues, our gross margins will be negatively affected.

We also regularly review our inventory for items that are slow-moving, have been rendered obsolete or determined to be excess. Any provision for such slow-moving, obsolete or excess inventory affects our gross margins. For example, we recorded provisions for slow-moving, obsolete or excess inventory totaling \$6.0 million and \$7.9 million for the three months ended June 30, 2020 and 2019, respectively, and \$14.4 million and \$12.6 million for the six months ended June 30, 2020 and 2019, respectively.

Selling and general and administrative expenses. In the past, we have invested in selling and general and administrative costs in order to support continued growth in the Company. As the secular shift to fiber laser technology matures, our sales growth becomes more susceptible to the cyclical trends typical of capital equipment manufacturers. Accordingly, our future management of and investments in selling and general and administrative expenses will also be influenced by these trends, although we may still invest in selling or general and administrative functions to support certain initiatives even in economic down cycles. Certain general and administrative expenses are not related to the level of sales and may vary quarter to quarter based primarily upon the level of acquisitions and litigation.

Research and development expenses. We plan to continue to invest in research and development to improve our existing components and products and develop new components, products, systems and applications technology. We believe that these investments will sustain our position as a leader in the fiber laser industry and will support development of new products that can address new markets and growth opportunities. The amount of research and development expense we incur may vary from period to period.

Goodwill and long-lived assets impairments . We review our intangible assets and property, plant and equipment for impairment when events or changes in circumstances indicate the carrying value may not be recoverable. Goodwill is required to be tested for impairment at least annually. Negative industry or economic trends, including reduced estimates of future cash flows, disruptions to our business, slower growth rates, lack of growth in our relevant business units or differences in the estimated product acceptance rates could lead to impairment charges against our long-lived assets, including goodwill and other intangible assets.

Our valuation methodology for assessing impairment requires management to make significant judgments and assumptions based on historical experience and to rely heavily on projections of future operating performance at many points during the analysis. Also, the process of evaluating the potential impairment of goodwill is subjective. We operate in a highly competitive environment and projections of future operating results and cash flows may vary significantly from actual results.

As discussed above, we are also monitoring the effect of the COVID-19 pandemic on our business and the potential affect it may have on the recoverability of our long-lived assets. In particular, COVID-19 has negatively affected order flow for our custom systems business. If order flows continue to be negatively impacted going forward, the cumulative effect of this reduced demand on backlog and the future outlook for revenue could be a triggering event which causes us to evaluate the recoverability of goodwill for this reporting unit. The effects of COVID-19 may also affect the recoverability of other long-lived assets including our amortizable long-lived assets or right-of-use assets. If our analysis indicates potential impairment to goodwill, amortizable intangibles or right-of-use assets in one or more of our reporting units, we may be required to record charges to earnings in our financial statements, which would negatively affect our results of operations.

Foreign exchange. Because we are a U.S. based company doing business globally, we have both translational and transactional exposure to fluctuations in foreign currency exchange rates. Changes in the relative exchange rate between the U.S. dollar and the foreign currencies in which our subsidiaries operate directly affects our sales, costs and earnings. Differences in the relative exchange rates between where we sell our products and where we incur manufacturing and other operating costs (primarily in the U.S., Germany and Russia) also affects our costs and earnings. Certain currencies experiencing significant exchange rate fluctuations like the Euro, the Russian Ruble, the Japanese Yen and Chinese Yuan have had and could have an additional significant impact on our sales, costs and earnings. The appreciation of the Russian Ruble due to stabilizing oil prices created a foreign exchange loss in the quarter ended June 30, 2020, because our Russian subsidiary has certain net assets denominated in U.S. Dollars. Additionally, the appreciation of the Russian Ruble was the primary driver of a charge to other comprehensive income during the quarter based on the translation of Ruble denominated assets and liabilities into U.S. dollars. Ongoing volatility of foreign exchange rates relative to the U.S. Dollar could continue to result in significant foreign exchange gains and losses related to transactions and charges or benefits to other comprehensive income. Our ability to adjust the foreign currency selling prices of products in response to changes in exchange rates is limited and may not offset the impact of the changes in exchange rates on the translated value of sales or costs. In addition, if we increase the selling price of our products in local currencies, this could have a negative impact on the demand for our products.

Major customers. While we have historically depended on a few customers for a large percentage of our annual net sales, the composition of this group can change from year to year. Net sales derived from our five largest customers as a percentage of our net sales was 22% for the six months ended June 30, 2020 and 21%, 26% and 28% for the full years 2019, 2018 and 2017, respectively. One of our customers accounted for 8% and 12% of our net sales for the six months ended June 30, 2020 and 2019, respectively. The same customer accounted for 26% and 24% of our net accounts receivable as of June 30, 2020 and December 31, 2019, respectively. We seek to add new customers and to expand our relationships with existing customers. We anticipate that the composition of our significant customers will continue to change. If any of our significant customers substantially reduced their purchases from us, our results would be adversely affected.

Results of Operations for the Three Months Ended June 30, 2020 Compared to the Three Months Ended June 30, 2019

Net sales. Net sales decreased by \$67.4 million, or 18.5%, to \$296.4 million for the three months ended June 30, 2020 from \$363.8 million for the three months ended June 30, 2019. COVID-19 was a primary cause of the decline in revenue in the quarter with reduced sales in Europe, North America and other countries in Asia, most notably Japan, the Republic of Korea and Turkey. In addition to reduced demand due to COVID-19, declines in average selling prices for materials processing products also contributed to the decline in revenue.

The table below sets forth sales by application:

	Three Months Ended June 30,				Change	
	2020		2019			
	(In thousands, except for percentages)					
<u>Sales by Application</u>		% of Total		% of Total		
Materials processing	\$ 271,708	91.7 %	\$ 345,591	95.0 %	\$ (73,883)	(21.4)%
Other applications	24,703	8.3 %	18,178	5.0 %	6,525	35.9 %
Total	\$ 296,411	100.0 %	\$ 363,769	100.0 %	\$ (67,358)	(18.5)%

The table below sets forth sales by type of product and other revenue:

Sales by Product	Three Months Ended June 30,					
	2020		2019		Change	
	(In thousands, except for percentages)					
	% of Total		% of Total			
High Power Continuous Wave ("CW") Lasers	\$ 157,478	53.1 %	\$ 213,411	58.7 %	\$ (55,933)	(26.2)%
Medium Power CW Lasers	10,692	3.6 %	15,415	4.2 %	(4,723)	(30.6)%
Pulsed Lasers	42,577	14.4 %	40,813	11.2 %	1,764	4.3 %
Quasi-Continuous Wave ("QCW") Lasers	13,708	4.6 %	15,967	4.4 %	(2,259)	(14.1)%
Laser and Non-Laser Systems	24,942	8.4 %	39,383	10.8 %	(14,441)	(36.7)%
Other Revenue including Amplifiers, Service, Parts, Accessories and Change in Deferred Revenue	47,014	15.9 %	38,780	10.7 %	8,234	21.2 %
Total	\$ 296,411	100.0 %	\$ 363,769	100.0 %	\$ (67,358)	(18.5)%

Materials processing

Sales for materials processing applications decreased due to lower sales from high power lasers, medium power lasers, QCW lasers, laser and non-laser systems, and other laser products and service, offset by increased revenue from pulsed lasers. Sales for material processing applications were generally negatively affected by the COVID-19 pandemic. Although we benefited from sequential improvement in our China-based business, the effect of COVID-19 reduced sales in Europe, North America and other countries in Asia, most notably Japan, the Republic of Korea and Turkey during the quarter ended June 30, 2020. Although we believe that COVID-19 was a primary cause of the decline in revenue in the quarter, we also continue to experience declines in average selling prices due to competition, particularly for high power laser products in China.

- The decline in high power lasers related to the decrease in sales of lasers used for metal cutting and welding. Within cutting applications, decreased sales were attributable to a weaker global demand environment primarily in N. America and Europe and continued competition affecting average selling prices. Part of the decline in average selling prices for high power lasers is due to the adoption of more compact or rack mounted "YLR" series lasers, which are displacing 1 to 3 kilowatt "YLS" series lasers that are larger and cannot be rack mounted. These more compact YLR lasers are less expensive to manufacture and are sold at prices lower than the YLS series lasers they are displacing. The decrease in sales of high power lasers used in welding applications was driven by lower sales into general manufacturing industries.
- The decrease in medium power sales related to ongoing transition to kilowatt scale cutting lasers and decreased demand in laser sintering for metal-based additive manufacturing.
- The increase in pulsed laser sales was due to growth in sales of high power pulsed lasers used for ablative and battery processing applications, partially offset by decreased demand of pulsed lasers used for marking and engraving applications.
- QCW laser sales decreased due to lower demand for fine processing and consumer electronics applications.
- The decrease in laser and non-laser systems sales was due to lower demand of non-laser systems in the transportation and aerospace sectors.
- Other Revenue for materials processing decreased due to lower demand of parts and service.

Other applications

Sales from other applications increased due to higher demand for lasers used for medical procedures, government applications, and semiconductor applications .

Cost of sales and gross margin. Cost of Sales decreased by \$23.5 million, or 12.8%, to \$160.0 million for the three months ended June 30, 2020 from \$183.5 million for the three months ended June 30, 2019. Our gross margin decreased to 46.0% for the three months ended June 30, 2020 from 49.5% for the three months ended June 30, 2019. Gross margin decreased mainly due an increase in unabsorbed manufacturing expense as a percentage of revenue in the second quarter of 2020 versus the year ago period.

Sales and marketing expense. Sales and marketing expense decreased by \$3.4 million, or 16.4%, to \$17.3 million for the three months ended June 30, 2020 compared with \$20.7 million for the three months ended June 30, 2019. This change was primarily a result of decreases in personnel, travel, trade fair and exhibits and demo unit depreciation. As a percentage of sales, sales and marketing expense increased to 5.8% for the three months ended June 30, 2020 from 5.7% for the three months ended June 30, 2019.

Research and development expense. Research and development expense decreased by \$3.3 million, or 9.5%, to \$31.6 million for the three months ended June 30, 2020, compared to \$34.9 million for the three months ended June 30, 2019. This change was primarily a result of decreases in R&D materials, personnel and travel. Research and development continues to focus on developing new products, enhancing performance of existing components, improving production processes and developing manufacturing of new components such as crystals and refining production processes to improve manufacturing yields and productivity. New products include lasers that operate at different wavelengths such as UV, visible and mid-IR, lasers with ultrafast pulses, laser based systems for material processing, projection, display and medical as well as accessories such as welding and cutting heads. In addition to new products, research and development is focused on enhancing the performance of our existing products by improving their electrical efficiency, increasing their average power and making them more compact. As a percentage of sales, research and development expense increased to 10.7% for the three months ended June 30, 2020 from 9.6% for the three months ended June 30, 2019, mainly due to the decrease in sales.

General and administrative expense. General and administrative expense decreased by \$2.1 million, or 7.4%, to \$26.4 million for the three months ended June 30, 2020 from \$28.5 million for the three months ended June 30, 2019. This change was primarily a result of decreases in personnel, bad debt expense, travel, legal and recruitment, partially offset by increases in insurance and information systems. As a percentage of sales, general and administrative expense increased to 8.9% for the three months ended June 30, 2020 from 7.8% for the three months ended June 30, 2019, mainly due to the decrease in sales.

Impairment of long-lived assets and other restructuring charges. We incurred impairment of long-lived assets and other restructuring charges of \$1.2 million in total for the three months ended June 30, 2020, of which \$0.4 million related to severance and \$0.1 million related to lease termination costs as part of restructuring of our submarine network division. We also incurred \$0.7 million of non-cash long-lived impairments related to machinery and equipment.

Effect of exchange rates on net sales, gross profit and operating expenses. We estimate that, if exchange rates relative to the U.S. Dollar had been the same as one year ago, which were on average Euro 0.89, Russian Ruble 65, Japanese Yen 110 and Chinese Yuan 6.82, respectively, we would have expected net sales to be \$8.0 million higher, gross profit to be \$4.1 million higher and total operating expenses to be \$1.7 million higher.

Loss (gain) on foreign exchange. We incurred a foreign exchange loss of \$12.8 million for the three months ended June 30, 2020 as compared to a \$5.1 million loss for the three months ended June 30, 2019. The foreign exchange loss for the three months ended June 30, 2020 was primarily attributable to the appreciation of the Russian Ruble and Euro as compared to the U.S. Dollar. The foreign exchange loss for the three months ended June 30, 2019 was primarily attributable to the depreciation of the Chinese Yuan, partially offset by gains attributed to the appreciation of the Russian Ruble and Euro as compared to the U.S. Dollar.

Interest income (expense), net. Interest income (expense), net decreased to \$1.9 million of income for the three months ended June 30, 2020 as compared to \$4.1 million of income for the three months ended June 30, 2019. The reduction in interest income, net, is due to holding shorter duration investments to increase liquidity as well as a decrease in yields on shorter duration investments that resulted in lower market interest rates as compared to rates last year.

Provision for income taxes. Provision for income taxes was \$11.1 million (22.5% of pre-tax income) for the three months ended June 30, 2020 compared to \$23.3 million (24.3% of pre-tax income) for the three months ended June 30, 2019. There were net discrete tax benefits of \$3.1 million and \$0.6 million for the three months ended June 30, 2020 and 2019, respectively, primarily related to the tax deductions for equity-based compensation that exceeded compensation expense recognized and an investment credit in Russia related to prior years for which an amended return was filed.

Net income attributable to IPG Photonics Corporation. Net income attributable to IPG Photonics Corporation decreased by \$34.1 million to \$38.2 million for the three months ended June 30, 2020 compared to \$72.3 million for the three months ended June 30, 2019. Net income attributable to IPG Photonics Corporation as a percentage of our net sales decreased by 7.0 percentage points to 12.9% for the three months ended June 30, 2020 from 19.9% for the three months ended June 30, 2019 due to the factors described above.

Results of Operations for the Six Months Ended June 30, 2020 Compared to the Six Months Ended June 30, 2019

Net sales. Net sales decreased by \$133.1 million, or 19.6%, to \$545.7 million for the six months ended June 30, 2020 from \$678.8 million for the six months ended June 30, 2019. COVID-19 was a primary cause of the decline in revenue in the period with reduced sales in China particularly in the first quarter and reduced sales in Europe, North America and other countries in Asia, most notably Japan, the Republic of Korea and Turkey particularly in the second quarter. In addition to reduced demand due to COVID-19, declines in average selling prices for materials processing products also contributed to the decline in revenue.

The table below sets forth sales by application:

	Six Months Ended June 30,						Change
	2020			2019			
	(In thousands, except for percentages)						
<u>Sales by Application</u>	% of Total			% of Total			
Materials processing	\$	489,782	89.8 %	\$	646,676	95.3 %	\$ (156,894) (24.3)%
Other applications		55,871	10.2 %		32,140	4.7 %	23,731 73.8 %
Total	\$	545,653	100.0 %	\$	678,816	100.0 %	\$ (133,163) (19.6)%

The table below sets forth sales by type of product and other revenue:

	Six Months Ended June 30,						
	2020			2019			Change
	(In thousands, except for percentages)						
<u>Sales by Product</u>	% of Total			% of Total			
High Power Continuous Wave ("CW") Lasers	\$	276,794	50.7 %	\$	392,430	57.8 %	\$ (115,636) (29.5)%
Medium Power CW Lasers		21,945	4.0 %		31,013	4.6 %	(9,068) (29.2)%
Pulsed Lasers		74,416	13.6 %		72,250	10.6 %	2,166 3.0 %
Quasi-Continuous Wave ("QCW") Lasers		23,581	4.3 %		30,133	4.4 %	(6,552) (21.7)%
Laser and Non-Laser Systems		43,576	8.0 %		72,014	10.6 %	(28,438) (39.5)%
Other Revenue including Amplifiers, Service, Parts, Accessories and Change in Deferred Revenue		105,341	19.4 %		80,976	12.0 %	24,365 30.1 %
Total	\$	545,653	100.0 %	\$	678,816	100.0 %	\$ (133,163) (19.6)%

Materials processing

Sales for materials processing applications decreased due to lower sales of high power lasers, laser and non-laser systems, medium power lasers, QCW lasers, and other laser products and services, partially offset by increased sales in pulsed lasers.

- The decline in high power lasers related to the decrease in sales of lasers used for metal cutting and welding. Within cutting applications, decreased sales were attributable to a weaker global demand and continued competition affecting average selling prices. Part of the decline in average selling prices for high power lasers is due to the adoption of more compact or rack mounted "YLR" series lasers which are displacing 1 to 3 kilowatt "YLS" series lasers which are larger and cannot be rack mounted. These more compact YLR lasers are less expensive to manufacture and are sold at prices lower than the YLS series lasers they are displacing. The decrease in sales of high power lasers used in welding applications was driven by lower sales into general manufacturing industries.
- The decrease in medium power sales related to ongoing transition to kilowatt scale cutting lasers and decreased demand in laser sintering for metal-based additive manufacturing.
- The increase in pulsed laser sales was due to growth in sales of high power pulsed lasers used for ablative and battery processing applications, partially offset by decreased demand of pulsed lasers used for marking and engraving applications.
- QCW laser sales decreased due to lower demand for fine processing and consumer electronics applications.

- The decrease in laser and non-laser systems sales was due to lower demand of both laser and non-laser systems. The reduction of revenue in laser systems was attributable to lower demand for laser systems used for cutting and welding applications. The reduction of revenue in non-laser systems was attributable to lower demand in the transportation and aerospace sectors.
- Other Revenue for materials processing decreased due to lower demand of parts and service.

Other Applications

Sales from other applications increased due to increased demand for lasers used for medical procedures, government applications, and semiconductor applications, partially offset by lower sales of telecom products.

Cost of sales and gross margin. Cost of sales decreased by \$43.4 million, or 12.4%, to \$306.3 million for the six months ended June 30, 2020 from \$349.7 million for the six months ended June 30, 2019. Our gross margin decreased to 43.9% for the six months ended June 30, 2020 from 48.5% for the six months ended June 30, 2019. Gross margin decreased mainly due an increase in unabsorbed manufacturing costs and a decrease in average selling prices compared to the six months ended June 30, 2019.

Sales and marketing expense. Sales and marketing expense decreased by \$3.9 million, or 9.8%, to \$36.0 million for the six months ended June 30, 2020 from \$39.9 million for the six months ended June 30, 2019, primarily as a result of decreases in expenses related to personnel, travel, trade fairs and exhibits and marketing. As a percentage of sales, sales and marketing expense increased to 6.6% of sales for the six months ended June 30, 2020 from 5.9% for the six months ended June 30, 2019, mainly due to the decrease in sales.

Research and development expense. Research and development expense decreased by \$4.0 million, or 5.9%, to \$63.4 million for the six months ended June 30, 2020, compared to \$67.4 million for the six months ended June 30, 2019, primarily as a result of a decrease in expenses related to materials used for research and development projects, personnel, consultants, travel and training. Research and development continues to focus on developing new products, enhancing performance of existing components, improving production processes and developing manufacturing of new components such as crystals and refining production processes to improve manufacturing yields and productivity. New products include lasers that operate at different wavelengths such as UV, visible and mid-IR, lasers with ultrafast pulses, laser based systems for material processing, projection, display and medical as well as accessories such as welding and cutting heads. In addition to new products, research and development is focused on enhancing the performance of our existing products by improving their electrical efficiency and increasing their average power. As a percentage of sales, research and development expense increased to 11.6% for the six months ended June 30, 2020 from 9.9% for the six months ended June 30, 2019, mainly due to the decrease in sales.

General and administrative expense. General and administrative expense decreased by \$2.3 million, or 4.1%, to \$53.5 million for the six months ended June 30, 2020 from \$55.8 million for the six months ended June 30, 2019, primarily as a result of decreases in expenses for bad debt, travel, legal, personnel, recruitment and consultants, partially offset by increases in insurance, depreciation, and information systems. As a percentage of sales, general and administrative expense increased to 9.8% for the six months ended June 30, 2020 from 8.2% for the six months ended June 30, 2019, mainly due to the decrease in sales.

Impairment of long-lived assets and other restructuring charges. We incurred impairment of long-lived assets and other restructuring charges of \$1.2 million in total for the six months ended June 30, 2020, of which \$0.4 million related to severance and \$0.1 million related to lease termination costs as part of restructuring of our submarine network division. We also incurred \$0.7 million of non-cash long-lived impairments related to machinery and equipment.

Effect of exchange rates on net sales, gross profit and operating expenses. We estimate that, if exchange rates relative to the U.S. Dollar had been the same as one year ago, which were on average Euro 0.89, Russian Ruble 65, Japanese Yen 110 and Chinese Yuan 6.79, respectively, we would have expected net sales for the six months ended June 30, 2020 to be \$13.4 million higher, gross profit to be \$6.7 million higher and total operating expenses would have been \$2.5 million higher.

(Gain) loss on foreign exchange. We incurred a foreign exchange gain of \$6.8 million for the six months ended June 30, 2020 as compared to a loss of \$6.7 million for the six months ended June 30, 2019. The gain for the six months ended June 30, 2020 was primarily attributable to depreciation of the Russian Ruble, partially offset by the depreciation of the Chinese Yuan as compared to the U.S. Dollar. The loss for the six months ended June 30, 2019 was primarily attributable to the appreciation of the Russian Ruble and depreciation of the Chinese Yuan as compared to the U.S. Dollar.

Interest income (expense), net. Interest income (expense), net, decreased to \$4.9 million of income for the six months ended June 30, 2020 as compared to \$8.0 million of income for the six months ended June 30, 2019. The reduction in interest

income, net, is due to holding shorter duration investments to increase liquidity as well as a decrease in yields on shorter duration investments that resulted in lower market interest rates as compared to rates last year.

Provision for income taxes. Provision for income taxes was \$22.4 million for the six months ended June 30, 2020 compared to \$40.6 million for the six months ended June 30, 2019, representing an effective tax rate of 23.0% and 24.2% for the six months ended June 30, 2020 and 2019, respectively. For the six months ended June 30, 2020 and 2019, the net discrete tax benefits were \$5.9 million and \$2.9 million, respectively, primarily related to the tax deductions for equity-based compensation that exceeded compensation expense recognized and for an investment credit in Russia related to prior years for which an amended return was filed during the six months ended June 30, 2020.

Net income attributable to IPG Photonics Corporation. Net income attributable to IPG Photonics Corporation decreased by \$52.8 million to \$74.6 million for the six months ended June 30, 2020 compared to \$127.4 million for the six months ended June 30, 2019. Net income attributable to IPG Photonics Corporation as a percentage of our net sales decreased by 5.1 percentage points to 13.7% for the six months ended June 30, 2020 from 18.8% for the six months ended June 30, 2019 due to the factors described above.

Liquidity and Capital Resources

The following table presents our principal sources of liquidity:

	June 30, 2020	December 31, 2019
	(In thousands)	
Cash and cash equivalents	\$ 747,859	\$ 680,070
Short-term investments	501,040	502,546
Unused credit lines and overdraft facilities	129,909	105,469
Working capital (excluding cash, cash equivalents, restricted cash and short-term investments)	506,341	522,114

Short-term investments at June 30, 2020, consist of liquid investments including corporate notes, commercial paper and certificates of deposit with original maturities of greater than three months but less than one year. We also hold long-term investments, included in other assets on the condensed consolidated balance sheets, which consist of auction rate securities totaling \$0.6 million. See Note 5, "Fair Value Measurements" in the notes to the condensed consolidated financial statements for further information about our short and long-term investments.

The COVID-19 pandemic is likely to reduce cash generated from operations as compared to previous levels due to a decrease in net income and because we may choose not to or be able to reduce working capital. Investment in working capital might need to be maintained or increased due to a need to maintain a higher level of inventory because of supply chain disruptions and an increase in accounts receivable days if customers delay payments. In addition, cash from operations could be affected by various risks and uncertainties, including, but not limited to, the effects of the COVID-19 pandemic and other risks detailed in Item 8.01 of the Current Report on Form 8-K filed with the SEC on May 5, 2020 and "Management's Discussion and Analysis - Factors and Trends that Affect our Operations and Financial Results" in this Quarterly Report on Form 10-Q. Although we expect the COVID pandemic to adversely affect our cash flow from operations, we believe that our existing cash, cash equivalents and investment balances, anticipated cash flows from operations and available credit facilities will be sufficient to meet our working capital and operating resource expenditure requirements for the next twelve months. We also expect to continue investments in capital expenditures, to assess acquisition opportunities and to repurchase shares of our stock in accordance with our repurchase program, although the extent and timing of such expenditures may be adjusted in response to the impact of COVID-19 on our operations, cash flow and other factors. Our future long-term capital requirements will depend on many factors including our level of sales, the impact of the economic environment on our growth, global or regional recessions, the timing and extent of spending to support development efforts, expansion of the global sales and marketing activities, government regulation including trade sanctions, the timing and introductions of new products, the need to ensure access to adequate manufacturing capacity and the continuing market acceptance of our products.

The following table details our line-of-credit facilities and long-term notes as of June 30, 2020:

Description	Total Facility/ Note	Interest Rate	Maturity	Security
U.S. Revolving Line of Credit ⁽¹⁾	\$75.0 million	LIBOR plus 0.80% to 1.20%, depending on our performance	April 2025	Unsecured
Euro Credit Facility (Germany) ⁽²⁾	Euro 50.0 million (\$56.1 million)	Euribor plus 0.75% or EONIA plus 1.00%	July 2023	Unsecured, guaranteed by parent company and German subsidiary
Other Euro Facility ⁽³⁾	Euro 2.0 million (\$2.2 million)	Euribor plus 0.89% to 1.78%	September 2020	Common pool of assets of Italian subsidiary
Long-term Secured Note ⁽⁴⁾	\$20.8 million	Fixed at 2.74%	July 2022	Secured by the corporate aircraft
Long-term Unsecured Note ⁽⁵⁾	\$19.0 million	1.20% above LIBOR, fixed using an interest rate swap at 2.85% per annum	May 2023	Unsecured

⁽¹⁾ This facility is available to certain foreign subsidiaries in their respective local currencies. At June 30, 2020, there were no amounts drawn on this line; however, there were \$1.2 million of guarantees issued against the line which reduces total availability.

⁽²⁾ This facility is also available to certain foreign subsidiaries in their respective local currencies. At June 30, 2020, there were no drawings on this facility; however, there were \$2.3 million of guarantees issued against the line which reduces total availability.

⁽³⁾ At June 30, 2020, there were no drawings. This facility renews annually.

⁽⁴⁾ At maturity, the outstanding note balance will be \$15.4 million.

⁽⁵⁾ At maturity, the outstanding note balance will be \$15.4 million.

Our largest committed credit lines are with Bank of America N.A. and Deutsche Bank AG in the amounts of \$75.0 million and \$56.1 million (or 50.0 million Euro as described above), respectively, and neither of them is syndicated. On April 22, 2020, we amended the Euro credit facility with Deutsche Bank AG, extending its maturity through July 31, 2023. We plan to seek amendments of our credit agreements and notes to modify LIBOR and Euribor reference rates as these rates are phased out as borrowing rates.

We are required to meet certain financial covenants associated with our U.S. revolving line of credit and long-term debt facility. These covenants, tested quarterly, include an interest coverage ratio and a funded debt to earnings before interest, taxes, depreciation and amortization ("EBITDA") ratio. The interest coverage covenant requires that we maintain a trailing twelve-month ratio of EBITDA to interest on all obligations that is at least 3.0:1.0. The funded debt to EBITDA covenant requires that the sum of all indebtedness for borrowed money on a consolidated basis be less than three times our trailing twelve months EBITDA. Funded debt is decreased by our cash and available marketable securities not classified as long-term investments in the U.S.A. in excess of \$50 million up to a maximum of \$500 million. We were in compliance with all such financial covenants as of and for the three months ended June 30, 2020.

The financial covenants in our loan documents may cause us to not make or to delay investments and actions that we might otherwise undertake because of limits on capital expenditures and amounts that we can borrow or lease. In the event that we do not comply with any one of these covenants, we would be in default under the loan agreement or loan agreements, which may result in acceleration of the debt, cross-defaults on other debt or a reduction in available liquidity, any of which could harm our results of operations and financial condition.

See Note 10, "Financing Arrangements" in the notes to the condensed consolidated financial statements for further information about our facilities and term debt.

The following table presents cash flow activities:

	Six Months Ended June 30,	
	2020	2019
	(In thousands)	
Cash provided by operating activities	\$ 130,256	\$ 101,779
Cash used by investing activities	(35,204)	(106,258)
Cash used by financing activities	(23,471)	(4,143)

Operating activities. Net cash provided by operating activities increased by \$28.5 million to \$130.3 million for the six months ended June 30, 2020 from \$101.8 million for the six months ended June 30, 2019. In 2020, net sales and net income decreased by 20% and 41%, respectively. As there were decreases in net sales and net income, cash provided by net income after adding back non-cash charges decreased. This decrease has been offset by a decrease in the amount invested in working capital. Our largest working capital items typically are inventory and accounts receivable. Items such as accounts payable to third parties, prepaid expenses and other current assets and accrued expenses and other liabilities are not as significant as our working capital investment in accounts receivable and inventory because of our vertically integrated structure. Accruals and payables for personnel costs including bonuses and income and other taxes payable are largely dependent on the timing of payments for those items. The increase in cash flow from operating activities in 2020 primarily resulted from an increase in cash provided by accounts receivable, a decrease in cash used by inventory and a decrease in cash used by income and other taxes payable; partially offset by a decrease in cash provided by net income after adding back non-cash charges.

Investing activities. Net cash used in investing activities was \$35.2 million for the six months ended June 30, 2020 as compared to cash used in investing activities of \$106.3 million in 2019. The cash used in investing activities in 2020 related to \$37.4 million of capital expenditures, partially offset by \$1.6 million of net proceeds of short-term investments. The cash used in investing activities in 2019 related to \$86.5 million of capital expenditures, \$15.1 million for acquisition of business and \$5.1 million of net purchases of short-term investments.

We expect to incur approximately \$100 million in capital expenditures, excluding acquisitions, in 2020. Capital expenditures include investments in facilities and equipment to add capacity in selected countries, add redundancy in specialized manufacturing and support our research and development efforts. The timing and extent of any capital expenditures in and between periods can have a significant effect on our cash flow. If we obtain financing for certain projects, our cash expenditures would be reduced in the year of expenditure. Many of the capital expenditure projects that we undertake have long lead times and are difficult to cancel or defer to a later period.

Financing activities. Net cash used in financing activities was \$23.5 million for the six months ended June 30, 2020 as compared to net cash used of \$4.1 million in 2019. The cash used in financing activities in 2020 was related to the purchase of treasury stock of \$28.2 million, \$1.9 million of principal payments on our long-term borrowings and \$1.7 million of payment of a purchase price holdback from a business combination, partially offset by \$8.3 million from the exercise of stock options net of amounts disbursed in relation to shares withheld to cover employee income taxes due upon the vesting and release of restricted stock units. The cash used in financing activities in 2019 was related to the purchase of treasury stock of \$2.3 million and \$1.8 million of principal payments on our long-term borrowings.

Cautionary Statement Regarding Forward-Looking Statements

This Quarterly Report on Form 10-Q contains certain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934, and we intend that such forward-looking statements be subject to the safe harbors created thereby. For this purpose, any statements contained in this Quarterly Report on Form 10-Q except for historical information are forward-looking statements. Without limiting the generality of the foregoing, words such as "may," "will," "expect," "believe," "anticipate," "intend," "could," "estimate," or "continue" or the negative or other variations thereof or comparable terminology are intended to identify forward-looking statements. In addition, any statements that refer to projections of our future financial performance, trends in our businesses, or other characterizations of future events or circumstances are forward-looking statements.

The forward-looking statements included herein are based on current expectations of our management based on available information and involve a number of risks and uncertainties, all of which are difficult or impossible to accurately predict and many of which are beyond our control. As such, our actual results may differ significantly from those expressed in any forward-looking statements. Factors that may cause or contribute to such differences include, but are not limited to, those discussed in more detail in Item 1, "Business" of Part I of the Form 10-K for the year ended December 31, 2019 (the "Annual Report") and in the Current Report on Form 8-K, filed on May 5, 2020, with the SEC (the "May 5 Current Report"). Readers should carefully review these risks, as well as the additional risks described in other documents we file from time to time with the Securities and

Exchange Commission. In light of the significant risks and uncertainties inherent in the forward-looking information included herein, the inclusion of such information should not be regarded as a representation by us or any other person that such results will be achieved, and readers are cautioned not to rely on such forward-looking information. We undertake no obligation to revise the forward-looking statements contained herein to reflect events or circumstances after the date hereof or to reflect the occurrence of unanticipated events.

Recent Accounting Pronouncements

See Note 2 in the Notes to Condensed Consolidated Financial Statements for a full description of recent accounting pronouncements, including the respective dates of adoption or expected adoption and effects on our condensed consolidated financial statements contained in Item 1 of this Quarterly Report.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We are exposed to market risk in the ordinary course of business, which consists primarily of interest rate risk associated with our cash and cash equivalents and our debt and foreign exchange rate risk.

Interest rate risk . Certain interest rates are variable and fluctuate with current market conditions. Our investments have limited exposure to market risk. We maintain a portfolio of cash, cash equivalents and short-term investments consisting primarily of bank deposits, money market funds, certificates of deposit, commercial paper, corporate bonds and government and agency securities. None of these investments have a maturity date in excess of one year. Because of the short-term nature of these instruments, a sudden change in market interest rates would not be expected to have a material impact on our financial condition or results of operations. We also have long-term investments in auction rate securities with maturities greater than 5 years. Given the modest amount of our long-term investments of \$0.6 million and the fact that we expect to hold these investments to maturity, we do not believe that a 10% change in market interest rates would have a material impact on our financial position or results of operations.

We are also exposed to market risk as a result of increases or decreases in the amount of interest expense we must pay on our bank debt and borrowings on our bank credit facilities. Our interest obligations on our long-term debt are fixed either by the underlying agreement or by means of an interest rate swap agreement. Although our U.S. revolving line of credit and our Euro credit facility have variable rates, we do not believe that a 10% change in market interest rates would have a material impact on our financial position or results of operations.

Exchange rates. Due to our international operations, a significant portion of our net sales, cost of sales and operating expenses are denominated in currencies other than the U.S. Dollar, principally the Euro, the Russian Ruble, the Chinese Yuan and the Japanese Yen. As a result, our international operations give rise to transactional market risk associated with exchange rate movements of the U.S. Dollar, the Euro, the Russian Ruble, the Chinese Yuan and the Japanese Yen. The COVID-19 pandemic and related impact on global oil markets caused a significant depreciation in the Russian Ruble during the quarter ended March 31, 2020. As our Russian subsidiary has net U.S. dollar denominated assets, the depreciation of the Russian Ruble created a foreign exchange gain. During the quarter ended June 30, 2020, the Russian Ruble appreciated against the U.S. Dollar, on news of stabilizing global oil markets, reversing most of the foreign exchange gains created during the quarter ended March 31, 2020. The loss on foreign exchange transactions totaled \$12.8 million for the three months ended June 30, 2020 compared to a loss of \$5.1 million for the three months ended June 30, 2019. Management attempts to minimize these exposures by partially or fully off-setting foreign currency denominated assets and liabilities at our subsidiaries that operate in different functional currencies. The effectiveness of this strategy can be limited by the volume of underlying transactions at various subsidiaries and by our ability to accelerate or delay inter-company cash settlements. As a result, we are unable to create a perfect offset of the foreign currency denominated assets and liabilities. At June 30, 2020, our material foreign currency exposure is net U.S. Dollar denominated assets at subsidiaries where the Euro or the Russian Ruble is the functional currency and U.S. Dollar denominated liabilities where the Chinese Yuan is the functional currency. The U.S. Dollar denominated assets are comprised of cash, third party receivables and inter-company receivables. The U.S. Dollar denominated liabilities are comprised of inter-company payables. A 5% change in the relative exchange rate of the U.S. Dollar to the Euro as of June 30, 2020 applied to the net U.S. Dollar asset balances, would result in a foreign exchange gain of \$8.6 million if the U.S. Dollar appreciated and a \$8.6 million foreign exchange loss if the U.S. Dollar depreciated. A 5% change in the relative exchange rate of the U.S. Dollar to the Russian Ruble as of June 30, 2020 applied to the net U.S. Dollar asset balances, would result in a foreign exchange gain of \$4.6 million if the U.S. Dollar appreciated and a \$4.6 million foreign exchange loss if the U.S. Dollar depreciated. A 5% change in the relative exchange rate of the U.S. Dollar to the Chinese Yuan as of June 30, 2020 applied to the net U.S. Dollar liabilities balances, would result in a foreign exchange loss of \$7.1 million if the U.S. Dollar appreciated and a \$7.1 million foreign exchange gain if the U.S. Dollar depreciated. It is possible that the COVID-19 Pandemic may create additional volatility in exchange rates going forward.

In addition, we are exposed to foreign currency translation risk for those subsidiaries whose functional currency is not the U.S. Dollar as changes in the value of their functional currency relative to the U.S. Dollar can adversely affect the translated amounts of our revenue, expenses, net income, assets and liabilities. This can, in turn, affect the reported value and relative growth of sales and net income from one period to the next. In addition, changes in the translated value of assets and liabilities due to changes in functional currency exchange rates relative to the U.S. Dollar result in foreign currency translation adjustments that are a component of other comprehensive income or loss.

Foreign currency derivative instruments can also be used to hedge exposures and reduce the risks of certain foreign currency transactions; however, these instruments provide only limited protection and can carry significant cost. We have no foreign currency derivative instruments as of June 30, 2020. We will continue to analyze our exposure to currency exchange rate fluctuations and may engage in financial hedging techniques in the future to attempt to minimize the effect of these potential fluctuations. Exchange rate fluctuations may adversely affect our financial results in the future.

ITEM 4. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Under the supervision of our chief executive officer and our chief financial officer, our management has evaluated the effectiveness of the design and operation of our "disclosure controls and procedures" (as defined in Rules 13a-15(e) and 15d-15(e) promulgated under the Securities Exchange Act of 1934, as amended (the "Exchange Act")), as of the end of the period covered by this Quarterly Report on Form 10-Q (the "Evaluation Date"). Based upon that evaluation, our chief executive officer and our chief financial officer have concluded that, as of the Evaluation Date, our disclosure controls and procedures are effective.

Changes in Internal Controls

There was no change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) promulgated under the Exchange Act) that occurred during the last fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting. We have not experienced any material impact to our internal controls over financial reporting despite the fact that most of our non-manufacturing employees are working remotely due to the COVID-19 pandemic. We are continually monitoring and assessing the COVID-19 situation on our internal controls to minimize the impact on their design and operating effectiveness.

PART II—OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

From time to time, we are party to various legal proceedings and other disputes incidental to our business. There have been no material developments to those proceedings reported in our Annual Report on Form 10-K for the year ended December 31, 2019.

ITEM 1A. RISK FACTORS

In addition to the other information in this Quarterly Report on Form 10-Q, you should carefully consider the factors discussed in Item 1A of Part I of our Annual Report on Form 10-K for the year ended December 31, 2019 and in the May 5 Current Report, which could materially and adversely affect our financial condition, results of operations or cash flows, or cause our actual results to differ materially from those projected in any forward-looking statements. We may also face other risks and uncertainties that are not presently known, are not currently believed to be material, or are not identified in our Annual Report or the May 5 Current Report because they are common to all businesses.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

The following table reflects issuer purchases of equity securities for the three months ended June 30, 2020:

	Total Number of Shares (or Units) Purchased		Average Price Paid per Share (or Unit)	Total Number of Shares (or Units) Purchased as Part of Publicly Announced Plans or Programs	Maximum Number (or Approximate Dollar Value) of Shares (or Units) that May Yet Be Purchased Under the Plans or Programs
April 1, 2020 — April 30, 2020	107,673	(2)	\$ 114.46	107,673	\$ 59,227
May 1, 2020 — May 31, 2020	25,590	(1), (2), (3)	135.09	23,696	256,040
June 1, 2020 — June 30, 2020	—		—	—	256,040
Total	133,263		\$ 118.42	131,369	\$ 256,040

- (1) In 2012, our Board of Directors approved "withhold to cover" as a tax payment method for vesting of restricted stock awards for certain employees. Pursuant to the "withhold to cover" method, we withheld from such employees the shares noted in the table above to cover tax withholding related to the vesting of their awards. For the three months ended June 30, 2020 a total of 1,894 shares were withheld at an average price of \$141.01.
- (2) On February 12, 2019, we announced that our Board of Directors authorized the purchase of up to \$125 million of IPG common stock following the completion of our \$125 million repurchase program authorized in July 2018. Under the February 2019 program, we are authorized to repurchase shares of common stock in an amount not to exceed the lesser of (a) the number of shares issued to employees and directors under the Company's various employee and director equity compensation and employee stock purchase plans from January 1, 2019 through December 31, 2020 and (b) \$125 million, exclusive of any fees, commissions or other expenses. We repurchased 131,369 shares in the second quarter of 2020 under the February 2019 authorization.
- (3) On May 5, 2020, we announced that our Board of Directors authorized the purchase of up to \$200 million of IPG common stock. This new authorization is additive to the Company's existing stock repurchase of \$125 million repurchase program authorized in February 2019. Under the May 2020 program, we are authorized to repurchase shares of common stock up to \$200 million, exclusive of any fees, commissions or other expenses. There were no shares purchased in the second quarter of 2020 under the May 2020 authorization.

Share repurchases under both purchase authorizations may be made periodically in open-market transactions using the Company's working capital, and are subject to market conditions, legal requirements and other factors. The share purchase program authorizations do not obligate us to repurchase any dollar amount or number of our shares, and repurchases may be commenced or suspended from time to time without prior notice.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

None.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

ITEM 5. OTHER INFORMATION

None.

ITEM 6. EXHIBITS

(a) Exhibits

Exhibit No.	Description
10.1	First Amendment to Credit Facility Agreement dated April 20, 2020 between IPG Laser GmbH and Deutsche Bank AG (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the Commission on April 23, 2020)
31.1	Certification of Chief Executive Officer pursuant to Rule 13a-14(a)
31.2	Certification of Chief Financial Officer pursuant to Rule 13a-14(a)
32	Certification of Chief Executive Officer and Chief Financial Officer pursuant to Section 1350
101.INS	Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document
101.SCH	XBRL Taxonomy Extension Schema
101.CAL	XBRL Taxonomy Extension Calculation Linkbase
101.LAB	XBRL Taxonomy Extension Label Linkbase
101.PRE	XBRL Taxonomy Extension Presentation Linkbase
101.DEF	XBRL Taxonomy Extension Definition Linkbase
104	Cover Page Interactive Data File (formatted as inline XBRL and contained in Exhibit 101)

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.

IPG PHOTONICS CORPORATION

Date: August 4, 2020

By:

/s/ Valentin P. Gapontsev

Valentin P. Gapontsev
Chairman and Chief Executive Officer
(Principal Executive Officer)

Date: August 4, 2020

By:

/s/ Timothy P.V. Mammen

Timothy P.V. Mammen
Senior Vice President and Chief Financial Officer
(Principal Financial Officer)

Exhibit 31.1

Certification of Chief Executive Officer

Pursuant to Rule 13a – 14(a) or Rule 15d – 14(a) of the Securities Exchange Act of 1934

I, Valentin P. Gapontsev, certify that:

1. I have reviewed this quarterly report on Form 10-Q of IPG Photonics Corporation;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be signed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

- (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
- (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: August 4, 2020

By:

/s/ Valentin P. Gapontsev

Valentin P. Gapontsev

Chairman and Chief Executive Officer (Principal Executive Officer)

Exhibit 31.2

Certification of Chief Financial Officer

Pursuant to Rule 13a – 14(a) or Rule 15d – 14(a) of the Securities Exchange Act of 1934

I, Timothy P.V. Mammen, certify that:

- 1. I have reviewed this quarterly report on Form 10-Q of IPG Photonics Corporation;
- 2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
- 3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
- 4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
- 5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: August 4, 2020

By:

/s/ Timothy P.V. Mammen

Timothy P.V. Mammen

Vice President and Chief Financial Officer (Principal Financial Officer)

**CERTIFICATION 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 filing of the Quarterly Report on Form 10-Q for the fiscal quarter ended June 30, 2020 (the "Report") by IPG Photonics Corporation (the "Company"), Valentin P. Gapontsev, as the Chief Executive Officer of the Company, and Timothy P.V. Mammen, as the Chief Financial Officer of the Company, each hereby certifies pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to the best of his knowledge:

- 1 the Report fully complies with the requirements of Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934; 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: August 4, 2020

/s/ Valentin P. Gapontsev

Valentin P. Gapontsev
Chairman and Chief Executive Officer

/s/ Timothy P.V. Mammen

Timothy P.V. Mammen
Vice President and Chief Financial Officer

A signed original of this written statement required by 18 U.S.C. Section 1350 has been provided to IPG Photonics Corporation and will be retained by IPG Photonics Corporation and furnished to the Securities and Exchange Commission or its staff upon request.