

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

FORM 10-Q

(MARK ONE)

☒ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the quarterly period ended March 31, 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 001-34717

Alpha and Omega Semiconductor Limited

(Exact name of Registrant as Specified in its Charter)

Bermuda
(State or Other Jurisdiction of Incorporation or Organization)

77-0553536
(I.R.S. Employer Identification Number)

**Clarendon House, 2 Church Street
Hamilton HM 11, Bermuda**
(Address of Principal Registered
Offices including Zip Code)
(408) 830-9742
(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 and post such files). Yes ☒ No ☐

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

Large accelerated filer ☐ Accelerated filer ☒ Non-accelerated filer ☐

(Do not check if a smaller reporting company)

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. ☐

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Shares	AOSL	The NASDAQ Global Select Market

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

Number of common shares outstanding as of April 24, 2020: 25,077,932

Alpha and Omega Semiconductor Limited
Form 10-Q
Fiscal Third Quarter Ended March 31, 2020
TABLE OF CONTENTS

	<u>Page</u>
Part I.	<u>FINANCIAL INFORMATION</u>
Item 1.	<u>Financial Statements:</u> <u>1</u>
	<u>Condensed Consolidated Balance Sheets as of March 31, 2020 and June 30, 2019 (Unaudited)</u> <u>1</u>
	<u>Condensed Consolidated Statements of Operations for the Three and Nine Months Ended March 31, 2020 and 2019 (Unaudited)</u> <u>3</u>
	<u>Condensed Consolidated Statements of Comprehensive Income (Loss) for the Three and Nine Months Ended March 31, 2020 and 2019 (Unaudited)</u> <u>4</u>
	<u>Condensed Consolidated Statements of Changes in Equity for the Three and Nine Months Ended March 31, 2020 and 2019 (Unaudited)</u> <u>5</u>
	<u>Condensed Consolidated Statements of Cash Flows for the Nine Months Ended March 31, 2020 and 2019 (Unaudited)</u> <u>7</u>
	<u>Notes to Condensed Consolidated Financial Statements (Unaudited)</u> <u>8</u>
Item 2.	<u>Management's Discussion and Analysis of Financial Condition and Results of Operations</u> <u>33</u>
Item 3.	<u>Quantitative and Qualitative Disclosures About Market Risk</u> <u>47</u>
Item 4.	<u>Controls and Procedures</u> <u>47</u>
Part II.	<u>OTHER INFORMATION</u>
Item 1.	<u>Legal Proceedings</u> <u>48</u>
Item 1A.	<u>Risk Factors</u> <u>48</u>
Item 2.	<u>Unregistered Sales of Equity Securities and Use of Proceeds</u> <u>51</u>
Item 3.	<u>Defaults Upon Senior Securities</u> <u>52</u>
Item 4.	<u>Mine Safety Disclosures</u> <u>52</u>
Item 5.	<u>Other Information</u> <u>52</u>
Item 6.	<u>Exhibits</u> <u>53</u>
	<u>Signatures</u> <u>54</u>

PART I. FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

ALPHA AND OMEGA SEMICONDUCTOR LIMITED **CONDENSED CONSOLIDATED BALANCE SHEETS** (Unaudited, in thousands except par value per share)

	March 31, 2020	June 30, 2019
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 110,223	\$ 121,893
Restricted cash	2,325	364
Accounts receivable, net	17,470	24,296
Inventories	127,395	111,643
Other current assets	34,518	37,102
Total current assets	291,931	295,298
Property, plant and equipment, net	412,318	409,737
Operating lease right-of-use assets, net	32,739	—
Intangible assets, net	16,798	16,882
Deferred income tax assets	4,755	4,822
Restricted cash - long-term	1,973	2,038
Other long-term assets	6,781	10,617
Total assets	\$ 767,295	\$ 739,394
LIABILITIES AND EQUITY		
Current liabilities:		
Accounts payable	\$ 87,973	\$ 94,384
Accrued liabilities	50,572	44,075
Income taxes payable	419	1,541
Short-term debt	32,812	26,609
Finance lease liabilities	15,219	11,355
Operating lease liabilities	3,839	—
Total current liabilities	190,834	177,964
Long-term debt	74,205	59,380
Income taxes payable - long-term	859	993
Deferred income tax liabilities	485	466
Finance lease liabilities - long-term	30,579	43,381
Operating lease liabilities - long-term	30,248	—
Other long-term liabilities	10,356	13,921
Total liabilities	337,566	296,105
Commitments and contingencies (Note 10)		
Equity:		
Preferred shares, par value \$0.002 per share:		
Authorized: 10,000 shares; issued and outstanding: none at March 31, 2020 and June 30, 2019	—	—
Common shares, par value \$0.002 per share:		
Authorized: 100,000 shares; issued and outstanding: 31,715 shares and 25,076 shares, respectively at March 31, 2020 and 31,163 shares and 24,517 shares, respectively at June 30, 2019	63	62
Treasury shares at cost, 6,639 shares at March 31, 2020 and 6,646 shares at June 30, 2019	(66,184)	(66,240)
Additional paid-in capital	242,470	234,410
Accumulated other comprehensive loss	(5,408)	(2,693)
Retained earnings	118,938	125,485

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
CONDENSED CONSOLIDATED BALANCE SHEETS
(Unaudited, in thousands except par value per share)

Total Alpha and Omega Semiconductor Limited shareholder's equity	289,879	291,024
Noncontrolling interest	139,850	152,265
Total equity	429,729	443,289
Total liabilities and equity	\$ 767,295	\$ 739,394

See accompanying notes to these condensed consolidated financial statements.

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(Unaudited, in thousands except per share data)

	Three Months Ended March 31,		Nine Months Ended March 31,	
	2020	2019	2020	2019
Revenue	\$ 106,852	\$ 109,067	\$ 342,514	\$ 339,064
Cost of goods sold	84,393	83,438	268,717	251,322
Gross profit	22,459	25,629	73,797	87,742
Operating expenses				
Research and development	13,569	11,417	38,084	35,401
Selling, general and administrative	16,909	17,947	47,723	58,403
Impairment of privately-held investment	600	—	600	—
Total operating expenses	31,078	29,364	86,407	93,804
Operating loss	(8,619)	(3,735)	(12,610)	(6,062)
Interest expense and other income (loss), net	(2,282)	(1,595)	(3,744)	(4,455)
Loss before income taxes	(10,901)	(5,330)	(16,354)	(10,517)
Income tax expense (benefit)	(1,015)	625	(37)	1,886
Net loss including noncontrolling interest	(9,886)	(5,955)	(16,317)	(12,403)
Net loss attributable to noncontrolling interest	(3,391)	(4,400)	(9,826)	(11,719)
Net loss attributable to Alpha and Omega Semiconductor Limited	\$ (6,495)	\$ (1,555)	\$ (6,491)	\$ (684)
Net loss per common share attributable to Alpha and Omega Semiconductor Limited				
Basic	\$ (0.26)	\$ (0.06)	\$ (0.26)	\$ (0.03)
Diluted	\$ (0.26)	\$ (0.06)	\$ (0.26)	\$ (0.03)
Weighted average number of common shares attributable to Alpha and Omega Semiconductor Limited used to compute net loss per share				
Basic	24,894	24,084	24,711	23,938
Diluted	24,894	24,084	24,711	23,938

See accompanying notes to these condensed consolidated financial statements.

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
(Unaudited, in thousands)

	Three Months Ended March 31,		Nine Months Ended March 31,	
	2020	2019	2020	2019
Net loss including noncontrolling interest	\$ (9,886)	\$ (5,955)	\$ (16,317)	\$ (12,403)
Other comprehensive income, net of tax				
Foreign currency translation adjustment	(2,208)	4,495	(5,304)	(1,800)
Comprehensive loss	(12,094)	(1,460)	(21,621)	(14,203)
Noncontrolling interest	(4,430)	(2,184)	(12,415)	(12,516)
Comprehensive income (loss) attributable to Alpha and Omega Semiconductor Limited	<u>\$ (7,664)</u>	<u>\$ 724</u>	<u>\$ (9,206)</u>	<u>\$ (1,687)</u>

See accompanying notes to these condensed consolidated financial statements.

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
CONDENSED CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY
(Unaudited, in thousands)

	Common Shares	Treasury Stock	Additional Paid-In Capital	Accumulated Other Comprehensive Loss	Retained Earnings	Total AOS Shareholders' Equity	Noncontrolling Interest	Total Equity
Balance, December 31, 2019	\$ 63	\$ (66,227)	\$ 240,797	\$ (4,239)	\$ 125,476	\$ 295,870	\$ 144,280	\$ 440,150
Reissuance of treasury stock upon exercise of common stock options and release of restricted stock units	—	43	—	—	(43)	—	—	—
Withholding tax on restricted stock units	—	—	(1,203)	—	—	(1,203)	—	(1,203)
Share-based compensation	—	—	2,876	—	—	2,876	—	2,876
Net loss	—	—	—	—	(6,495)	(6,495)	(3,391)	(9,886)
Cumulative translation adjustment	—	—	—	(1,169)	—	(1,169)	(1,039)	(2,208)
Balance, March 31, 2020	\$ 63	\$ (66,184)	\$ 242,470	\$ (5,408)	\$ 118,938	\$ 289,879	\$ 139,850	\$ 429,729

	Common Shares	Treasury Stock	Additional Paid-In Capital	Accumulated Other Comprehensive Loss	Retained Earnings	Total AOS Shareholders' Equity	Noncontrolling Interest	Total Equity
Balance, June 30, 2019	\$ 62	\$ (66,240)	\$ 234,410	\$ (2,693)	\$ 125,485	\$ 291,024	\$ 152,265	\$ 443,289
Exercise of common stock options and release of RSUs	—	—	26	—	—	26	—	26
Reissuance of treasury stock upon exercise of common stock options and release of restricted stock units	—	56	—	—	(56)	—	—	—
Withholding tax on restricted stock units	—	—	(1,398)	—	—	(1,398)	—	(1,398)
Issuance of shares under ESPP	1	—	1,700	—	—	1,701	—	1,701
Share-based compensation	—	—	7,732	—	—	7,732	—	7,732
Net loss	—	—	—	—	(6,491)	(6,491)	(9,826)	(16,317)
Cumulative translation adjustment	—	—	—	(2,715)	—	(2,715)	(2,589)	(5,304)
Balance, March 31, 2020	\$ 63	\$ (66,184)	\$ 242,470	\$ (5,408)	\$ 118,938	\$ 289,879	\$ 139,850	\$ 429,729

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
CONDENSED CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY
(Unaudited, in thousands)

	Common Shares	Treasury Stock	Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Retained Earnings	Total AOS Shareholders' Equity	Noncontrolling Interest	Total Equity
Balance, December 31, 2018	\$ 61	\$ (66,283)	\$ 227,818	\$ (2,842)	\$ 124,538	\$ 283,292	\$ 161,236	\$ 444,528
Exercise of common stock options and release of RSUs	1	—	(1)	—	—	—	—	—
Reissuance of treasury stock upon exercise of common stock options and release of RSUs	—	43	—	—	(43)	—	—	—
Withholding tax on restricted stock units	—	—	(1,743)	—	—	(1,743)	—	(1,743)
Share-based compensation	—	—	4,160	—	—	4,160	—	4,160
Net loss	—	—	—	—	(1,555)	(1,555)	(4,400)	(5,955)
Cumulative translation adjustment	—	—	—	2,279	—	2,279	2,216	4,495
Balance, March 31, 2019	<u>\$ 62</u>	<u>\$ (66,240)</u>	<u>\$ 230,234</u>	<u>\$ (563)</u>	<u>\$ 122,940</u>	<u>\$ 286,433</u>	<u>\$ 159,052</u>	<u>\$ 445,485</u>

	Common Shares	Treasury Stock	Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Retained Earnings	Total AOS Shareholders' Equity	Noncontrolling Interest	Total Equity
Balance, June 30, 2018	\$ 61	\$ (64,790)	\$ 220,244	\$ 440	\$ 122,639	\$ 278,594	\$ 147,568	\$ 426,162
Exercise of common stock options and release of restricted stock units	1	—	109	—	—	110	—	110
Reissuance of treasury stock upon exercise of common stock options and release of restricted stock units	—	51	—	—	(51)	—	—	—
Withholding tax on restricted stock units	—	—	(1,946)	—	—	(1,946)	—	(1,946)
Issuance of shares under ESPP	—	—	1,168	—	—	1,168	—	1,168
Repurchase of common shares under shares repurchase program	—	(1,501)	—	—	—	(1,501)	—	(1,501)
Share-based compensation	—	—	10,659	—	—	10,659	—	10,659
Net loss	—	—	—	—	(684)	(684)	(11,719)	(12,403)
Impact on retained earnings related to ASC 606 adoption	—	—	—	—	1,036	1,036	—	1,036
Cumulative translation adjustment	—	—	—	(1,003)	—	(1,003)	(797)	(1,800)
Contributions from noncontrolling interest	—	—	—	—	—	—	24,000	24,000
Balance, March 31, 2019	<u>\$ 62</u>	<u>\$ (66,240)</u>	<u>\$ 230,234</u>	<u>\$ (563)</u>	<u>\$ 122,940</u>	<u>\$ 286,433</u>	<u>\$ 159,052</u>	<u>\$ 445,485</u>

See accompanying notes to these condensed consolidated financial statements.

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited, in thousands)

	Nine Months Ended March 31,	
	2020	2019
Cash flows from operating activities		
Net loss including noncontrolling interest	\$ (16,317)	\$ (12,403)
Adjustments to reconcile net loss to net cash provided by operating activities:		
Depreciation and amortization	33,538	24,159
Share-based compensation expense	7,732	10,659
Deferred income taxes, net	85	252
Gain on disposal of property and equipment	(206)	(8)
Impairment of privately-held investment	600	—
Changes in assets and liabilities:		
Accounts receivable, net	6,826	5,122
Inventories	(14,660)	(17,748)
Other current and long-term assets	2,715	(2,399)
Accounts payable	(3,366)	6,039
Income taxes payable	(1,256)	(245)
Accrued and other liabilities	6,332	9,728
Net cash provided by operating activities	22,023	23,156
Cash flows from investing activities		
Purchases of property and equipment excluding JV Company	(33,417)	(31,402)
Purchases of property and equipment in JV Company	(15,787)	(58,509)
Purchase of intangible assets	—	(405)
Proceeds from sale of property and equipment	295	21
Government grant related to equipment in JV Company	1,254	—
Net cash used in investing activities	(47,655)	(90,295)
Cash flows from financing activities		
Proceeds from investment by noncontrolling interest	—	24,000
Withholding tax on restricted stock units	(1,398)	(1,946)
Proceeds from exercise of stock options and ESPP	1,727	1,278
Payment for repurchases of common shares	—	(1,501)
Proceeds from borrowings	49,146	67,479
Repayments of borrowings	(25,768)	(9,393)
Principal payments on finance leases	(7,213)	(2,440)
Net cash provided by financing activities	16,494	77,477
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(636)	(573)
Net increase (decrease) in cash, cash equivalents and restricted cash	(9,774)	9,765
Cash, cash equivalents and restricted cash at beginning of period	124,295	131,724
Cash, cash equivalents and restricted cash at end of period	\$ 114,521	\$ 141,489
Supplemental disclosures of non-cash investing and financing information:		
Property and equipment purchased but not yet paid (fiscal year 2019 amount is presented as revised, see Note 1)	\$ 15,911	\$ 32,738

See accompanying notes to these condensed consolidated financial statements.

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

1. The Company and Significant Accounting Policies

The Company

Alpha and Omega Semiconductor Limited and its subsidiaries (the “Company”, “AOS”, “we” or “us”) design, develop and supply a broad range of power semiconductors. The Company's portfolio of products targets high-volume applications, including personal computers, flat panel TVs, LED lighting, smart phones, battery packs, quick chargers, home appliances, consumer and industrial motor controls and power supplies for TVs, computers, servers and telecommunications equipment. The Company conducts its operations primarily in the United States of America (“USA”), Hong Kong, China, and South Korea.

Basis of Preparation

The accompanying unaudited condensed consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States (“U.S. GAAP”) for interim financial information and with the instructions to Article 10 of Securities and Exchange Commission Regulation S-X, as amended. They do not include all information and footnotes necessary for a fair presentation of financial position, results of operations and cash flows in conformity with U.S. GAAP for complete financial statements. These condensed consolidated financial statements should be read in conjunction with the consolidated financial statements and related notes contained in the Company's Annual Report on Form 10-K for the fiscal year ended June 30, 2019. All significant intercompany balances and transactions have been eliminated in consolidation. In the opinion of management, all adjustments (consisting of normal recurring adjustments and accruals) considered necessary for a fair presentation of the results of operations for the periods presented have been included in the interim periods. Operating results for the nine months ended March 31, 2020 are not necessarily indicative of the results that may be expected for the fiscal year ending June 30, 2020 or any other interim period. The condensed consolidated balance sheet at June 30, 2019 is derived from the audited financial statements included in the Company's Annual Report on Form 10-K for the fiscal year ended June 30, 2019.

During the nine months ended March 31, 2020, the Company corrected the corresponding amount for the nine months ended March 31, 2019 of property and equipment purchased but not yet paid in the supplemental disclosures of non-cash investing and financing information by decreasing the amount by \$18.1 million from \$50.8 million to \$32.7 million. This disclosure change had no effect on the consolidated statements of operations and cash flows for the nine months ended March 31, 2019. In addition, the Company recorded the out-of-period adjustments for its headquarters' lease renewal. See Note 6, Leases, for details. The impact of the adjustments on the previously issued consolidated financial statements was insignificant.

Certain Significant Risks and Uncertainties Related to Outbreak of Coronavirus Disease 2019 (“COVID-19”)

The Company operates in a dynamic industry and, accordingly, can be affected by a variety of factors. For example, any of the following areas could have a negative effect on the Company in terms of its future financial position, results of operations or cash flows: the general state of the U.S., China and world economies; the highly cyclical nature of the industries the Company serves; the loss of any of its larger customers; restrictions on the Company's ability to sell to foreign customers due to trade laws, regulations and requirements; disruptions of the supply chain of components needed for our products; ability to obtain additional financing; inability to meet certain debt covenants; fundamental changes in the technology underlying the Company's products; the hiring, training and retention of key employees; successful and timely completion of product design efforts; and new product design introductions by competitors. On March 11, 2020, the World Health Organization characterized the outbreak of the coronavirus disease known as COVID-19 as a global pandemic and recommended containment and mitigation measures. On March 13, 2020, the United States declared a national emergency concerning the outbreak, and several states and municipalities have declared public health emergencies. Along with these declarations, there have been extraordinary and wide-ranging actions taken by international, federal, state and local public health and governmental authorities to contain and combat the outbreak and spread of COVID-19 in regions across the United States and the world where the Company has operations, including quarantines, and “stay-at-home” orders, closure of all business not deemed “essential”, practice of social distancing when engaging in essential activities and similar mandates for many individuals to substantially restrict daily activities and for many businesses to curtail or cease normal operations. In response to these steps, the Company took proactive, aggressive actions from the earliest signs of the COVID-19 outbreak in China to adopt policies and protocols at its locations around the world, including social distancing guidelines, working from home, limiting the number of employees attending meetings, reducing the number of people in our sites at any one time, and suspending employee

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

(Unaudited)

travel. As the COVID-19 pandemic reached the U.S. and federal and state authorities imposed “stay-at-home” orders, the Company has taken similar proactive and aggressive actions in California, Oregon and Texas where the Company has business activities in order to protect the health and safety of its employees. The Company has considered the economic implications of the COVID-19 pandemic in making critical and significant accounting estimates.

COVID-19 has had a negative impact on business activity across the globe. As a result of COVID-19, the Company has experienced a decline in the demand for its products, as customers reduce orders in response to a slowdown in consumer spending and shifting market trends. The Company expects declining demand in categories such as smartphones, power supply and industrial as business activity decelerates across the globe. These declines might be partially offset by increasing demand in the markets for notebooks, PCs and gaming devices as more consumers are staying and working from home. The extent to which the COVID-19 pandemic may impact the Company's business will depend on future developments which are uncertain and cannot be predicted with confidence, such as the duration of the outbreak, travel restrictions governmental mandates issued to mitigate the spread of the disease, business closures, economic disruptions, and the effectiveness of actions taken to contain and treat the virus. Accordingly, the Covid-19 pandemic may have a negative impact on the Company's sales and results of operations, the size and duration of which is difficult to predict. The Company will continue to actively monitor the situation and may take further actions altering its business operations that the Company determines are in the best interests of its employees, customers, partners, suppliers, and stakeholders, or as required by federal, state, or local authorities.

Leases

On July 1, 2019, the Company adopted Topic 842, Leases, using the modified retrospective method. Results for reporting periods beginning after July 1, 2019 were presented under Topic 842, while prior period amounts were not adjusted and continue to be reported on a historical basis as permitted under Topic 840.

The Company determines if an arrangement is a lease at inception. Operating leases are included in operating lease right-of-use ("ROU") assets, current operating lease liabilities and long-term operating lease liabilities on the Company's condensed consolidated balance sheets. Finance leases are included in property, plant and equipment, finance lease liabilities and long-term finance leases liabilities on the condensed consolidated balance sheets.

The Company elected the practical expedient permitted under the transition guidance, which allowed the Company to carryforward its historical lease classifications, make an assessment on whether a contract was or contains a lease, and determine initial direct costs for any leases that existed prior to July 1, 2019. The Company elected to combine its lease and non-lease components as a single lease component for all asset classes.

Operating lease ROU assets and operating lease liabilities are recognized based on the present value of the future minimum lease payments over the lease term at commencement date. The Company uses an estimate of its incremental borrowing rate based on the information available at the lease commencement date. The operating lease ROU assets also include any lease payments made and exclude lease incentives. Lease terms may include options to extend or terminate the lease when it is reasonably certain that the Company will exercise such options. Operating lease expense is generally recognized on a straight-line basis over the lease term. Variable lease payments are expensed as incurred and are not included within the operating lease ROU asset and lease liability calculation. The Company does not record leases on the condensed consolidated balance sheet with a term of one year or less.

See Note 6 for further details.

Revenue recognition

The Company determines revenue recognition through the following steps: (1) identification of the contract with a customer; (2) identification of the performance obligations in the contract; (3) determination of the transaction price; (4) allocation of the transaction price to the performance obligations in the contract; and (5) recognition of revenue when, or as, a performance obligation is satisfied. The Company recognizes revenue when product is shipped to the customer, net of estimated stock rotation returns and price adjustments to certain distributors.

Packaging and testing services revenue is recognized upon shipment of serviced products to the customer.

Joint Venture

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

(Unaudited)

In March 2016, the Company executed an agreement with two strategic investment funds owned by the Municipality of Chongqing, China (the "Chongqing Funds") to form a joint venture, (the "JV Company"), for a new state-of-the-art power semiconductor packaging, testing and wafer fabrication facility in Liangjiang New Area of Chongqing (the "Joint Venture"). As of March 31, 2020, the Company owns 51%, and the Chongqing Funds own 49% of the equity interest in the JV Company. The Joint Venture is accounted for under the provisions of the consolidation guidance since the Company has a controlling financial interest. The JV Company has continued ramping up its production of assembly and testing during the nine months ended March 31, 2020. In July 2019, we commenced limited mass production at the 12-inch wafer fabrication facility, and continued ramping up production during the nine months ended March 31, 2020.

Use of Estimates

The preparation of the condensed consolidated financial statements in conformity with U.S. GAAP requires the Company to make estimates, judgments and assumptions that affect the reported amounts of assets, liabilities, revenue and expenses. To the extent there are material differences between these estimates and actual results, the Company's condensed consolidated financial statements will be affected. On an ongoing basis, the Company evaluates the estimates, judgments and assumptions including those related to stock rotation returns, price adjustments, allowance for doubtful accounts, inventory reserves, warranty accrual, income taxes, leases, share-based compensation, recoverability of and useful lives for property, plant and equipment and intangible assets, as well as economic implications of the COVID-19 pandemic.

Share-based Compensation Expense

The Company recognizes expense related to share-based compensation awards that are ultimately expected to vest based on estimated fair values on the date of grant. The fair value of restricted share units is based on the market value of the Company's common share on the date of grant. For restricted stock awards subject to market conditions, the fair value of each restricted stock award is estimated at the date of grant using the Monte-Carlo pricing model. The fair value of stock options is estimated on the date of grant using the Black-Scholes option valuation model. Share-based compensation expense is recognized on the accelerated attribution basis, net of estimated forfeitures, over the requisite service period of the award, which generally equals the vesting period.

Restricted Cash

As a condition of the loan agreement, the Company is required to keep a compensating balance at the issuing bank (see Note 5). In addition, the Company maintains restricted cash in connection with cash balances temporarily restricted for regular business operations including the possibility of a dispute with a vendor. These balances have been excluded from the Company's cash and cash equivalents balance and are classified as restricted cash in the Company's consolidated balance sheets. As of March 31, 2020 and June 30, 2019, the amount of restricted cash was \$4.3 million and \$2.4 million, respectively.

Fair Value of Financial Instruments

The fair value of cash equivalents is based on observable market prices which have been categorized in Level 1 in the fair value hierarchy. Cash equivalents consist primarily of short-term bank deposits. The carrying values of financial instruments such as cash and cash equivalents, accounts receivable and accounts payable approximate their carrying values due to their short-term maturities. The carrying value of the company's debt is considered a reasonable estimate of fair value which is estimated by considering the current rates available to the Company for debt of the same remaining maturities, structure and terms of the debts.

Impairment of Privately-held Investment

During fiscal year 2017, the Company purchased shares of common stock in a privately-held company at a total investment cost of \$0.6 million. The Company made the investment because it viewed the privately-held company as having strategic technology and a business that would complement the Company's technological capabilities and help create an opportunity for the Company to sell its products. The Company accounted for the investment on a cost basis. During the quarter ended March 31, 2020, the Company recorded an impairment charge of \$0.6 million in connection with this investment as the Company concluded the impairment to be other-than-temporary.

ALPHA AND OMEGA SEMICONDUCTOR LIMITED

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

(Unaudited)

Government Grants

The Company occasionally receives government grants that provide financial assistance for certain eligible expenditures in China. These grants include tax credits, credit for property, plant and equipment in a particular geographical location, employment credits, research and development credits, as well as business expansion credits. Government grants are not recognized until there is reasonable assurance that the Company will comply with the conditions attaching to it, and that the grant will be received. The Company records such grants either as a reduction of the related expense or a reduction of the cost of the related asset, or as other income.

During the three and nine months ended March 31, 2020, the Company reduced interest expense by \$0.7 million and \$4.1 million, property, plant and equipment by \$0 and \$1.3 million, and operating expenses by \$1.8 million and \$2.0 million, respectively. During the three and nine months ended March 31, 2019, the Company reduced interest expense by \$0.1 million each.

Long-lived Assets

The Company evaluates its long-lived assets for impairment whenever events or changes indicate that the carrying amount of such assets may not be recoverable. Due to the COVID-19 pandemic, the Company assessed the changes in circumstances that occurred during the March 2020 quarter. These factors included continued operating losses, a decrease in the Company's share price in February and March of 2020, which reduced its market capitalization, expectation of lower business growth for the coming quarters, increased and prolonged economic and regulatory uncertainty in the global economies, and the expectation of higher supply chain costs and increased competition. Therefore, the Company performed a recoverability test by comparing the sum of the estimated undiscounted future cash flows of its long-lived assets to their carrying amount as of March 31 2020. Some of the more significant assumptions used in the estimated future cash flows include net sales, cost of goods sold, operating expenses, working capital, capital expenditures, income tax rates, and long-term growth rates that appropriately reflects the risks inherent in the future cash flow stream. The Company selected the assumptions used in the financial forecasts by referencing to historical data, supplemented by current and anticipated market conditions, estimated product growth rates and management's plans. These estimated future cash flows were consistent with those the Company uses in its internal planning. The result of the recoverability test indicated that the sum of the expected future cash flows (undiscounted and without interest charges) was greater than the carrying amount of the long-lived assets. Therefore, the Company concluded that the carrying amount of the long-lived assets is recoverable.

Comprehensive Income (Loss)

Comprehensive income (loss) is defined as the change in equity of a business enterprise during a period from transactions and other events and circumstances from non-owner sources. The Company's accumulated other comprehensive income (loss) consists of cumulative foreign currency translation adjustments. Total comprehensive income (loss) is presented in the condensed consolidated statements of comprehensive income (loss).

Recent Accounting Pronouncements

Recently Issued Accounting Standards not yet adopted

In January 2020, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) No. 2020-01, "Investments - Equity Securities (Topic 321), Investments - Equity Method and Joint Ventures (Topic 323), and Derivatives and Hedging (Topic 815) - Clarifying the Interactions between Topic 321, Topic 323, and Topic 815." The ASU is based on a consensus of the Emerging Issues Task Force and is expected to increase comparability in accounting for these transactions. ASU 2016-01 made targeted improvements to accounting for financial instruments, including providing an entity the ability to measure certain equity securities without a readily determinable fair value at cost, less any impairment, plus or minus changes resulting from observable price changes in orderly transactions for the identical or a similar investment of the same issuer. Among other topics, the amendments clarify that an entity should consider observable transactions that require it to either apply or discontinue the equity method of accounting. For public business entities, the amendments in the ASU are effective for fiscal years beginning after December 15, 2020, and interim periods within those fiscal years. The Company does not expect the adoption of this guidance will have a material impact on its consolidated financial position, results of operations or cash flows.

ALPHA AND OMEGA SEMICONDUCTOR LIMITED

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

(Unaudited)

In December 2019, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) No. 2019-12 "Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes ("ASU 2019-12") by removing certain exceptions to the general principles. The amendments will be effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2020. Early adoption of the amendments is permitted. Depending on the amendment, adoption may be applied on a retrospective, modified retrospective or prospective basis. We are currently evaluating the impacts of adoption of the new guidance to our consolidated financial statements.

In August 2018, the FASB issued ASU 2018-15 "Intangibles - Goodwill and Other - Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract". These amendments align the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software (and hosting arrangements that include an internal-use software license). The accounting for the service element of a hosting arrangement that is a service contract is not affected by these amendments. ASU 2018-15 is effective for annual periods, including interim periods within those annual periods, beginning after December 15, 2019. Early adoption is permitted. The Company is currently assessing the impact that adoption of this guidance will have on its consolidated financial statements.

In August 2018, the FASB issued ASU 2018-13, "Fair Value Measurement (Topic 820): Disclosure Framework-Changes to the Disclosure Requirements for Fair Value Measurement ("ASU 2018-13"). ASU 2018-13 amends existing fair value measurement disclosure requirements by adding, changing, or removing certain disclosures. The amendments on changes in unrealized gains and losses, the range and weighted average of significant unobservable inputs used to develop Level 3 fair value measurements, and the narrative description of measurement uncertainty should be applied prospectively for only the most recent interim or annual period presented in the initial fiscal year of adoption. All other amendments should be applied retrospectively to all periods presented upon their effective date. ASU No. 2018-13 is effective for fiscal years and interim periods within those fiscal years, beginning after December 15, 2019. The Company does not expect the adoption of this guidance will have a material impact on its consolidated financial position, results of operations or cash flows.

In June 2016, the FASB issued ASU 2016-13, "Financial Instruments - Credit Losses ("ASU 2016-13"). This accounting standard update changes the accounting for recognizing impairments of financial assets. Under the update, credit losses for certain types of financial instruments will be estimated based on expected losses. The update also modifies the impairment models for available-for-sale debt securities and for purchased financial assets with credit deterioration since their origination. This update is effective for fiscal years beginning after December 15, 2019, including interim periods within those fiscal years. The Company is currently evaluating the impact of this accounting standard update on its Consolidated Financial Statements.

Recently Adopted Accounting Standards

In February 2016, the FASB issued ASU 2016-02, Leases (Topic 842). This guidance requires a dual approach for lessee accounting under which a lessee accounts for leases as finance leases or operating leases. Both finance and operating leases result in the lessee recognizing a right-of-use asset and a corresponding liability on its balance sheet, with differing methodology for income statement recognition. The Company adopted this standard as of July 1, 2019, using the modified retrospective transition method and recorded a cumulative-effect balance sheet adjustment. As a result of adopting ASU 2016-02 on July 1, 2019, the Company recognized operating lease right-of-use assets and corresponding operating lease liabilities of approximately \$21 million each from existing leases on the Company's condensed consolidated balance sheet. See Note 6 for further details.

In June 2018, the FASB issued ASU 2018-07, "Compensation -Stock Compensation: Improvement to Nonemployees Share-Based Payment Accounting ("ASU 2018-07"), which expands the scope of Topic 718 to include all share-based payment transactions for acquiring goods and services from nonemployees. ASU 2018-07 specifies that Topic 718 applies to all share-based payment transactions in which the grantor acquires goods and services to be used or consumed in its own operations by issuing share-based payment awards. ASU 2018-07 also clarifies that Topic 718 does not apply to share-based payments used to effectively provide (1) financing to the issuer or (2) awards granted in conjunction with selling goods or services to customers as part of a contract accounted for under ASC 606. ASU 2018-07 had no material impact on the Company's consolidated financial statements.

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

2. Net Loss Per Common Share Attributable to Alpha and Omega Semiconductor Limited

The following table presents the calculation of basic and diluted net loss per share attributable to common shareholders:

	Three Months Ended March 31,		Nine Months Ended March 31,	
	2020	2019	2020	2019
(in thousands, except per share data)				
Numerator:				
Net loss attributable to Alpha and Omega Semiconductor Limited	\$ (6,495)	\$ (1,555)	\$ (6,491)	\$ (684)
Denominator:				
Basic:				
Weighted average number of common shares used to compute basic net loss per share	24,894	24,084	24,711	23,938
Diluted:				
Weighted average number of common shares used to compute basic net loss per share	24,894	24,084	24,711	23,938
Effect of potentially dilutive securities:				
Stock options, RSUs and ESPP shares	—	—	—	—
Weighted average number of common shares used to compute diluted net loss per share	24,894	24,084	24,711	23,938
Net loss per share attributable to Alpha and Omega Semiconductor Limited:				
Basic	\$ (0.26)	\$ (0.06)	\$ (0.26)	\$ (0.03)
Diluted	\$ (0.26)	\$ (0.06)	\$ (0.26)	\$ (0.03)

The following potential dilutive securities were excluded from the computation of diluted net loss per share as their effect would have been anti-dilutive:

	Three Months Ended March 31,		Nine Months Ended March 31,	
	2020	2019	2020	2019
	(in thousands)		(in thousands)	
Employee stock options and RSUs	2,038	2,225	2,043	2,220
ESPP	627	891	782	988
Total potential dilutive securities	2,665	3,116	2,825	3,208

ALPHA AND OMEGA SEMICONDUCTOR LIMITED

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

(Unaudited)

3. Concentration of Credit Risk and Significant Customers

The Company manages its credit risk associated with exposure to distributors and direct customers on outstanding accounts receivable through the application and review of credit approvals, credit ratings and other monitoring procedures. In some instances, the Company also obtains letters of credit from certain customers.

Credit sales, which are mainly on credit terms of 30 to 60 days, are only made to customers who meet the Company's credit requirements, while sales to new customers or customers with low credit ratings are usually made on an advance payment basis. The Company considers its trade accounts receivable to be of good credit quality because its key distributors and direct customers have long-standing business relationships with the Company and the Company has not experienced any significant write-offs of accounts receivable in the past. The Company closely monitors the aging of accounts receivable from its distributors and direct customers, and regularly reviews their financial positions, when available.

In the past, the Company shipped its product indirectly to Huawei and its affiliates (collectively, "Huawei") through distributors. Typically, the Company sold its products to distributors who then sold to original design manufacturers ("ODMs") that incorporated our products into end applications that were then shipped to Huawei. While distributor point of sale reports summarize distributor sales to ODMs, the Company must make certain assumptions and estimates in order to determine the amount of revenues attributed to indirect shipment to Huawei. During the fiscal year ended June 30, 2019, the estimated revenues attributed to indirect shipments to Huawei were approximately 2% of total revenues. During the period from May 2019 to December 2019, estimated revenues earned by the Company from shipments indirectly made to Huawei were in the range of \$11 million to \$13 million. The Company has not shipped any products to Huawei after December 31, 2019. See Note 10.

Summarized below are individual customers whose revenue or accounts receivable balances were more than 10% of the respective total consolidated amounts:

Percentage of revenue	Three Months Ended March 31,		Nine Months Ended March 31,	
	2020	2019	2020	2019
Customer A	27.5%	26.8%	29.2%	28.4%
Customer B	36.4%	36.2%	36.2%	37.3%

Percentage of accounts receivable	March 31, 2020	June 30, 2019
Customer A	*	12.1%
Customer B	22.3%	19.7%
Customer C	22.3%	18.1%
Customer D	*	13.3%

* Less than 10%

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

4. Balance Sheet Components

Accounts receivable, net:

	March 31, 2020	June 30, 2019
	(in thousands)	
Accounts receivable	\$ 50,014	\$ 48,401
Less: Allowance for price adjustments	(32,514)	(24,075)
Less: Allowance for doubtful accounts	(30)	(30)
Accounts receivable, net	<u>\$ 17,470</u>	<u>\$ 24,296</u>

Inventories:

	March 31, 2020	June 30, 2019
	(in thousands)	
Raw materials	\$ 56,750	\$ 59,076
Work in-process	55,606	38,214
Finished goods	15,039	14,353
	<u>\$ 127,395</u>	<u>\$ 111,643</u>

Other current assets:

	March 31, 2020	June 30, 2019
	(in thousands)	
VAT receivable	\$ 27,165	\$ 30,769
Other prepaid expenses	1,958	2,745
Prepaid insurance	900	939
Prepaid maintenance	593	481
Prepayment to supplier	769	583
Prepaid income tax	1,140	267
Customs deposit	162	114
Lease financing cost	—	825
Interest receivable	1,339	379
Payroll tax receivable	492	—
	<u>\$ 34,518</u>	<u>\$ 37,102</u>

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

Property, plant and equipment, net:

	March 31, 2020	June 30, 2019
	(in thousands)	
Land	\$ 4,877	\$ 4,877
Building	58,640	36,205
Manufacturing machinery and facility equipment	440,823	303,750
Equipment and tooling	25,211	20,739
Computer equipment and software	38,651	34,048
Office furniture and equipment	3,368	3,243
Leasehold improvements	68,015	53,597
Land use rights	8,480	8,760
	648,065	465,219
Less: accumulated depreciation	(280,269)	(252,982)
	367,796	212,237
Equipment and construction in progress	44,522	197,500
Property, plant and equipment, net	\$ 412,318	\$ 409,737

Intangible assets, net:

	March 31, 2020	June 30, 2019
	(in thousands)	
Patents and technology rights	\$ 18,037	\$ 18,037
Trade name	268	268
Customer relationships	1,150	1,150
	19,455	19,455
Less: accumulated amortization	(2,926)	(2,842)
	16,529	16,613
Goodwill	269	269
Intangible assets, net	\$ 16,798	\$ 16,882

Intangible assets of patents and technology rights are primarily related to a license agreement that the Company entered into with STMicroelectronics International N.V. ("STMicro") on September 5, 2017, pursuant to which STMicro granted the Company a world-wide, royalty-free and fully-paid license to use its technologies to develop, market and distribute certain digital multi-phase controller products. As of March 31, 2020, the Company recorded \$16.2 million of intangible assets related to STMicro. The Company begins amortizing such license fees when the technology has met the Company's qualification and is ready for its intended use in production.

Estimated future minimum amortization expense of intangible assets is as follows (in thousands):

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

Year ending June 30,		
2020 (Remaining)	\$	28
2021		2,548
2022		3,360
2023		3,286
2024		3,249
Thereafter		4,058
	\$	<u>16,529</u>

Other long-term assets:

	March 31, 2020	June 30, 2019
	(in thousands)	
Prepayments for property and equipment	\$ 3,747	\$ 4,846
Investment in a privately held company	100	700
Lease financing costs	—	1,758
Customs deposit	886	980
Other long-term deposits	839	889
Office leases deposits	1,039	1,031
Other	170	413
	<u>\$ 6,781</u>	<u>\$ 10,617</u>

Accrued liabilities:

	March 31, 2020	June 30, 2019
	(in thousands)	
Accrued compensation and benefits	\$ 16,772	\$ 16,385
Warranty accrual	672	623
Stock rotation accrual	3,307	1,921
Accrued professional fees	5,261	1,721
Accrued inventory	487	857
Accrued facilities related expenses	1,995	4,233
Accrued financing lease costs	705	728
Accrued property, plant and equipment	9,745	11,527
ESPP payable	1,913	585
Customer deposit	2,556	351
Other accrued expenses	7,159	5,144
	<u>\$ 50,572</u>	<u>\$ 44,075</u>

The activities in the warranty accrual, included in accrued liabilities, are as follows:

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

	Nine Months Ended March 31,	
	2020	2019
	(in thousands)	
Beginning balance	\$ 623	\$ 535
Additions	852	189
Utilization	(803)	(69)
Ending balance	<u>\$ 672</u>	<u>\$ 655</u>

The activities in the stock rotation accrual, included in accrued liabilities, are as follows:

	Nine Months Ended March 31,	
	2020	2019
	(in thousands)	
Beginning balance	\$ 1,921	\$ 1,750
Additions	7,413	3,589
Utilization	(6,027)	(3,616)
Ending balance	<u>\$ 3,307</u>	<u>\$ 1,723</u>

Other long-term liabilities:

	March 31, 2020	June 30, 2019
	(in thousands)	
Customer deposits	\$ 8,000 *	\$ 10,000 *
Computer software liabilities	2,356	3,701
Other	—	220
Other long-term liabilities	<u>\$ 10,356</u>	<u>\$ 13,921</u>

* Customer deposits are from Customer A and Customer B for securing future product shipments from the Company. The Company reclassified \$2.0 million of the customer deposit to short term accrued liabilities during the nine months ended March 31, 2020 since the repayment of this amount is due within a year.

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

(Unaudited)

5. Bank Borrowings

Short-term borrowings

In October 2019, the Company's subsidiary in China entered into a line of credit facility with Bank of Communications Limited in China. This line of credit matures on February 14, 2021 and is based on the China Base Rate multiplied by 1.05, or 4.99% on October 31, 2019. The purpose of the credit facility was to provide short-term borrowings. The Company could borrow up to approximately Chinese Renminbi (RMB) 60.0 million or \$8.5 million based on the currency exchange rate between the RMB and the U.S. Dollar on October 31, 2019. As of March 31, 2020, there was no outstanding balance under the loan.

On September 23, 2019, the JV Company entered into a short term revolving loan agreement with China Everbright bank in China. The JV Company can borrow up to RMB 50.0 million, or \$7.1 million based on the currency exchange rate between RMB and U.S. Dollar on September 23, 2019, at varying interest rates, with either RMB or USD. Interest payments with the entire principal are due no later than 90 days from each borrowing date. The loan expired in April 2019. In January and February 2020, the JV Company borrowed \$1.6 million and \$5.5 million, respectively, under this loan. Interest payments with the entire principal were due on April 7, 2020 and May 3, 2020. As of March 31, 2020, the total outstanding balance under the loan was \$7.1 million.

On March 21, 2019, the JV Company entered into a one-year loan agreement with China Everbright Bank in China to provide a loan for RMB 20 million, or \$3.0 million based on the currency exchange rate between RMB and U.S. Dollar on March 31, 2019, at a fixed interest rate of 5.44% per annum. Interest payments are due monthly with the entire principal due on March 21, 2020. The loan expired in April 2019. As of March 31, 2020, there was no outstanding balance under the loan.

On November 29 and December 4, 2018, the JV Company entered into two, one-year loan agreements with China Merchant Bank and Chongqing LiangJiang New District China Merchants Group Limited Company in China to provide loans for RMB 80 million and RMB 20 million, respectively, or \$14.5 million in total based on the currency exchange rate between RMB and U.S. Dollar on December 31, 2018, at varying interest rates. On January 20, 2020, the JV Company renewed the loan agreements with the same terms. Interest payments are due monthly and quarterly with the entire principal due not later than January 21, 2021. As of March 31, 2020, the outstanding balance under the loan was \$14.1 million.

On November 16, 2018, the Company's subsidiary in China entered into a line of credit facility with Industrial and Commercial Bank of China, which expired on September 30, 2019. The purpose of the credit facility was to provide short-term borrowings. The Company could borrow up to approximately RMB 72.0 million or \$10.3 million based on currency exchange rate between RMB and U.S. Dollar on November 16, 2018. In October 2019, this line of credit was renewed with the same terms and a maturity date of September 30, 2020. As of March 31, 2020, there was no outstanding balance under the line of credit.

Accounts Receivable Factoring Agreement

On August 9, 2019, one of the Company's wholly-owned subsidiaries ("the "Borrower") entered into a factoring agreement with the Hongkong and Shanghai Banking Corporation Limited ("HSBC"), whereby the Borrower assigns certain of its accounts receivable with recourse. This factoring agreement allows the Borrower to borrow up to 70% of the net amount of its eligible accounts receivable of the Borrower with a maximum amount of \$30.0 million. The interest rate is based on one month LIBOR plus 1.75% per annum. This agreement, with certain financial covenants required, has no expiration date. The Company is the guarantor for this agreement. The Company is accounting for this transaction as a secured borrowing under the Transfers and Servicing of Financial Assets guidance. In addition, any cash held in the restricted bank account controlled by HSBC has a legal right of offset against the borrowing. The Borrower was in compliance with these covenants as of March 31, 2020. During the three months ended March 31, 2020, the Company borrowed \$8.0 million and repaid this amount in full. As of March 31, 2020, there was no outstanding balance and the Company had unused credit of approximately \$30.0 million.

Credit Facilities

On May 9, 2018 (the "Effective Date"), the JV Company entered into a lease finance agreement and a security agreement (the "Agreements") with YinHai Leasing Company and The Export-Import Bank of China (the "Lenders"). Pursuant to the Agreements, the Lenders agreed to provide an aggregate of RMB 400.0 million, or \$62.8 million based on the currency

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

(Unaudited)

exchange rate between RMB and U.S. Dollar on the Effective Date, of financing to the JV Company (the “Lease Financing”). In exchange for the Lease Financing, the JV Company agreed to transfer title of its assembly and testing equipment to the Lenders, and the Lenders leased such equipment to the JV Company under a five-year lease arrangement, pursuant to which the JV Company makes quarterly lease payments to the Lenders consisting of principal and interest based on a repayment schedule mutually agreed by the parties. The interest under the Lease Financing is accrued based on the China Base Rate multiplied by 1.15, or 5.4625% on the Effective Date. Under the Agreements, at the end of the five-year lease term, the Lenders agree to sell such equipment back to the JV Company for a nominal amount (RMB 1). The JV Company’s obligations under the Lease Financing are secured by the land and building owned by the JV Company (the “Collateral”). The proceeds from the Lease Financing were used primarily for the acquisition and installation of the 12-inch fabrication equipment and other expenses of the JV Company relating to the completion of the fabrication facility located in Chongqing. The Agreements contain customary representation, warranties and covenants, including restrictions on the transfer of the Collateral. The Agreements also contain customary events of default, including but not limited to, failure to make payments and breach of material terms under the Agreements. The Agreements include certain customary closing conditions, including the payment of deposit by the JV Company. As of March 31, 2020, the outstanding balance under the Agreement was 325.0 million RMB (equivalent of \$45.8 million based on the currency exchange rate as of March 31, 2020), which was recorded under short-term and long-term finance lease liabilities.

See future minimum lease payment table for finance lease liabilities in Note 6.

Long-term debt

In December 2019, the JV Company entered into a loan agreement with China Development Bank in the amount of \$24.0 million. The obligation under the loan agreement is secured by certain assets of the JV Company. Beginning December 18, 2020, the JV Company will make consecutive semi-annual payments of principal until December 8, 2024. The interest is accrued based on the London Interbank Offered Rate (“LIBOR”) rate plus 2.8%. The interest is required to be paid on March 21 and September 21 each year. As of March 31, 2020, the outstanding balance of the loan was \$24.0 million.

On March 12, 2019, the JV Company entered into a loan agreement with The Export-Import Bank of China in the aggregate principal amount of RMB 200 million (approximately \$29.8 million based on currency exchange rate between RMB and U.S. Dollar on March 31, 2019). The loan will mature on February 20, 2025. The JV Company drew down RMB 190 million and RMB 10 million in March 2019 and December 2019, respectively. The loan withdraw window expired on February 28, 2020. The interest is accrued based on the China Base Rate multiplied by 1.1, or 5.39%. The loan requires quarterly interest payments. The principal payments are required to be paid every 6 months over the term of loan commencing in October 2019. This loan is secured by the buildings and certain equipment owned by the JV Company. As a condition of the loan arrangement, RMB 14 million (approximately \$2.0 million) of cash is held as restricted cash by the JV Company as a compensating balance at the bank until the principal is paid. In October 2019, the Company repaid RMB 3.0 million. As of March 31, 2020, the outstanding balance of the loan was RMB 197 million (equivalent of \$27.8 million based on the currency exchange rate as of March 31, 2020).

On May 1, 2018, Jireh Semiconductor Incorporated (“Jireh”), a wholly-owned subsidiary of the Company, entered into a loan agreement with a financial institution (the “Bank”) that provided a term loan in the amount of \$17.8 million. The obligation under the loan agreement is secured by certain real estate assets of Jireh and guaranteed by the Company. The loan has a five-year term and matures on June 1, 2023. Beginning June 1, 2018, Jireh made consecutive monthly payments of principal and interest to the Bank. The outstanding principal accrues interest at a fixed rate of 5.04% per annum on the basis of a 360-day year. The loan agreement contains customary restrictive covenants and includes certain financial covenants that require the Company to maintain, on a consolidated basis, specified financial ratios. The Company was in compliance with these covenants as of March 31, 2020. As of March 31, 2020, the outstanding balance of the term loan was \$16.2 million.

On August 15, 2017, Jireh entered into a credit agreement with the Bank that provided a term loan in an amount up to \$30.0 million for the purpose of purchasing certain equipment for the Company’s fabrication facility located in Oregon. The obligation under the credit agreement is secured by substantially all assets of Jireh and guaranteed by the Company. The credit agreement has a five-year term and matures on August 15, 2022. In January 2018 and July 2018, Jireh drew down the loan in the amount of \$13.2 million and \$16.7 million, respectively. Beginning in October 2018, Jireh was required to pay to the Bank on each payment date, the outstanding principal amount of the loan in monthly installments. The loan accrues interest based on an adjusted LIBOR as defined in the credit agreement, plus a specified applicable margin in the range of 1.75% to 2.25%, based on the outstanding balance of the loan. The credit agreement contains customary restrictive covenants and includes certain

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

financial covenants that require the Company to maintain, on a consolidated basis, specified financial ratios and fixed charge coverage ratio. The Company was in compliance with these covenants as of March 31, 2020. As of March 31, 2020, the outstanding balance of the term loan was \$18.6 million.

Maturities of short-term debt and long-term debt were as follows (in thousands):

Year ending June 30,	
2020 (Remaining)	\$ 9,648
2021	28,641
2022	20,022
2023	28,511
2024	12,082
Thereafter	8,881
Total principal of debts	107,785
Less: debt issuance costs	(768)
Total principal of debt, less debt issuance costs	\$ 107,017

	Short-term Debt	Long-term Debt
Principal amount	\$ 33,099	\$ 74,686
Less: debt issuance costs	(287)	(481)
Total debt, less debt issuance costs	\$ 32,812	\$ 74,205

6. Leases

Under Topic 842, the Company evaluates contracts for lease accounting at contract inception and assesses lease classification at the lease commencement date. Operating leases are included in operating lease right-of-use ("ROU") assets, operating lease liabilities and operating lease liabilities - long-term on the Company's consolidated balance sheets. Finance leases are included in property, plant and equipment, finance lease liabilities and finance lease liabilities-long-term on the consolidated balance sheets. The Company recognizes a ROU asset and corresponding lease obligation liability at the lease commencement date where the lease obligation liability is measured at the present value of the minimum lease payments. As most of the leases do not provide an implicit rate, the Company uses its incremental borrowing rate at lease commencement. The Company uses an interest rate commensurate with the interest rate to borrow on a collateralized basis over a similar term with an amount equal to the lease payments. Operating leases are primarily related to offices, research and development facilities, sales and marketing facilities, and manufacturing facilities. In addition, long-term supply agreements to lease gas tank equipment and purchase industrial gases are accounted for as operating leases. Lease agreements frequently include renewal provisions and require the Company to pay real estate taxes, insurance and maintenance costs. For operating leases, the amortization of the ROU asset and the accretion of its lease obligation liability result in a single straight-line expense recognized over the lease term. The finance lease is related to the RMB 400.0 million of lease financing of the JV Company with YinHai Leasing Company and The Export-Import Bank of China. See Note 5 - Bank Borrowings for details. The Company does not record leases on the condensed consolidated balance sheet with a term of one year or less.

The components of the Company's operating and finance lease expenses are as follows for the period presented (in thousands):

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

	Nine Months Ended March 31, 2020
Operating Leases:	
Fixed rent expense	\$ 4,480
Variable rent expense	623
Finance Lease:	
Amortization of equipment	2,304
Interest	2,142
Short-term leases	
Short-term lease expenses	224
Total lease expenses	<u>\$ 9,773</u>

Supplemental balance sheet information related to the Company's operating and finance leases is as follows (in thousands, except lease term and discount rate):

	March 31, 2020
Operating Leases:	
ROU assets associated with operating leases	\$ 32,739
Finance Lease:	
Property, plant and equipment, gross	\$ 104,109
Accumulated depreciation	(85,967)
Property, plant and equipment, net	\$ 18,142
Weighted average remaining lease term (in years)	
Operating leases	9.99
Finance lease	2.97
Weighted average discount rate	
Operating leases	4.48%
Finance lease	5.46%

Supplemental cash flow information related to the Company's operating and finance lease is as follows (in thousands):

	Nine Months Ended March 31, 2020
Cash paid from amounts included in the measurement of lease liabilities:	
Operating cash flows from operating leases	\$ 3,828
Operating cash flows from finance lease	\$ 2,142
Financing cash flows from finance lease	\$ 7,213
Non-cash increase in right-of-use operating lease assets *	\$ 16,009

* This relates to the Company's headquarters' office lease renewal in September 2019. See below for details.

Future minimum lease payments are as follows as of March 31, 2020 (in thousands):

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

	Operating Leases	Finance Leases
The remainder of 2020	\$ 1,339	\$ 4,444
2021	5,090	17,229
2022	4,624	16,386
2023	4,315	11,877
2024	3,934	—
2025	3,514	—
Thereafter	20,663	—
Total minimum lease payments	43,479	49,936
Less amount representing interest	(9,392)	(4,138)
Total lease liabilities	\$ 34,087	\$ 45,798

Prior to the adoption of the new lease standard, future minimum lease payments as of June 30, 2019 were as follows (in thousands):

Year ending June 30,	Operating Leases	Finance Leases
2020	\$ 4,357	\$ 14,219
2021	1,741	17,799
2022	1,164	16,928
2023	894	12,269
2024	1,002	—
Thereafter	149	—
Total minimum lease payments	9,307	61,215
Less amount representing interest	—	(6,479)
Total lease liabilities	\$ 9,307	\$ 54,736

In September 2019, the Company modified its headquarters' office lease located in Sunnyvale, California for an additional 10-year term extension from its original scheduled expiration date in April 2020. During the three months ended March 31, 2020, the Company discovered that the operating lease right-of-use assets and operating lease liabilities relating to this lease were each understated by approximately \$16.0 million, which was considered immaterial to previously issued quarterly reports on Form 10-Q as of September 30, 2019 and December 31, 2019. The impact of the correction on the previously issued consolidated statements of operations and cash flows was insignificant. Non-cash disclosure of the increase in right-of-use operating lease assets for the both three months ended September 2019 and six months ended December 2019 was increased from \$0 to \$16.0 million. The impact of the correction on the respective balance sheets was as follows (in thousands):

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

	September 30, 2019			December 31, 2019		
	Amounts as reported	Adjustments	Amounts as corrected	Amounts as reported	Adjustments	Amounts as corrected
Operating lease right-of-use assets	\$ 19,362	\$ 16,009	\$ 35,371	\$ 18,667	\$ 15,709	\$ 34,376
Total assets	\$ 749,912	\$ 16,009	\$ 765,921	\$ 763,140	\$ 15,709	\$ 778,849
Operating lease liabilities - Short-term	\$ 3,767	\$ 620	\$ 4,387	\$ 3,282	\$ 858	\$ 4,140
Total current liabilities	\$ 189,451	\$ 620	\$ 190,071	\$ 184,151	\$ 858	\$ 185,009
Operating lease liabilities - Long-term	\$ 15,815	\$ 16,054	\$ 31,869	\$ 15,559	\$ 15,778	\$ 31,337
Total liabilities	\$ 312,359	\$ 16,054	\$ 328,413	\$ 322,990	\$ 15,778	\$ 338,768

ALPHA AND OMEGA SEMICONDUCTOR LIMITED

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

(Unaudited)

7. Shareholders' Equity and Share-based Compensation

Share Repurchase

In September 2017, the Board of Directors approved a new repurchase program (the "Repurchase Program") that allowed the Company to repurchase its common shares from the open market pursuant to a pre-established Rule 10b5-1 trading plan or through privately negotiated transactions up to an aggregate of \$30.0 million. The amount and timing of any repurchases under the Repurchase Program depend on a number of factors, including but not limited to, the trading price, volume, and availability of the Company's common shares. Shares repurchased under this program are accounted for as treasury shares and the total cost of shares repurchased is recorded as a reduction of shareholders' equity. From time to time, treasury shares may be reissued as part of the Company's stock-based compensation programs. Gains on re-issuance of treasury stock are credited to additional paid-in capital; losses are charged to additional paid-in capital to offset the net gains, if any, from previous sales or re-issuance of treasury stock. Any remaining balance of the losses is charged to retained earnings.

During the nine months ended March 31, 2020, the Company did not repurchase any shares from the open market. Since the inception of the program, the Company repurchased an aggregate of 6,784,648 shares from the open market for a total cost of \$67.3 million, at an average price of \$9.92 per share, excluding fees and related expenses. No repurchased shares have been retired. Of the 6,784,648 repurchased shares, 145,428 shares with a weighted average repurchase price of \$10.32 per share, were reissued at an average price of \$5.30 per share pursuant to option exercises and vested restricted share units. As of March 31, 2020, approximately \$13.4 million remained available under the Repurchase Program.

Time-based Restricted Stock Units ("TRSUs")

The following table summarizes the Company's TRSU activities for the nine months ended March 31, 2020:

	Number of Restricted Stock Units	Weighted Average Grant Date Fair Value Per Share	Weighted Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value
Nonvested at June 30, 2019	906,341	\$ 14.09	1.62	\$ 8,465,225
Granted	483,947	\$ 8.41		
Vested	(416,415)	\$ 13.60		
Forfeited	(21,125)	\$ 13.61		
Nonvested at March 31, 2020	952,748	\$ 11.42	1.85	\$ 6,107,115

Market-based Restricted Stock Units ("MSUs")

During the quarter ended September 30, 2018, the Company granted 1.3 million market-based restricted stock units ("MSUs") to certain personnel. The number of shares to be earned at the end of performance period is determined based on the Company's achievement of specified stock prices and revenue thresholds during the performance period from January 1, 2019 to December 31, 2021 as well as the recipients remaining in continuous service with the Company through such period. The MSUs vest in four equal annual installments after the end of each performance period. The Company estimated the grant date fair values of its MSUs with derived service periods of 4.5 to 7.5 years using a Monte-Carlo simulation model with the following assumptions: Risk-free interest rate of 2.7%, expected term of 3.5 years, expected volatility of 38.8% and dividend yield of 0%. The Company recorded approximately \$0.1 million and \$0.4 million of expenses for these MSUs during the three and nine months ended March 31, 2020, respectively, and approximately \$0.1 million and \$0.5 million during the three and nine months ended March 31, 2019, respectively.

Performance-based Restricted Stock Units ("PRSUs")

The Company granted performance-based RSUs ("PRSUs") to certain personnel. The number of shares to be earned under the PRSUs is determined based on the level of attainment of predetermined financial goals. The PRSUs vest in four equal annual installments from the first anniversary date after the grant date if certain predetermined financial goals were met. The Company recorded approximately \$0.4 million and \$1.1 million of expense for these PRSUs during the three and nine months ended March 31,

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

2020, respectively, and approximately \$0.8 million and \$2.2 million during the three and nine months ended March 31, 2019, respectively.

The following table summarizes the Company's PRSUs activities for the nine months ended March 31, 2020:

	Number of Performance-based Restricted Stock Units	Weighted Average Grant Date Fair Value Per Share	Weighted Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value
Nonvested at June 30, 2019	596,724	\$ 13.95	1.88	\$ 5,573,402
Granted	155,000	\$ 7.36		
Vested	(110,659)	\$ 16.68		
Forfeited	(80,354)	\$ 11.69		
Nonvested at March 31, 2020	560,711	\$ 11.92	1.89	\$ 3,594,158

Stock Options

The Company did not grant any stock options during the three and nine months ended March 31, 2020 and 2019. The number of options expected to vest is the result of applying the pre-vesting forfeiture rate assumption to total outstanding options.

The following table summarizes the Company's stock option activities for the nine months ended March 31, 2020:

	Number of Shares	Weighted Average Exercise Price Per Share	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value
Outstanding at June 30, 2019	876,478	\$ 10.98	3.06	\$ 758,871
Exercised	(2,500)	\$ 10.50		\$ 4,726
Canceled or forfeited	(55,000)	\$ 15.00		
Outstanding at March 31, 2020	818,978	\$ 10.71	2.48	\$ —
Options vested and expected to vest	818,978	\$ 10.71	2.48	\$ —
Exercisable at March 31, 2020	818,978	\$ 10.71	2.48	\$ —

Employee Share Purchase Plan ("ESPP")

The assumptions used to estimate the fair values of common shares issued under the ESPP were as follows:

	Nine Months Ended March 31, 2020
Volatility rate	46.4%
Risk-free interest rate	1.6%
Expected term	1.3 years
Dividend yield	0%

Share-based Compensation Expense

The total share-based compensation expense recognized in the condensed consolidated statements of operations for the periods presented was as follows:

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

(Unaudited)

	Three Months Ended March 31,		Nine Months Ended March 31,	
	2020	2019	2020	2019
	(in thousands)		(in thousands)	
Cost of goods sold	\$ 357	\$ 494	\$ 1,197	\$ 1,532
Research and development	991	555	1,987	1,929
Selling, general and administrative	1,528	2,063	4,548	7,198
	<u>\$ 2,876</u>	<u>\$ 3,112</u>	<u>\$ 7,732</u>	<u>\$ 10,659</u>

As of March 31, 2020, total unrecognized compensation cost under the Company's equity plans was \$10.6 million, which is expected to be recognized over a weighted-average period of 2.2 years.

8. Income Taxes

The Company recognized income tax benefit of approximately \$1.0 million and income tax expense of \$0.6 million for the three months ended March 31, 2020 and 2019, respectively. The income tax benefit of \$1.0 million for the three months ended March 31, 2020 included a \$1.3 million discrete tax benefit, \$1.1 million of which related to re-measuring the tax benefit of net operating losses that can be carried back to prior years following the passage of the "U.S. Coronavirus Aid, Relief and Economic Security Act" ("CARES Act"), and \$0.2 million of which primarily related to a prior year reserve release. The income tax expenses of \$0.6 million for the three months ended March 31, 2019 included a \$0.2 million discrete tax benefit principally related to a prior year reserve release. Excluding the discrete income tax items, the effective tax rate for the three months ended March 31, 2020 and 2019 was (2.3)% and (14.8)%, respectively. The changes in the tax expense between the periods resulted primarily from the discrete tax benefit resulting from the tax law changes resulting from the CARES Act as well as changes in the mix of earnings in various geographic jurisdictions between the current year and the same period of last year.

The Company recognized income tax benefit of approximately \$0.04 million and income tax expense of \$1.9 million for the nine months ended March 31, 2020 and 2019, respectively. The income tax benefit of \$0.04 million for the nine months ended March 31, 2020 included a \$1.3 million discrete tax benefit, \$1.1 million of which related to remeasuring the tax benefit of net operating losses that can be carried back to prior years following the passage of the U.S. CARES Act, and \$0.2 million of which related to a prior year reserve release. The income tax expense of \$1.9 million for the nine months ended March 31, 2019 included a \$0.1 million discrete tax benefit principally related to a prior year reserve release. Excluding the discrete income tax items, the effective tax rate for the nine months ended March 31, 2020 and 2019 was (7.4)% and (19.2)%, respectively. The changes in the tax expense between the periods resulted primarily from the discrete tax benefit resulting from the tax law changes resulting from the CARES Act as well as changes in the mix of earnings in various geographic jurisdictions between the current year and the same period of last year.

The Company files its income tax returns in the United States and in various foreign jurisdictions. The tax years 2001 to 2020 remain open to examination by U.S. federal and state tax authorities. The tax years 2012 to 2020 remain open to examination by foreign tax authorities.

The Company's income tax returns are subject to examinations by the Internal Revenue Service and other tax authorities in various jurisdictions. In accordance with the guidance on the accounting for uncertainty in income taxes, the Company regularly assesses the likelihood of adverse outcomes resulting from these examinations to determine the adequacy of its provision for income taxes. These assessments can require considerable estimates and judgments. As of March 31, 2020, the gross amount of unrecognized tax benefits was approximately \$7.2 million, of which \$4.2 million, if recognized, would reduce the effective income tax rate in future periods. If the Company's estimate of income tax liabilities proves to be less than the ultimate assessment, then a further charge to expense would be required. If events occur and the payment of these amounts ultimately proves to be unnecessary, the reversal of the liabilities would result in tax benefits being recognized in the period when the Company determines the liabilities are no longer necessary. The Company does not anticipate any material changes to its uncertain tax positions during the next twelve months.

On July 27, 2015, in *Altera Corp. v. Commissioner*, the U.S. Tax Court issued an opinion related to the treatment of stock-based compensation expense in an intercompany cost-sharing arrangement. In the July 2015 ruling, the Tax Court concluded

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

(Unaudited)

that the sharing of the cost of employee stock compensation in a company's cost-sharing arrangement was invalid under the U.S. Administrative Procedures Act. In June 2019, a panel of the Ninth Circuit of the U.S. Court of Appeals reversed this decision. In July 2019, Altera petitioned U.S. Court of Appeals for the Ninth Circuit to hold an en banc rehearing of the case. In November 2019 the en banc rehearing petition was denied, and Altera has asked the Supreme Court for a judicial review. Due to the uncertainty surrounding the status of the current regulations and questions related to the scope of potential benefits, the Company has not recorded any benefit as of March 31, 2020. The Company will continue to monitor ongoing developments and potential impacts to its financial statements.

9. Segment and Geographic Information

The Company is organized as, and operates in, one operating segment: the design, development and supply of power semiconductor products for computing, consumer electronics, communication and industrial applications. The chief operating decision-maker is the Chief Executive Officer. The financial information presented to the Company's Chief Executive Officer is on a consolidated basis, accompanied by information about revenue by customer and geographic region, for purposes of evaluating financial performance and allocating resources. The Company has one business segment, and there are no segment managers who are held accountable for operations, operating results and plans for products or components below the consolidated unit level. Accordingly, the Company reports as a single operating segment.

The Company sells its products primarily to distributors in the Asia Pacific region, who in turn sell these products to end customers. Because the Company's distributors sell their products to end customers which may have a global presence, revenue by geographical location is not necessarily representative of the geographical distribution of sales to end user markets.

The revenue by geographical location in the following tables is based on the country or region in which the products were shipped to:

	Three Months Ended March 31,		Nine Months Ended March 31,	
	2020	2019	2020	2019
	(in thousands)		(in thousands)	
Hong Kong	\$ 90,050	\$ 87,143	\$ 280,396	\$ 265,914
China	13,607	18,834	46,690	63,991
South Korea	1,861	260	10,130	568
United States	830	1,684	2,829	5,624
Other countries	504	1,146	2,469	2,967
	<u>\$ 106,852</u>	<u>\$ 109,067</u>	<u>\$ 342,514</u>	<u>\$ 339,064</u>

The following is a summary of revenue by product type:

	Three Months Ended March 31,		Nine Months Ended March 31,	
	2020	2019	2020	2019
	(in thousands)		(in thousands)	
Power discrete	\$ 89,932	\$ 89,936	\$ 291,964	\$ 275,485
Power IC	15,699	17,631	46,078	56,430
Packaging and testing services	1,221	1,500	4,472	7,149
	<u>\$ 106,852</u>	<u>\$ 109,067</u>	<u>\$ 342,514</u>	<u>\$ 339,064</u>

Long-lived assets, net consisting of property, plant and equipment and land use rights, by geographical area are as follows:

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

	March 31, 2020	June 30, 2019
	(in thousands)	
China	\$ 312,345	\$ 321,145
United States	99,206	87,817
Other Countries	767	775
	<u>\$ 412,318</u>	<u>\$ 409,737</u>

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

10. Commitments and Contingencies

Purchase Commitments

As of March 31, 2020 and June 30, 2019, the Company had approximately \$57.2 million and \$59.5 million, respectively, of outstanding purchase commitments primarily for purchases of semiconductor raw materials, wafers, spare parts and packaging and testing services, and approximately \$23.1 million and \$33.8 million, respectively, of capital commitments for the purchase of property and equipment and EPC construction.

Other Commitments

See Note 5 and Note 6 of the Notes to the Condensed Consolidated Financial Statements contained in this Quarterly Report on Form 10-Q for descriptions of commitments including bank borrowings and leases.

Contingencies and Indemnities

The Company has in the past, and may from time to time in the future, become involved in legal proceedings arising from the normal course of business activities. The semiconductor industry is characterized by frequent claims and litigation, including claims regarding patent and other intellectual property rights as well as improper hiring practices. Irrespective of the validity of such claims, the Company could incur significant costs in the defense of such claims and suffer adverse effects on its operations.

As previously disclosed in the Company's Form 10-Q for the quarter ended December 31, 2019, the U.S. Department of Justice ("DOJ") commenced an investigation into the Company's compliance with export control regulations relating to its business transactions with Huawei and its affiliates ("Huawei"), which were added to the "Entity List" maintained by the Department of Commerce ("DOC") on May 16, 2019. The Company is cooperating fully with federal authorities in the investigation, including responding to requests for documents and information from DOJ in connection with the investigation. The Company has maintained an export control compliance program and has been committed to comply fully with all applicable laws and regulations. In connection with this investigation, DOC requested the Company to suspend shipments of its products to Huawei, and the Company complied with such request, and the Company has not shipped any product to Huawei after December 31, 2019. The Company is currently working with DOC to resolve this issue. Given the case is in relatively early stages and still ongoing, the Company cannot estimate the reasonably possible loss or range of loss that may occur. Also, the Company is unable to predict the duration, scope, result or related costs of the investigation, although the Company expects to incur additional professional fees as a result of this matter. In addition, the Company is unable to predict, if any, further action that may be taken by the government in connection with the investigation, or what, if any, penalties, sanctions or remedial actions may be sought.

On March 19, 2020, Darryl Gray, a stockholder of the Company (the "Plaintiff"), filed a putative class action complaint in the United States District Court for the Southern District of New York (the "Gray Action"), alleging that the Company and its management members made material misstatements or omissions regarding the Company's business and operations, including its export control practices relating to business transactions with Huawei and its affiliate. The Gray Action asserts claims under Section 10(b) of the Exchange Act against the Company, its Chief Executive Officer and Chief Financial Officer (collectively, the Defendants"), as well as claims under Section 20(a) of the Exchange Act against the Chief Executive Officer and Chief Financial Officer. Among other remedies, the actions seek to recover compensatory damages and other damages and attorney's fees and costs. On March 20, 2020, the court issued a summons to the Defendants. On March 25, 2020, the court scheduled a conference for July 1, 2020 to consider any motions for appointment of lead plaintiff and lead counsel. The Company believes the claims in the Gray Action are without merit and intends to vigorously defend this litigation. Given the case is in its early stages and still on going, the Company cannot estimate the reasonably possible loss or range of loss that may occur.

The Company is a party to a variety of agreements that it has contracted with various third parties. Pursuant to these agreements, the Company may be obligated to indemnify another party to such an agreement with respect to certain matters. Typically, these obligations arise in the context of contracts entered into by the Company, under which the Company customarily agrees to hold the other party harmless against losses arising from a breach of representations and covenants related to such matters as title to assets sold, certain intellectual property rights, specified environmental matters and certain income taxes. In these circumstances, payment by the Company is customarily conditioned on the other party making a claim pursuant to the procedures specified in the particular contract, which procedures typically allow the Company to challenge the other party's claim. Further, the Company's obligations under these agreements may be limited in time and/or amount, and in some

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

instances, the Company may have recourse against third parties for certain payments made by it under these agreements. The Company has not historically paid or recorded any material indemnifications, and no accrual was made at March 31, 2020 and June 30, 2019.

The Company has agreed to indemnify its directors and certain employees as permitted by law and pursuant to its Bye-laws, and has entered into indemnification agreements with its directors and executive officers. The Company has not recorded a liability associated with these indemnification arrangements, as it historically has not incurred any material costs associated with such indemnification obligations. Costs associated with such indemnification obligations may be mitigated by insurance coverage that the Company maintains. However, such insurance may not cover any, or may cover only a portion of, the amounts the Company may be required to pay. In addition, the Company may not be able to maintain such insurance coverage in the future.

ALPHA AND OMEGA SEMICONDUCTOR LIMITED
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

11. Subsequent Events

On April 15, 2020, the JV Company entered into a one-year loan agreement with China Everbright Bank in China to provide a loan of a maximum of RMB 100 million (approximately \$14.3 million based on the currency exchange rate between RMB and U.S. Dollar on April 15, 2020). In April 2020, the JV Company borrowed RMB 20 million, or \$2.8 million based on the currency exchange rate between RMB and U.S. Dollar on April 16, 2020, at a fixed interest rate of 5.1375% per annum. Interest payments are due on the 20th of each month, and the entire principal is due on April 16, 2021.

On April 26, 2020, the JV Company entered into a loan agreement with China Development Bank, Agricultural Bank of China, China Merchants Bank and Chongqing Rural Commercial Bank (collectively, "the Banks") in the aggregate principal amount of RMB 250 million, (approximately \$35.7 million based on the currency exchange rate between RMB and U.S. Dollar on April 26, 2020). The obligation under the loan agreement is secured by certain assets of the JV Company. Beginning December 18, 2020, the JV Company is required to make consecutive semi-annual payments of principal until December 8, 2024. Interest payment is due on March 20, June 20, September 20 and December 20 of each year based on China one-year loan prime rate ("LPR") plus 1.3%.

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

Except for the historical information contained herein, the matters addressed in this Item 2 constitute “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. These forward looking statements include, but are not limited to, statements regarding future financial performance of the Company; the expected ramp up timeline of the 12-inch fab at the JV Company; the impact of government investigation and coronavirus on our financial performance; and other statements and information set forth under the heading “Factors Affecting Our Performance”. Such forward-looking statements are subject to a variety of risks and uncertainties, including those discussed below under the heading “Risk Factors” and elsewhere in this Quarterly Report on Form 10-Q, that could cause actual results to differ materially from those anticipated by the Company’s management. The Private Securities Litigation Reform Act of 1995 (the “Act”) provides certain “safe harbor” provisions for forward-looking statements. All forward-looking statements made in this Quarterly Report on Form 10-Q are made pursuant to the Act. The Company undertakes no obligation to publicly release the results of any revisions to its forward-looking statements that may be made to reflect events or circumstances after the date hereof or to reflect the occurrence of unexpected events. Unless the context otherwise requires, the words “AOS,” the “Company,” “we,” “us” and “our” refer to Alpha and Omega Semiconductor Limited and its subsidiaries.

This management’s discussion should be read in conjunction with the management’s discussion included in the Company’s Annual Report on Form 10-K for the fiscal year ended June 30, 2019, filed with the Securities and Exchange Commission on August 23, 2019.

Overview

We are a designer, developer and global supplier of a broad portfolio of power semiconductors. Our portfolio of power semiconductors includes approximately 2,100 products, and has grown significantly with the introduction of 200 new products in each of the fiscal years ended June 30, 2019 and 2018, respectively, and over 80 new products in fiscal year 2017. During the nine months ended March 31, 2020, we introduced an additional 132 new products. Our teams of scientists and engineers have developed extensive intellectual properties and technical knowledge that encompass major aspects of power semiconductors, which we believe enables us to introduce and develop innovative products to address the increasingly complex power requirements of advanced electronics. We have an extensive patent portfolio that consists of 812 patents and 88 patent applications in the United States as of March 31, 2020. We also have a total of 838 foreign patents, which primarily were based on our research and development efforts through March 31, 2020. We differentiate ourselves by integrating our expertise in technology, design and advanced manufacturing and packaging to optimize product performance and cost. Our portfolio of products targets high-volume applications, including portable computers, flat panel TVs, LED lighting, smart phones, battery packs, consumer and industrial motor controls and power supplies for TVs, computers, servers and telecommunications equipment.

Our business model leverages global resources, including research and development and manufacturing in the United States and Asia. Our sales and technical support teams are localized in several growing markets. We operate an 8-inch wafer fabrication facility located in Hillsboro, Oregon, or the Oregon fab, which is critical for us to accelerate proprietary technology development, new product introduction and improve our financial performance in the long run. To meet the market demand for the more mature high volume products, we also utilize the wafer manufacturing capacity of selected third party foundries. For assembly and test, we primarily rely upon our in-house facilities in China. In addition, we utilize subcontracting partners for industry standard packages. We believe our in-house packaging and testing capability provides us with a competitive advantage in proprietary packaging technology, product quality, cost and sales cycle time.

On March 29, 2016, we entered into a joint venture contract (the “JV Agreement”) with two investment funds owned by the Municipality of Chongqing (the “Chongqing Funds”), pursuant to which we and the Chongqing Funds formed a joint venture, (the “JV Company”), for the purpose of constructing a power semiconductor packaging, testing and wafer fabrication facility in the Liangjiang New Area of Chongqing, China (the “JV Transaction”). We currently own 51%, and the Chongqing Funds own 49%, of the equity interest in the JV Company. The JV Company has been ramping up its production of assembly and testing in the past few quarters, and commenced limited mass production at the 12-inch wafer fabrication facility in the quarter ended September 30, 2019. As a result of the coronavirus disease (“COVID-19”) outbreak and the resulting lockdowns and significant supply chain disruption in China during the quarter ended March 31, 2020, the JV Company continued its production at a reduced volume as compared to the prior quarter. During the three and nine months ended March 31, 2020, we recorded \$3.4 million and \$9.8 million in net loss attributable to the noncontrolling interest in the JV Company. For the quarter ending June 30, 2020, in response to the surging demand in the computing market, we expect the JV Company to sequentially increase its production of its

12” wafer fabrication and assembly and test. However, the impact of the global COVID-19 pandemic and related economic downturn is highly uncertain and subject to change, and we cannot predict at this time with certainty as to when governmental orders and restrictions will be lifted and how global and regional economic conditions will evolve and affect our supply chain and market demand beyond the quarter ending June 30, 2020. Therefore, currently we are not able to determine the timeframe as to when the JV Company will complete ramp-up activities to commence full production of the Phase 1 of this joint venture project, and we are not able to estimate the amount of additional expenses that we will incur to reach full production. We will continue to monitor and evaluate market conditions closely during this period and implement aggressive measures in response to the changing environment as necessary to achieve an optimal production level at the JV Company. In the long-term, we expect the joint venture to provide much needed capacity to support our future growth, enhance our market positions in China, and drive improvements in capital expenditures.

On September 5, 2017, we entered into a license agreement with STMicroelectronics International N.V. (“STMicro”), pursuant to which STMicro granted us a world-wide, royalty-free and fully-paid license to use its technologies to develop, market and distribute certain digital multi-phase controller products, which have been previously offered by STMicro. As of March 31, 2020, we recorded \$16.2 million of intangible assets on our condensed consolidated balance sheets. We begin amortizing such license fees when the technology has met our qualification and is ready for its intended use in production.

During the third quarter of fiscal year of 2020, we released a new intelligent power module, AIM702H50B, specialized for low-power BLDC motor drives system such as fan motors in home appliances and air-conditioners that require highly compact size with reliable and efficient design allowance. The new IPM7 series consists of advanced super junction MOSFETs designed for motor drive and high voltage gate driving ICs with an integrated bootstrap circuit in a new ultra-compact surface mountable package. Also, we released 700V and 600V α MOS5™ Super Junction MOSFET families in SMD-type DFN5x6 and DFN8x8 packages. α MOS5 is our latest generation of high voltage MOSFET, designed to meet the high efficiency and high-density needs for Quick Charger, Adapter, PC Power, Server, Industrial Power, Telecom, and Hyperscale Datacenter applications. During the second quarter of fiscal year of 2020, we introduced the AOZ8621UNI, a series of Transient Voltage Suppressor (TVS) for VBUS protection using the latest high-surge TVS platform. This new series is ideal for USB Type-C Power Delivery, including but not limited to laptops and smartphones. In addition, we introduced AOZ6682CI and AOZ6683CI which offer high efficiency over the full load range, allowing greener power conversion for a variety of consumer electronics applications such as LCD TVs, set-top boxes, high definition Blu-ray™ Disc Players and Networking terminals. During the first quarter of fiscal year of 2020, we introduced the “Source Down” in a DFN 5x6 package in combination with a 40V Shield-Gate Technology (AlphaSGT™). Our innovative flip-chip know-how achieves the Source Down capability and this packaging technology offers a very low package resistance and inductance. The AOE66410 is ideally suited in telecommunications applications for secondary rectification, in half bridge configuration for BLDC motor applications, and battery management where paralleling is important. In addition, we introduced the TO-Leadless (TOLL) package in combination with a 60V and 100V Shield-Gate Technology providing the highest current capability in its voltage class. The TOLL package has the highest current capacity due to our innovative technology, which utilizes a clip to achieve the in-rush current. The TOLL packaging technology offers a very low package resistance and inductance due to the clip technology when compared to other TO-Leadless packages. This packaging technology uses a standard wire-bonding technology which enables improved EMI performance.

Impact of COVID-19 Pandemic to our Business

Our business operations have been negatively impacted by the global COVID-19 pandemic and the resulting economic downturn. Numerous governmental jurisdictions, including the States of California, Oregon and Texas in the U.S. and countries throughout the Asia pacific region have imposed “stay-at-home” orders, quarantines, travel bans and similar governmental orders and restrictions to control the spread of COVID-19. Such orders and restrictions have resulted in business closures, work stoppages, slowdowns and delays in commercial activities, unprecedented and widespread unemployment, disruptions to ports and other shipping infrastructure, border closures, and other travel or health-related restrictions, thereby negatively impacting our customers, suppliers, distributors, employees, offices, and the entire semiconductor ecosystem.

As a result of the COVID-19 pandemic and the global economic downturn, we have experienced a decline in the demand for our products, as our customers reduce orders in response to a slowdown in consumer spending and shifting market trends. In particular, we expect declining demand in categories such as smartphones, power supply and industrial as business activity decelerates across the globe, which may be offset by increasing demand in the markets for notebooks, PCs and gaming devices as more consumers are staying at and working from home. While we expect the reduction of demand will negatively impact our revenue and results of operations in the short term, we cannot predict the long-term economic and financial impact of the COVID-19 pandemic, including when the various government restrictions will be eased or lifted and how the market will respond to such decisions.

In an effort to protect the health and safety of our employees and to comply with various government and regulatory guidelines, we took proactive, aggressive actions from the earliest signs of the COVID-19 outbreak in China to adopt policies and protocols at our locations around the world, including social distancing guidelines, working from home, limiting the number of employees attending meetings, reducing the number of people in our sites at any one time, and suspending employee travel. Recently, as the COVID-19 pandemic reached the U.S., and federal and state authorities imposed “stay-at-home” orders, we have taken similar proactive and aggressive actions in California, Oregon and Texas where we have business activities in order to protect the health and safety of our employees, while maintaining our core operations. We expect these measures will result in difficulties and logistical challenges in our business operations, and in some cases, reduce the productivity of our workforce and cause disruptions and delays in shipping products to our customers.

We will continue to actively monitor the situation and may take further actions altering our business operations that we determine are in the best interests of our employees, customers, partners, suppliers, and stakeholders, or as required by federal, state, or local authorities. The ultimate effects that any such alterations or modifications may have on our business are not clear, including the effects on our customers, employees, and prospects, or on our financial results for the remainder of calendar year 2020.

Other Factors affecting our performance

In addition to the impact of the COVID-19 pandemic as described above, our performance is affected by several key factors, including the following:

Costs of JV Company and digital power business: We are incurring an increase in operating expenses due to the additional costs associated with pre-production and production ramp-up activities of the JV Company, as well as the initial startup work to develop and establish our new digital power business, both of which have had a significant impact on our financial performance. The JV Company has continued ramping up its production of assembly and testing during the nine months ended March 31, 2020. In July 2019, we commenced limited mass production at the 12-inch wafer fabrication facility, and continued ramping up during the nine months ended December 31, 2019. We expect the JV Company’s ramp-up activities will decline as a result of the significant disruption to global commerce and financial markets due to the COVID-19 pandemic and various “stay-at-home” orders and restrictions imposed by government authorities. As a result of the COVID-19 outbreak and the resulting lockdowns and significant supply chain disruption in China during the quarter ended March 31, 2020, the JV Company continued its production at a reduced volume as compared to the prior quarter. For the quarter ending June 30, 2020, in response to the surging demand in the computing market, we expect the JV Company to sequentially increase its production of its 12” wafer fabrication and assembly and test. The pre-production costs include costs relating to the installation of equipment; performance of the qualification process; increased demand for electrical power and other utilities; increased headcount as a result of hiring of additional personnel, staff and operators; and establishment of administrative and management functions and systems. Certain of such pre-production costs could be capitalized under U.S. GAAP accounting. However, the majority of such pre-production costs and all of the production ramp-up costs cannot be capitalized, and such costs have and may continue to have a negative impact on our profitability. We do not expect to incur pre-production costs after July 2019 as the JV Company has commenced limited mass production.

In addition, we are developing our digital power business based on the STMicro license agreement, which will allow us to design and distribute a full suite of advanced low-voltage power IC products. We have incurred and expect to continue to incur additional costs, including costs relating to compensation of qualified engineers and technical staff and other research and development and management activities, as we continue to build this new business. In the short term, we will not be able to generate sufficient amount of revenue from either of these two business initiatives to offset the increased costs, which will likely negatively impact our results of operations.

Manufacturing costs: Our gross margin is affected by a number of factors including our manufacturing costs, utilization of our manufacturing facilities, the production mixtures of our sales, pricing of wafers from third party foundries and pricing of semiconductor raw materials. Capacity utilization affects our gross margin because we have certain fixed costs associated with our packaging and testing facilities at our Oregon fab and our Chongqing fabrication facility operated by the JV Company. We expect that in the long term our JV Company will reduce our cost of manufacturing. If we are unable to utilize our manufacturing facilities at a desired level, our gross margin may be adversely affected. In addition, from time to time, we may experience wafer capacity constraints, particularly at third party foundries, that may prevent us from meeting fully the demand of our customers. While we can mitigate such constraints by increasing and re-allocating capacity at our own fab, we may not be able to do so quickly or at sufficient level, which could adversely affect our financial conditions and results of operations.

Erosion and fluctuation of average selling price: Erosion of average selling prices of established products is typical in our industry. Consistent with this historical trend, we expect our average selling prices of existing products to decline in the future. However, in the normal course of business, we seek to offset the effect of declining average selling price by introducing new and higher value products, expanding existing products for new applications and new customers and reducing the manufacturing cost of existing products. These strategies may cause the average selling price of our products to fluctuate significantly from time to time, thereby affecting our financial performance and profitability.

The global, regional economic and PC market conditions: Because our products primarily serve consumer electronic applications, a deterioration of the global and regional economic conditions could materially affect our revenue and results of operations. For example, because a significant amount of our revenue is derived from sales of products in the personal computing ("PC") markets, such as notebooks, motherboards and notebook battery packs, a significant decline or downturn in the PC market can have a material adverse effect on our revenue and results of operations. Our revenue from the PC market accounted for approximately 44.2% and 47.5% of our total revenue for the three months ended March 31, 2020 and 2019, respectively and 41.5% and 46.6% of our total revenue for the nine months ended March 31, 2020 and 2019, respectively. The PC markets have experienced a modest global decline in recent year due to continued growth of demand in tablets and smart phones, worldwide economic conditions and the industry inventory correction which had and may continue to have a material impact on the demand for our products. While recently we have experienced an increase of demand in PC market due to the impact of the COVID-19 pandemic, we cannot predict whether and how long such trend will continue. A decline of the PC market may have negative impact on our revenue, factory utilization, gross margin, our ability to resell excess inventory, and other performance measures. We have executed and continue to execute strategies to diversify our product portfolio, penetrate other market segments, including the consumer, communications and industrial markets, and improve gross margins and profit by implementing cost control measures. While making efforts to reduce our reliance on the computing market, we continue to support our computing business and capitalize on the opportunities in this market with a more focused and competitive PC product strategy to gain market share.

Product introductions and customers' product requirements: Our success depends on our ability to introduce products on a timely basis that meet or are compatible with our customers' specifications and performance requirements. Both factors, timeliness of product introductions and conformance to customers' requirements, are equally important in securing design wins with our customers. As we accelerate the development of new technology platforms, we expect to increase the pace at which we introduce new products and seek and acquire design wins. Our failure to introduce new products on a timely basis that meet customers' specifications and performance requirements, particularly those products with major OEM customers, and our inability to continue to expand our serviceable markets, could adversely affect our financial performance, including loss of market share. We believe that the JV Transaction will increase and diversify our customer base, particularly in China, in the long term. However, the ramp-activities and production schedule of our JV Company have been impacted by the COVID-19 pandemic and related events, as discussed above. Even if we are able to ramp up the operation of the JV Company timely, we may not be successful in acquiring a sufficient number of new customers to offset additional costs due to various factors, including but are not limited to, competition from other semiconductor companies in the region, our lack of history and prior relationships with customers as a new entrant, difficulties in executing our joint venture strategies, lack of control over our operations and the general economic conditions in Hong Kong and China.

Distributor ordering patterns, customer demand and seasonality: Our distributors place purchase orders with us based on their forecasts of end customer demand, and this demand may vary significantly depending on the sales outlook and market and economic conditions of end customers. Because these forecasts may not be accurate, channel inventory held at our distributors may fluctuate significantly, which in turn may prompt distributors to make significant adjustments to their purchase orders placed with us. As a result, our revenue and operating results may fluctuate significantly from quarter to quarter. In addition, because our products are used in consumer electronics products, our revenue is subject to seasonality. Our sales seasonality is affected by numerous factors, including global and regional economic conditions as well as the PC market conditions, revenue generated from new products, changes in distributor ordering patterns in response to channel inventory adjustments and end customer demand for our products and fluctuations in consumer purchase patterns prior to major holiday seasons. In recent periods, broad fluctuations in the semiconductor markets and the global and regional economic conditions, in particular the decline of the PC market conditions, have had a more significant impact on our results of operations than seasonality. Furthermore, our revenue may be impacted by the level of demand from our major customers due to factors outside of our control. If these major customers experience significant decline in the demand of their products, encounter difficulties or defects in their products, or otherwise fail to execute their sales and marketing strategies successfully, it may adversely affect our revenue and results of operations.

Regulatory Development: As previously disclosed in our Form 10-Q for the quarter ended December 31, 2019, the U.S. Department of Justice commenced an investigation into the Company's compliance with export control regulations relating to certain business transactions with Huawei and its affiliates ("Huawei"), which were added to the "Entity List" by the Department of Commerce ("DOC") in May 2019. In connection with this investigation, DOC has requested the Company to suspend

shipments of its products to Huawei, and the Company complied with such request, and the Company has not shipped any product to Huawei after December 31, 2019. The Company is currently working with DOC to resolve this issue. Accordingly, we expect the financial performance will be negatively impacted by the Huawei shipment interruption until such time when DOC permits us to continue shipment to Huawei. There is no guarantee that DOC will agree to permit us to resume shipment to Huawei on a timely basis, or at all, and we may not be able to acquire new or additional customers or demand to offset such loss of shipment. Our failure to do so will negatively impact our revenue and profitability. Furthermore, the Company is expected to incur significant costs and expenses, including legal fees, in connection with the government investigation, which may reduce our profitability and margin. See “Risk Factor-*The current government investigation and evolving export control regulations may adversely affect our financial performance and business operations*”.

Principal line items of statements of operations

The following describes the principal line items set forth in our condensed consolidated statements of operations:

Revenue

We generate revenue primarily from the sale of power semiconductors, consisting of power discretes and power ICs. Historically, a majority of our revenue has been derived from power discrete products. Because our products typically have three-year to five-year life cycles, the rate of new product introduction is an important driver of revenue growth over time. We believe that expanding the breadth of our product portfolio is important to our business prospects, because it provides us with an opportunity to increase our total bill-of-materials within an electronic system and to address the power requirements of additional electronic systems. In addition, a small percentage of our total revenue is generated by providing packaging and testing services to third parties through one of our subsidiaries.

Our product revenue is reported net of the effect of the estimated stock rotation returns and price adjustments that we expect to provide to our distributors. Stock rotation returns are governed by contract and are limited to a specified percentage of the monetary value of products purchased by the distributor during a specified period. At our discretion or upon our direct negotiations with the original design manufacturers ("ODMs") or original equipment manufacturers ("OEMs"), we may elect to grant special pricing that is below the prices at which we sold our products to the distributors. In these situations, we will grant price adjustments to the distributors reflecting such special pricing. We estimate the price adjustments for inventory at the distributors based on factors such as distributor inventory levels, pre-approved future distributor selling prices, distributor margins and demand for our products.

Cost of goods sold

Our cost of goods sold primarily consists of costs associated with semiconductor wafers, packaging and testing, personnel, including share-based compensation expense, overhead attributable to manufacturing, operations and procurement, and costs associated with yield improvements, capacity utilization, warranty and inventory reserves. As the volume of sales increases, we expect cost of goods sold to increase. We implemented a process to improve our factory capacity utilization rates by transferring more wafer production to our Oregon fab and reducing our reliance on outside foundries. While our utilization rates cannot be immune to the market conditions, our goal is to make them less vulnerable to market fluctuations. We believe our market diversification strategy and product growth will drive higher volume of manufacturing which will improve our factory utilization rates and gross margin in the long run.

Operating expenses

Our operating expenses consist of research and development, selling, general and administrative expenses. We expect our operating expenses as a percentage of revenue to fluctuate from period to period as we continue to exercise cost control measures in response to the declining PC market as well as align our operating expenses to the revenue level.

Research and development expenses. Our research and development expenses consist primarily of salaries, bonuses, benefits, share-based compensation expense, expenses associated with new product prototypes, travel expenses, fees for engineering services provided by outside contractors and consultants, amortization of software and design tools, depreciation of equipment and overhead costs. We continue to invest in developing new technologies and products utilizing our own fabrication and packaging facilities as it is critical to our long-term success. We also evaluate appropriate investment levels and stay focused on new product introductions to improve our competitiveness. We expect that our research and development expenses will fluctuate from time to time.

Selling, general and administrative expenses. Our selling, general and administrative expenses consist primarily of salaries, bonuses, benefits, share-based compensation expense, product promotion costs, occupancy costs, travel expenses, expenses related to sales and marketing activities, amortization of software, depreciation of equipment, maintenance costs and other expenses for general and administrative functions as well as costs for outside professional services, including legal, audit and accounting services. We expect our selling, general and administrative expenses to fluctuate in the near future as we continue to exercise cost control measures as well as incur less pre-production costs due to the commencement of mass production in our JV Company.

Impairment of privately-held investment

During fiscal year 2017, we purchased shares of common stock in a privately-held company at a total cost of \$0.6 million. We accounted for the investment on a cost basis. During the quarter ended as of March 31, 2020, we recorded impairment charges of \$0.6 million in connection with this investment as we concluded the impairment to be other-than-temporary.

Income tax expense

We are subject to income taxes in various jurisdictions. Significant judgment and estimates are required in determining our worldwide income tax expense. The calculation of tax liabilities involves dealing with uncertainties in the application of complex tax regulations of different jurisdictions globally. We establish accruals for potential liabilities and contingencies based on a more likely than not threshold to the recognition and de-recognition of uncertain tax positions. If the recognition threshold is met, the applicable accounting guidance permits us to recognize a tax benefit measured at the largest amount of tax benefit that is more likely than not to be realized upon settlement with a taxing authority. If the actual tax outcome of such exposures is different from the amounts that were initially recorded, the differences will impact the income tax and deferred tax provisions in the period in which such determination is made. Changes in the location of taxable income (loss) could result in significant changes in our income tax expense.

We record a valuation allowance against deferred tax assets if it is more likely than not that a portion of the deferred tax assets will not be realized, based on historical profitability and our estimate of future taxable income in a particular jurisdiction. Our judgments regarding future taxable income may change due to changes in market conditions, changes in tax laws, tax planning strategies or other factors. If our assumptions and consequently our estimates change in the future, the deferred tax assets may increase or decrease, resulting in corresponding changes in income tax expense. Our effective tax rate is highly dependent upon the geographic distribution of our worldwide profits or losses, the tax laws and regulations in each geographical region where we have operations, the availability of tax credits and carry-forwards and the effectiveness of our tax planning strategies.

Results of Operations

The following tables set forth statements of operations, also expressed as a percentage of revenue, for the three and nine months ended March 31, 2020 and 2019. Our historical results of operations are not necessarily indicative of the results for any future period.

	Three Months Ended March 31,				Nine Months Ended March 31,			
	2020	2019	2020	2019	2020	2019	2020	2019
	(in thousands)		(% of revenue)		(in thousands)		(% of revenue)	
Revenue	\$ 106,852	\$ 109,067	100.0 %	100.0 %	\$ 342,514	\$ 339,064	100.0 %	100.0 %
Cost of goods sold	84,393	83,438	79.0 %	76.5 %	268,717	251,322	78.5 %	74.1 %
Gross profit	22,459	25,629	21.0 %	23.5 %	73,797	87,742	21.5 %	25.9 %
Operating expenses								
Research and development	13,569	11,417	12.7 %	10.5 %	38,084	35,401	11.1 %	10.4 %
Selling, general and administrative	16,909	17,947	15.8 %	16.5 %	47,723	58,403	13.9 %	17.2 %
Impairment of privately-held investment	600	—	0.6 %	— %	600	—	0.2 %	— %
Total operating expenses	31,078	29,364	29.1 %	27.0 %	86,407	93,804	25.2 %	27.6 %
Operating loss	(8,619)	(3,735)	(8.1)%	(3.5)%	(12,610)	(6,062)	(3.7)%	(1.7)%
Interest expense and other income (loss), net	(2,282)	(1,595)	(2.1)%	(1.5)%	(3,744)	(4,455)	(1.1)%	(1.3)%
Loss before income taxes	(10,901)	(5,330)	(10.2)%	(5.0)%	(16,354)	(10,517)	(4.8)%	(3.0)%
Income tax expense (benefit)	(1,015)	625	(0.9)%	0.6 %	(37)	1,886	— %	0.6 %
Net loss including noncontrolling interest	(9,886)	(5,955)	(9.3)%	(5.6)%	(16,317)	(12,403)	(4.8)%	(3.6)%
Net loss attributable to noncontrolling interest	(3,391)	(4,400)	(3.2)%	(4.0)%	(9,826)	(11,719)	(2.9)%	(3.5)%
Net loss attributable to Alpha and Omega Semiconductor Limited	\$ (6,495)	\$ (1,555)	(6.1)%	(1.6)%	\$ (6,491)	\$ (684)	(1.9)%	(0.1)%

Share-based compensation expense was recorded as follows:

	Three Months Ended March 31,				Nine Months Ended March 31,			
	2020	2019	2020	2019	2020	2019	2020	2019
	(in thousands)		(% of revenue)		(in thousands)		(% of revenue)	
Cost of goods sold	\$ 357	\$ 494	0.3%	0.5%	\$ 1,197	\$ 1,532	0.3%	0.5%
Research and development	991	555	0.9%	0.5%	1,987	1,929	0.6%	0.6%
Selling, general and administrative	1,528	2,063	1.4%	1.9%	4,548	7,198	1.3%	2.1%
Total	\$ 2,876	\$ 3,112	2.6%	2.9%	\$ 7,732	\$ 10,659	2.2%	3.2%

Three and Nine Months Ended March 31, 2020 and 2019

Revenue

The following is a summary of revenue by product type:

	Three Months Ended March 31,				Nine Months Ended March 31,			
	2020	2019	Change		2020	2019	Change	
	(in thousands)		(in thousands)	(in percentage)	(in thousands)		(in thousands)	(in percentage)
Power discrete	\$ 89,932	\$ 89,936	\$ (4)	— %	\$ 291,964	\$ 275,485	\$ 16,479	6.0 %
Power IC	15,699	17,631	(1,932)	(11.0)%	46,078	56,430	(10,352)	(18.3)%
Packaging and testing services	1,221	1,500	(279)	(18.6)%	4,472	7,149	(2,677)	(37.4)%
	\$ 106,852	\$ 109,067	\$ (2,215)	(2.0)%	\$ 342,514	\$ 339,064	\$ 3,450	1.0 %

Total revenue was \$106.9 million for the three months ended March 31, 2020, a decrease of \$2.2 million, or 2.0%, as compared to \$109.1 million for the same quarter last year. The decrease was primarily due to a decrease of \$1.9 million in sales of power IC products and a decrease of \$0.3 million in revenue of packaging and testing services, primarily as a result of reduction of customer demand caused by the global COVID-19 pandemic and related economic impact. The decrease in power discrete and power IC product sales was primarily due to a 8.5% decrease in unit shipments, partially offset by a 7.4% increase in average selling price as compared to the same quarter last year due to a shift in product mix. The decrease in revenue of packaging and testing services for the three months ended March 31, 2020 as compared to the same quarter last year was primarily due to decreased demand.

Total revenue was \$342.5 million for the nine months ended March 31, 2020, an increase of \$3.5 million, or 1.0%, as compared to \$339.1 million for the same period last year. The increase was primarily due to an increase of \$16.5 million in sales of power discrete, partially offset by a decrease of \$10.4 million in sales of power IC sales products. The net increase in power discrete and power IC product sales was primarily due to a 11.8% increase in average selling price as compared to the same period of last year mainly due to a shift in product mix, partially offset by a 8.9% decrease in unit shipments. The decrease in revenue of packaging and testing services for the nine months ended March 31, 2020 as compared to the same period last year was primarily due to decreased capacity to provide these services externally.

Cost of goods sold and gross profit

	Three Months Ended March 31,				Nine Months Ended March 31,			
	2020	2019	Change		2020	2019	Change	
	(in thousands)		(in thousands)	(in percentage)	(in thousands)		(in thousands)	(in percentage)
Cost of goods sold	\$ 84,393	\$ 83,438	\$ 955	1.1 %	\$ 268,717	\$ 251,322	\$ 17,395	6.9 %
Percentage of revenue	79.0%	76.5%			78.5%	74.1%		
Gross profit	\$ 22,459	\$ 25,629	\$ (3,170)	(12.4)%	\$ 73,797	\$ 87,742	\$ (13,945)	(15.9)%
Percentage of revenue	21.0%	23.5%			21.5%	25.9%		

Cost of goods sold was \$84.4 million for the three months ended March 31, 2020, an increase of \$1.0 million, or 1.1%, as compared to \$83.4 million for the same quarter last year. The increase was primarily due to the limited mass production in our Chongqing joint venture. Gross margin decreased by 2.5 percentage points to 21.0% for the three months ended March 31, 2020 as compared to 23.5% for the same quarter last year. The decrease in gross margin was primarily as a result of low capacity utilization due to the commencement of limited mass production in our Chongqing joint venture during the three months ended March 31, 2020.

Cost of goods sold was \$268.7 million for the nine months ended March 31, 2020, an increase of \$17.4 million, or 6.9%, as compared to \$251.3 million for the same period last year. The increase was primarily due to limited mass production in our Chongqing joint venture and the 1.0% increase of revenue. Gross margin decreased by 4.4 percentage points to 21.5% for the nine months ended March 31, 2020 as compared to 25.9% for the same period last year. The decrease in gross margin was primarily as of result of low capacity utilization due to the commencement of limited mass production in our Chongqing joint venture during the nine months ended March 31, 2020.

Research and development expenses

	Three Months Ended March 31,				Nine Months Ended March 31,			
	2020	2019	Change		2020	2019	Change	
	(in thousands)		(in thousands)	(in percentage)	(in thousands)		(in thousands)	(in percentage)
Research and development	\$ 13,569	\$ 11,417	\$ 2,152	18.8%	\$ 38,084	\$ 35,401	\$ 2,683	7.6%

Research and development expenses were \$13.6 million for the three months ended March 31, 2020, an increase of \$2.2 million, or 18.8%, as compared to \$11.4 million for the same quarter last year. The increase was primarily attributable to a \$0.9 million increase in employee compensation and benefit expense mainly due to higher bonus and annual merit increase, a \$0.8 million in increase in professional services expense as a result of higher consulting fees, and a \$0.5 million increase in share-based compensation expense due to an increase in stock awards canceled during the September 2019 quarter.

Research and development expenses were \$38.1 million for the nine months ended March 31, 2020, an increase of \$2.7 million, or 7.6%, as compared to \$35.4 million for the same period last year. The increase was primarily attributable to a \$0.5 million increase in employee compensation and benefit expense mainly due to annual merit increase, partially offset by lower bonus accrual, a \$1.3 million increase in professional services expense as a result of higher consulting fees, a \$0.7 million increase in depreciation expenses, and a \$0.1 million increase in share-based compensation expense due to more grants in stock awards.

Selling, general and administrative expenses

	Three Months Ended March 31,				Nine Months Ended March 31,			
	2020	2019	Change		2020	2019	Change	
	(in thousands)		(in thousands)	(in percentage)	(in thousands)		(in thousands)	(in percentage)
Selling, general and administrative	\$ 16,909	\$ 17,947	\$ (1,038)	(5.8)%	\$ 47,723	\$ 58,403	\$ (10,680)	(18.3)%

Selling, general and administrative expenses were \$16.9 million for the three months ended March 31, 2020, a decrease of \$1.0 million, or 5.8%, as compared to \$17.9 million for the same quarter last year. The decrease was primarily due to the commencement of limited mass production at the 12-inch fab facility and continued ramping up the production of assembly and testing during the current quarter in the JV Company, resulting in significantly lower pre-production costs including a \$2.7 million decrease in employee compensation and benefits expense and other costs. In addition, there was a \$0.5 million decrease in share-based compensation expense due to an increase in stock awards canceled and \$0.3 million of gain on disposal of property and equipment. The net decrease was partially offset by a \$0.2 million increase in depreciation expenses and \$2.4 million increase in legal expenses primarily due to government investigation.

Selling, general and administrative expenses were \$47.7 million for the nine months ended March 31, 2020, a decrease of \$10.7 million, or 18.3%, as compared to \$58.4 million for the same period last year. The decrease was primarily due to the commencement of limited mass production at the 12-inch fab facility and continued ramping up the production of assembly and testing during the current period in the JV Company, resulting in significantly lower pre-production costs including a \$11.1 million decrease in employee compensation and benefits expense and other costs. In addition, there was a \$2.6 million decrease in share-based compensation expense due to an increase in stock awards canceled and \$0.2 million of gain on disposal of property and equipment. The net decrease was partially offset by a \$0.8 million increase in depreciation expenses and \$2.7 million increase in legal expenses primarily due to government investigation.

Impairment of privately-held investment

	Three Months Ended March 31,				Nine Months Ended March 31,			
	2020	2019	Change		2020	2019	Change	
	(in thousands)		(in thousands)	(in percentage)	(in thousands)		(in thousands)	(in percentage)
Impairment of privately-held investment	\$ 600	\$ —	\$ 600	100.0%	\$ 600	\$ —	\$ 600	100.0%

During the quarter of March 31, 2020, we recorded an other-than temporary impairment charge for our investment of \$0.6 million in a privately-held start-up company. As of March 31, 2020, we have \$0.1 million of privately-held investment.

Interest expense and other income (loss), net

	Three Months Ended March 31,				Nine Months Ended March 31,			
	2020	2019	Change		2020	2019	Change	
	(in thousands)		(in thousands)	(in percentage)	(in thousands)		(in thousands)	(in percentage)
Interest expense and other income (loss), net	\$ (2,282)	\$ (1,595)	\$ (687)	43.1%	\$ (3,744)	\$ (4,455)	\$ 711	(16.0)%

Interest expense was primarily related to bank borrowings. The decrease in interest expenses during the three and nine months ended March 31, 2020 as compared to the same period last year was primarily due to an interest refund from the Chinese government in the JV Company, partially offset by higher interest expense as a result of an increase in bank borrowings.

Interest income and others were primarily related to interest earned from cash and cash equivalents, as well as foreign exchange gains (losses). The increase in interest income and others, net during the three and nine months ended March 31, 2020 as compared to the same quarter last year was primarily due to lower foreign currency exchange losses as a result of the appreciation of USD against RMB.

Income tax expense

	Three Months Ended March 31,				Nine Months Ended March 31,			
	2020	2019	Change		2020	2019	Change	
	(in thousands)		(in thousands)	(in percentage)	(in thousands)		(in thousands)	(in percentage)
Income tax expense (benefit)	\$ (1,015)	\$ 625	\$ (1,640)	(262.4)%	\$ (37)	\$ 1,886	\$ (1,923)	(102.0)%

For the three months ended March 31, 2020, the Company recognized income tax benefit of approximately \$1.0 million, compared to income tax expense of \$0.6 million for the three months ended March 31, 2019. The income tax benefit of \$1.0 million for the three months ended March 31, 2020 included a \$1.3 million discrete tax benefit, \$1.1 million benefit of related to remeasuring the tax benefit of net operating losses that can be carried back to prior years following the passage of the U.S. CARES Act, and \$0.2 million related to primarily a prior year reserve release. The tax expense of \$0.6 million for the three months ended March 31, 2019 included a \$0.2 million discrete tax benefit principally related to a prior year reserve release. Excluding the discrete income tax items, the effective tax rate for the three months ended March 31, 2020 and 2019 was (2.3)% and (14.8)%, respectively. The changes in the tax expense between the periods resulted primarily from the discrete tax benefit resulting from the tax law changes resulting from the CARES Act as well as changes in the mix of earnings in various geographic jurisdictions between the current year and the same period of last year.

For the nine months ended March 31, 2020, the Company recognized an income tax benefit of approximately \$0.04 million, compared to income tax expense of \$1.9 million for the nine months ended March 31, 2019. The tax benefit of \$0.04 million for the nine months ended March 31, 2020 included a \$1.3 million discrete tax benefit, a \$1.1 million of which related to remeasuring the tax benefit of net operating losses that can be carried back to prior years following the passage of the U.S. CARES Act, and \$0.2 million of which primarily related to a prior year reserve release. The tax expense of \$1.9 million for the nine months ended March 31, 2019 included a \$0.1 million discrete tax benefit principally related to a prior year reserve release. Excluding the discrete income tax items, the effective tax rate for the nine months ended March 31, 2020 and 2019 was (7.4)% and (19.2)%, respectively. The changes in the tax expense between the periods resulted primarily from the discrete tax benefit resulting from the tax law changes resulting from the CARES Act as well as changes in the mix of earnings in various geographic jurisdictions between the current year and the same period of last year.

Liquidity and Capital Resources

Our principal need for liquidity and capital resources is to maintain sufficient working capital to support our operations and to invest adequate capital expenditures to grow our business. To date, we finance our operations and capital expenditures primarily through funds generated from operations and borrowings under our term loan, financing lease and other debt agreements.

On April 26, 2020, the JV Company entered into a loan agreement with China Development Bank, Agricultural Bank of China, China Merchants Bank and Chongqing Rural Commercial Bank (collectively, "the Banks") in the aggregate principal amount of RMB 250 million, (approximately \$35.7 million based on currency exchange rate between RMB and U.S. Dollar on April 26, 2020). The obligation under the loan agreement is secured by certain assets of the JV Company. Beginning December 18, 2020, the JV Company is required to make consecutive semi-annual payments of principal until December 8, 2024. Interest payment is due on March 20, June 20, September 20 and December 20 of each year based on China local one-year loan prime rate ("LPR") plus 1.3%.

On April 15, 2020, the JV Company entered into a one-year loan agreement with China Everbright Bank in China to provide a loan of a maximum of RMB 100 million (approximately \$14.3 million based on the currency exchange rate between

RMB and U.S. Dollar on April 15, 2020). In April 2020, the JV Company borrowed RMB 20 million, or \$2.8 million based on the currency exchange rate between RMB and U.S. Dollar on April 16, 2020, at a fixed interest rate of 5.1375% per annum. Interest payment is due on the 20th of each month, and the entire principal is due on April 16, 2021.

In October 2019, the Company's subsidiary in China entered into a line of credit facility with Bank of Communications Limited in China. This line of credit matures on February 14, 2021 and is based on the China Base Rate multiplied by 1.05, or 4.99% on October 31, 2019. The purpose of the credit facility was to provide short-term borrowings. The Company could borrow up to approximately RMB 60.0 million or \$8.5 million based on the currency exchange rate between the RMB and the U.S. Dollar on October 31, 2019. As of March 31, 2020, there was no outstanding balance under the loan.

On September 23, 2019, the JV Company entered into a short-term loan agreement with China Everbright bank in China. The JV Company can borrow up to RMB 50.0 million or \$7.1 million based on the currency exchange rate between RMB and U.S. Dollar on September 23, 2019 at varying interest rates, with either RMB or USD. Interest payments with the entire principal are due no later than 90 days from each borrowing date. In January and February 2020, the JV Company borrowed \$1.6 million and \$5.5 million under this loan, respectively. Interest payments with the entire principal were due on April 7, 2020 and May 3, 2020. As of March 31, 2020, the outstanding balance under the loan was \$7.1 million.

On March 21, 2019, the JV Company entered into a one-year loan agreement with China Everbright Bank in China to provide a loan for RMB 20 million, or \$3.0 million based on the currency exchange rate between RMB and U.S. Dollar on March 31, 2019, at a fixed interest rate of 5.44% per annum. Interest payments are due monthly with the entire principal due on March 21, 2020. As of March 31, 2020, there was no outstanding balance under the loan.

On November 29 and December 4, 2018, the JV Company entered into two, one-year loan agreements with China Merchant Bank and Chongqing LiangJiang New District China Merchants Group Limited Company in China to provide loans for RMB 80 million and RMB 20 million, respectively, or \$14.5 million in total based on the currency exchange rate between RMB and U.S. Dollar on December 31, 2018, at varying interest rates. On January 20, 2020, the JV Company renewed the loan agreements with the same terms. Interest payments are due monthly and quarterly with the entire principal due not later than January 21, 2021. As of March 31, 2020, the outstanding balance under the loan was \$14.1 million.

On November 16, 2018, the Company's subsidiary in China entered into a line of credit facility with Industrial and Commercial Bank of China, which expired on September 30, 2019. The purpose of the credit facility was to provide short-term borrowings. The Company could borrow up to approximately RMB 72.0 million or \$10.3 million based on currency exchange rate between RMB and U.S. Dollar on November 16, 2018. In October 2019, this line of credit was renewed with the same terms and a maturity date of September 30, 2020. As of March 31, 2020, there was no outstanding balance under the line of credit.

On August 9, 2019, one of the Company's wholly-owned subsidiaries ("the "Borrower") entered into a factoring agreement with the Hongkong and Shanghai Banking Corporation Limited ("HSBC"), whereby the Borrower assigns certain of its accounts receivable with recourse. This factoring agreement allows the Borrower to borrow up to 70% of the net amount of its eligible accounts receivable of the Borrower with a maximum amount of \$30.0 million. The interest rate is based on one month LIBOR plus 1.75% per annum. This agreement, with certain financial covenants required, has no expiration date. The Company is the guarantor for this agreement. The Company is accounting for this transaction as a secured borrowing under the Transfers and Servicing of Financial Assets guidance. In addition, any cash held in the restricted bank account controlled by HSBC has a legal right of offset against the borrowing. The Borrower was in compliance with these covenants as of March 31, 2020. During the three months ended March 31, 2020, the Company borrowed \$8.0 million and repaid this amount in full. As of March 31, 2020, there was no outstanding balance and the Company had unused credit of approximately \$30.0 million.

On May 9, 2018 (the "Effective Date"), the JV Company entered into a lease finance agreement and a security agreement (the "Agreements") with YinHai Leasing Company and The Export-Import Bank of China (the "Lenders"). Pursuant to the Agreements, the Lenders agreed to provide an aggregate of Chinese Renminbi (RMB) 400.0 million, or \$62.8 million based on the currency exchange rate between the RMB and the U.S. Dollar on the Effective Date, of financing to the JV Company (the "Lease Financing"). The interest under the Lease Financing is accrued based on the China Base Rate multiplied by 1.15, or 5.4625% on the Effective Date. Under the Agreements, at the end of the five-year lease term, the Lenders agree to sell such equipment back to the JV Company for a nominal amount (RMB 1). The JV Company's obligations under the Lease Financing are secured by the land and building owned by the JV Company (the "Collateral"). As of March 31, 2020, the outstanding balance of the Lease Financing was approximately \$45.8 million based on the currency exchange rate as of March 31, 2020.

In December 2019, the JV Company entered into a loan agreement with China Development Bank in the amount of \$24.0 million. The obligation under the loan agreement is secured by certain assets of the JV Company. Beginning December

18, 2020, the JV Company is required to make consecutive semi-annual payments of principal until December 8, 2024. The interest is accrued based on the LIBOR rate plus 280BP. The interest is required to be paid March 21 and September 21 each year. As of March 31, 2020, the outstanding balance of the loan was \$24.0 million.

On March 12, 2019, the JV Company entered into a loan agreement with The Export-Import Bank of China in the aggregate principal amount of RMB 200 million (approximately \$29.8 million based on currency exchange rate between RMB and U.S. Dollar on March 31, 2019). The loan will mature on February 20, 2025. The JV Company drew down RMB 190 million and RMB 10 million in March 2019 and December 2019, respectively. The loan withdraw window expired on February 28, 2020. The interest is accrued based on the China Base Rate multiplied by 1.1, or 5.39%. The loan requires quarterly interest payments. The principal payments are required to be paid every 6 months over the term of loan commencing in October 2019. This loan is secured by the buildings and certain equipment owned by the JV Company. As a condition of the loan arrangement, RMB 14 million (approximately \$2.0 million) of cash is held as restricted cash by the JV Company as a compensating balance at the bank until the principal is paid. In December 2019, RMB 3.0 million was repaid. As of March 31, 2020, the outstanding balance of the loan was RMB 197 million (equivalent of \$27.8 million based on the currency exchange rate as of March 31, 2020).

On May 1, 2018, Jireh entered into a credit agreement with the Bank that provided a term loan in an amount of \$17.8 million. The obligation under the credit agreement is secured by certain assets of Jireh and guaranteed by the Company. The loan accrues interest based on a fixed rate of 5.04% based on the outstanding balance of the loan. The credit agreement contains customary restrictive covenants and includes certain financial covenants that require us to maintain, on a consolidated basis, specified financial ratios. We were in compliance with these covenants as of March 31, 2020. As of March 31, 2020, the outstanding balance of the term loan was \$16.2 million.

On August 15, 2017, our Oregon subsidiary, Jireh Semiconductor Incorporated (“Jireh”), entered into a credit agreement with a financial institution (the “Bank”) that provides a term loan in an amount up to \$30.0 million for the purpose of purchasing certain equipment for our fabrication facility located in Oregon. The obligation under the credit agreement is secured by substantially all assets of Jireh and guaranteed by the Company. The credit agreement has a five-year term and matures on August 15, 2022. In January 2018 and July 2018, Jireh drew down the loan in the amount of \$13.2 million and \$16.7 million, respectively. The loan accrues interest based on an adjusted London Interbank Offered Rate (“LIBOR”) as defined in the credit agreement, plus a specified applicable margin in the range of 1.75% to 2.25%, based on the outstanding balance of the loan. The credit agreement contains customary restrictive covenants, including certain financial covenants that require the Company to maintain, on a consolidated basis, specified financial ratios and fixed charge coverage ratio. We were in compliance with these covenants as of March 31, 2020. As of March 31, 2020, the outstanding balance of the term loan was \$18.6 million.

In September 2017, the Board of Directors approved a repurchase program (the “Repurchase Program”) that allowed us to repurchase our common shares from the open market pursuant to a pre-established Rule 10b5-1 trading plan or through privately negotiated transactions up to an aggregate of \$30.0 million. The amount and timing of any repurchases under the Repurchase Program depend on a number of factors, including but not limited to, the trading price, volume, availability of our common shares and the amount of available cash reserve. Shares repurchased under this program are accounted for as treasury shares and the total cost of shares repurchased is recorded as a reduction of shareholders' equity. There is no guarantee that such repurchases under the Repurchase Program will enhance the value of our shares.

We did not repurchase any shares during the nine months ended March 31, 2020. Since the inception of the prior repurchase program in 2010, we repurchased an aggregate of 6,784,648 shares from the open market for a total cost of \$67.3 million, at an average price of \$9.92 per share, excluding fees and related expenses. As of March 31, 2020, of the 6,784,648 repurchased shares, 145,428 shares with a weighted average repurchase price of \$10.32 per share, were reissued at an average price of \$5.30 per share pursuant to option exercises and vested restricted share units. We had \$13.4 million remained available under the Repurchase Program as of March 31, 2020.

We believe that our current cash and cash equivalents and cash flows from operations will be sufficient to meet our anticipated cash needs, including working capital and capital expenditures, for at least the next twelve months. In the long-term, we may require additional capital due to changing business conditions or other future developments, including any investments or acquisitions we may decide to pursue. If our cash is insufficient to meet our needs, we may seek to raise capital through equity or debt financing. The sale of additional equity securities could result in dilution to our shareholders. The incurrence of indebtedness would result in increased debt service obligations and may include operating and financial covenants that would restrict our operations. We cannot be certain that any financing will be available in the amounts we need or on terms acceptable to us, if at all.

Cash and cash equivalents

As of March 31, 2020 and June 30, 2019, we had \$114.5 million and \$124.3 million of cash, cash equivalents and restricted cash, respectively. Our cash, cash equivalents and restricted cash primarily consist of cash on hand, restricted cash, and short-term bank deposits with original maturities of three months or less. Of the \$114.5 million and \$124.3 million cash, cash equivalents and restricted cash, \$99.5 million and \$68.2 million, respectively, are deposited with financial institutions outside the United States.

The following table shows our cash flows from operating, investing and financing activities for the periods indicated:

	Nine Months Ended March 31,	
	2020	2019
	(in thousands)	
Net cash provided by operating activities	\$ 22,023	\$ 23,156
Net cash used in investing activities	(47,655)	(90,295)
Net cash provided by financing activities	16,494	77,477
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(636)	(573)
Net increase (decrease) in cash, cash equivalents and restricted cash	\$ (9,774)	\$ 9,765

Cash flows from operating activities

Net cash used in operating activities of \$22.0 million for the nine months ended March 31, 2020 resulted primarily from net loss of \$16.3 million and net changes in assets and liabilities of \$3.4 million, partially offset by non-cash expenses of \$41.7 million. The non-cash expenses of \$41.7 million primarily included \$33.5 million of depreciation and amortization expenses, \$7.7 million of share-based compensation expense, \$0.6 million of impairment of our investment in a privately-held start-up company and \$0.2 million of gain on disposal of property and equipment. The net changes in assets and liabilities of \$3.4 million were primarily due to a \$14.7 million increase in inventories, a \$3.4 million decrease in accounts payable due to timing of payment, and \$1.3 million decrease in income taxes payable, partially offset by a \$6.8 million decrease in accounts receivable from timing of billings and collection of payments as well as lower revenue in the current quarter, a \$2.7 million decrease in other current and long term assets due to decrease in advance payments to vendors, and a \$6.3 million increase in accrued and other liabilities.

Net cash provided by operating activities of \$23.2 million for the nine months ended March 31, 2019 resulted primarily from net loss of \$12.4 million and non-cash expenses of \$35.1 million as well as net changes in assets and liabilities of \$0.5 million. The non-cash expenses of \$35.1 million primarily included a \$24.2 million of depreciation and amortization expenses, a \$10.7 million of share-based compensation expense and \$0.3 million of deferred income taxes. The net changes in assets and liabilities of \$0.5 million were primarily due to a \$5.1 million decrease in accounts receivable from timing of billings and collection of payments as well as lower revenue in current quarter, a \$6.0 million increase in accounts payable due to timing of payments and \$9.7 million increase in accrued and other liabilities, partially offset by a \$17.7 million increase in inventories, a \$2.4 million increase in other current and long term assets due to increase in advance payments to vendors, and a \$0.2 million decrease in income taxes payable.

Cash flows from investing activities

Net cash used in investing activities of \$47.7 million for the nine months ended March 31, 2020 was primarily attributable to \$49.2 million purchases of property and equipment, including \$15.8 million purchased by the JV Company, partially offset by \$1.3 million government grant related to equipment in the JV Company and \$0.3 million of proceeds from sale of property and equipment.

Net cash used in investing activities of \$90.3 million for the nine months ended March 31, 2019 was primarily attributable to \$89.9 million purchases of property and equipment, including \$58.5 million purchased by the JV Company and \$0.4 million in purchase of intangible asset.

Cash flows from financing activities

Net cash provided by financing activities of \$16.5 million for the nine months ended March 31, 2020 was primarily attributable to \$49.1 million proceeds from borrowings and \$1.7 million of proceeds from exercise of stock options and ESPP, partially offset by \$25.8 million in repayments of borrowings, \$7.2 million in payment of finance lease obligations, and \$1.4 million in common shares acquired to settle withholding tax related to vesting of restricted stock units.

Net cash provided by financing activities of \$77.5 million for the nine months ended March 31, 2019 was primarily attributable to \$24.0 million proceeds invested by the noncontrolling interest in the JV Company, \$67.5 million proceeds from borrowings, and a \$1.3 million of proceeds from exercise of stock options and ESPP, partially offset by \$1.5 million for repurchase of our common shares under the Repurchase Program, \$2.4 million in payment of capital lease obligations, \$9.4 million in repayments of borrowings, and \$1.9 million in common shares acquired to settle withholding tax related to vesting of restricted stock units.

Commitments

See Note 10 of the Notes to the Condensed Consolidated Financial Statements contained in this Quarterly Report on Form 10-Q for a description of commitments.

Off-Balance Sheet Arrangements

As of March 31, 2020, we had no material off-balance sheet arrangements as defined in Regulation S-K 303(a)(4)(ii) arrangements.

Contractual Obligations

There were no material changes outside of our ordinary course of business in our contractual obligations from those disclosed in our Annual Report on Form 10-K for the fiscal year ended June 30, 2019.

Recent Accounting Pronouncements

See [Note 1](#) of the Notes to the Condensed Consolidated Financial Statements contained in this Quarterly Report on Form 10-Q for a description of recent accounting pronouncements, including the expected dates of adoption and estimated effects on results of operations and financial condition, which is incorporated herein by reference.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

There have been no material changes in the market risks previously disclosed in Part II, Item 7A, "Quantitative and Qualitative Disclosures About Market Risk," of our Annual Report on Form 10-K for the year ended June 30, 2019, filed with the SEC on August 23, 2019.

ITEM 4. CONTROLS AND PROCEDURES

Management's Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended, (the "Exchange Act")), as of the end of the period covered by this report. Based on that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures as of March 31, 2020 have been designed and are functioning effectively to provide reasonable assurance that the information required to be disclosed in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting during the nine months ended March 31, 2020 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Limitation on Effectiveness of Controls

While our disclosure controls and procedures and internal control over financial reporting are designed to provide reasonable assurance that their respective objectives will be met, we do not expect that our disclosure controls and procedures or our internal control over financial reporting are or will be capable of preventing or detecting all errors and all fraud. Any control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met.

PART II. OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

As previously disclosed in our Form 10-Q for the quarter ended December 31, 2019, the U.S. Department of Justice (“DOJ”) commenced an investigation into the Company’s compliance with export control regulations relating to its business transactions with Huawei and its affiliates (“Huawei”), which were added to the “Entity List” by the Department of Commerce (“DOC”) in May 2019. The Company is cooperating fully with federal authorities in the investigation. The Company continued to respond to inquiries and requests from DOJ for documents and information relating to the investigation, and the matter is currently pending at DOJ. In connection with this investigation, DOC requested the Company to suspend shipments of its products to Huawei and the Company complied with such request, and the Company has not shipped any product to Huawei after December 31, 2019. The Company has been working with DOC to resolve this issue. As part of this process, DOC requested the Company to provide certain documents and materials relating the Company’s supply chain and shipment process, and the Company responded to such requests during the quarter ended March 31, 2020, and DOC is currently reviewing this matter. See “Risk Factor-*The current government investigation and evolving export control regulations may adversely affect our financial performance and business operations*” and footnote 10 to the consolidated financial statements of the Company.

On March 19, 2020, Darryl Gray, a stockholder of the Company (the “Plaintiff”), filed a putative class action complaint in the United States District Court for the Southern District of New York (the “Gray Action”), alleging that the Company and its management members made material misstatements or omissions regarding the Company’s business and operations, including its export control practices relating to business transactions with Huawei and its affiliate. The Gray Action asserts claims under Section 10(b) of the Exchange Act against the Company, its Chief Executive Officer and Chief Financial Officer (collectively, the Defendants”), as well as claims under Section 20(a) of the Exchange Act against the Chief Executive Officer and Chief Financial Officer. Among other remedies, the actions seek to recover compensatory damages and other damages and attorney’s fees and costs. On March 20, 2020, the court issued a summons to the Defendants. On March 25, 2020, the court scheduled a conference for July 1, 2020 to consider any motions for appointment of lead plaintiff and lead counsel. The Company believes the claims in the Gray Action are without merit and intends to vigorously defend this litigation.

We have in the past, and may from time to time in the future, become involved in legal proceedings arising from the normal course of business activities. The semiconductor industry is characterized by frequent claims and litigation, including claims regarding patent and other intellectual property rights as well as improper hiring practices. Irrespective of the validity of such claims, we could incur significant costs in the defense thereof or could suffer adverse effects on its operations.

ITEM 1A. RISK FACTORS

Item 1A of Part I of our Annual Report on Form 10-K for the year ended June 30, 2019, filed with the SEC on August 23, 2019, contains risk factors identified by the Company. Except as noted below, there have been no material changes to the risk factors we previously disclosed in our filings with the SEC. Our operations could also be affected by additional factors that are not presently known to us or by factors that we currently consider immaterial to our business.

Our business operation and financial performance are adversely affected by the COVID-19 pandemic and related events.

We are subject to risks related to the global pandemic associated with the COVID-19 disease, which has spread globally from China to the U.S. and other countries where we have operations. Numerous governmental jurisdictions, including the States of California, Oregon and Texas and countries throughout the Asia Pacific region, have imposed “stay-at-home” orders, quarantines, travel bans and similar governmental orders and restrictions to control the spread of COVID-19. Such orders or restrictions have resulted in business closures, work stoppages, slowdowns and delays in commercial activities, unprecedented and widespread unemployment, disruptions to ports and other shipping infrastructure, border closures, and other travel or health-related restrictions, thereby negatively impacting our customers, suppliers, distributors, employees, offices, and the entire semiconductor ecosystem.

As a result of the COVID-19 pandemic and the global economic downturn, we have experienced a significant decline in the demand for our products, as our customers reduce orders in response to slowdown in consumer spending and shifting market trends. We expect such reduction of demand will negatively impact our revenue and results of operations in the foreseeable future. While we are implementing measures to enhance our marketing and sales opportunities, there is no

guarantee that such measures will succeed and be sufficient to mitigate the loss of demand. While we have experienced increasing demand in the markets for notebooks, PCs and gaming devices as more consumers are staying at and working from home, there is no guarantee that this trend will continue, and such increasing demand may discontinue as government authorities relax Covid-19 related restrictions. Furthermore, we are experiencing difficulties and logistical challenges in our manufacturing activities as various “stay-at-home” orders. Our JV Company has slowed ramp-up activities in response to the reduced demand, which may cause delay and disruption to our timeline to reach full production for the 12” fabrication facility in Chongqing, China.

In addition to the impact on our financial performance and manufacturing process, we are subject to the following risks resulting from the COVID-19 pandemic and related events:

- the economic recession and deteriorating financial market resulting from the COVID-19 pandemic may make it more difficult for us to obtain credit and secure debt financing on terms favorable to us, or at all, and we may not be able to comply with financial covenants in our existing credit agreements or service our existing debt if we do not generate sufficient cash flow from our operations;
- we may encounter difficulties and disruptions in communication and coordination among our employees, partners, customers and others, which may reduce our productivity and interfere with our ability to serve our customers;
- widespread COVID-19 disease could damage the health of our employees and management team, which may disrupt our business operations;
- the value of our common shares may decline significantly as a result of factors outside of our control, such as stock market volatility, which will cause our shareholders to lose their investment.

The impact of the COVID-19 pandemic is highly uncertain and subject to change. We cannot predict when this pandemic will end and when related governmental orders and restrictions will be eased or lifted, and any extension or prolonged implementation of these restrictions will further adversely affect our business, customers and financial results. Even after such orders and restrictions are eased or lifted, the severe economic harm inflicted upon the jurisdictions and areas in which we operate may last for an extended period of time and continue to adversely affect our business and financial performance, and there is no guarantee that we will be able to act quickly and effectively to return to our normal operations.

The current government investigation and evolving export control regulations may adversely affect our financial performance and business operations.

As previously disclosed in the Company's Form 10-Q for the quarter ended December 31, 2019, the U.S. Department of Justice commenced an investigation into the Company's compliance with export control regulations relating to its business transactions with Huawei and its affiliates (“Huawei”), which were added to the “Entity List” by the Department of Commerce (“DOC”) in May 2019. In connection with this investigation, DOC requested the Company to suspend shipments of its products to Huawei and the Company complied with such request, and the Company has not shipped any product to Huawei after December 31, 2019. The Company is currently working with DOC to resolve this issue. There is no guarantee that DOC will agree to permit us to resume shipment to Huawei on a timely basis, or at all, and DOC's decision may be influenced by factors beyond our control, such as shifting political dynamics and macro-economic relationship between the U.S. and China and current rulemaking process regarding export control regulations. Our inability to continue such shipment may negatively impact our revenue and financial performance, particularly if we are not able to acquire new customers to offset the loss of shipment to Huawei.

The ongoing government investigations into our export control compliance also subject us to a number of financial and business risks. We expect to incur significant costs and expenses, including legal fees, in connection with our effort to respond to the government investigation, as well as additional legal fees for defending securities class actions resulting from public disclosure of the government investigation. Such additional costs will adversely affect our profitability and margin. While the Company has purchased a D&O insurance policy which may reimburse a portion of such fees and expenses, there is no guarantee that such policy is sufficient to reduce our costs or that reimbursement can be obtained on a timely basis. Furthermore, the management has diverted its resources and time in response to the investigation, and they may not be able to fully engage with the core operation and objectives of our business activities. Finally, while we are fully cooperating with the government in the investigation, we are not able to predict its timing and outcome. In the event that the government decides to bring enforcement action against us, it will result in a material adverse effect on our business operations, financial conditions, and our reputation.

We are also expecting that the U.S. export control regulations to evolve and change in response to the political and economic tension between the U.S. and China, including potential new export control regulations that may impose additional restrictions on our ability to continue to do business with certain customers in China and Asia. If such changes occur, we may

be required to reduce shipment to certain Asian customers, adjust our business practices and incur additional costs to implement new export control compliance procedures, policies and programs, each of which will adversely affect our financial conditions and results of operations.

The continuing potential for new or additional tariffs on imported goods from China could adversely affect our business operations.

The United States entered into what is described as “Phase 1” trade agreement with China on January 15, 2020, which reduces some existing tariffs that had been imposed and defers proposed increases of the tariff rate on an additional \$250 billion of Chinese goods from 25% to 30% that had been planned for October 15, 2019, and proposed 15% tariffs on an additional \$160 billion of a wide range of goods and materials imported from China to be effective December 15, 2019. Under the Phase 1 agreement, existing 25% tariffs previously imposed on \$250 billion of Chinese goods will remain in place, while a 15% tariff on another \$120 billion of Chinese goods has been reduced to 7.5%. These goods, absent exemptions, may include products and applications, including consumer electronics, that incorporate our power discrete and power IC products. In response, China has imposed tariffs on certain American products, some of which are being reduced as part of the Phase 1 agreement and China may take additional actions if additional U.S. tariffs are reduced or imposed. While in view of the COVID-19 pandemic, U.S. importers were allowed in April 2020 to defer payment of certain U.S. tariffs for 90 days, those tariffs remain in place. The continuing trade war has had significant adverse effects on world trade and the world economy. In view of ongoing discussions between the Chinese and U.S. governments on a second phase agreement, the ultimate level of tariffs, the ultimate scope of them, and whether or how the proposed additional tariffs will impact our business is uncertain. We believe that the imposition of additional tariffs by the U.S. government on products incorporating our power semiconductors could deter our U.S. customers from purchasing our products originating from China. If so, this could reduce demand for our power semiconductor products or result in pricing adjustments that would lower our gross margin, which could have a material adverse effect on our business and results of operations.

We may be adversely affected by any disruption in our information technology systems.

Our operations are dependent upon our information technology systems, which encompass all of our major business functions across offices internationally. We rely upon such information technology systems to manage and replenish inventory, complete and track customer orders, coordinate sales activities across all of our products and services, maintain vital data and information, perform financial and accounting tasks and manage and perform various administrative and human resources functions. A substantial disruption in our information technology systems for any extended time period (arising from, for example, system capacity limits from unexpected increases in our volume of business, outages or delays in our service) could result in delays in receiving inventory and supplies or filling customer orders and adversely affect our customer service and relationships. Our systems might be damaged or interrupted by natural or man-made events or by computer viruses, physical or electronic break-ins, cyber-attacks and similar disruptions affecting the global Internet. In addition, in the past few years, widespread ransomware attacks in the U.S. and elsewhere have affected many companies, and we also experienced such ransomware attacks on our information technology system during the past year. While such attacks did not have a material adverse effect on our business operation, it caused temporary disruptions and interfered with our operations. While we intend to implement additional measures to enhance our security protocol to protect our system, there is no guarantee that future attacks can be thwarted or prevented, and failure to do so may increase our cost of operations and adversely affect our business operations and results of operations.

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

In September 2017, the Board of Directors approved a repurchase program (the “Repurchase Program”), that allows us to repurchase our common shares from the open market pursuant to a pre-established Rule 10b5-1 trading plan or through privately negotiated transactions up to an aggregate of \$30.0 million. The amount and timing of any repurchases under the Repurchase Program depend on a number of factors, including but not limited to, the trading price, volume and availability of our common shares and our available cash reserve. Shares repurchased under this program are accounted for as treasury shares and the total cost of shares repurchased is recorded as a reduction of shareholders' equity. There is no guarantee that such repurchases under the Repurchase Program will enhance the value of our shares. During the three months ended March 31, 2020, we did not repurchase any shares under the Repurchase Program. As of March 31, 2020, approximately \$13.4 million remained available under the Repurchase Program.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

Not applicable.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

ITEM 5. OTHER INFORMATION

Not applicable.

ITEM 6. EXHIBITS

10.1	<u>Second Supplemental Agreement to the Joint Venture Contract on Incorporation of Chongqing Alpha and Omega Semiconductor Limited (English Translation)</u>
10.2	<u>Third Supplemental Agreement to the Joint Venture Contract on Incorporation of Chongqing Alpha and Omega Semiconductor Limited (English Translation)</u>
10.3	<u>First Amendment to Lease dated as of December 23, 2009 between Alpha and Omega Semiconductor Incorporated and ECI Five Oakmead, LLC</u>
31.1	<u>Certification of Chief Executive Officer pursuant to Securities Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.</u>
31.2	<u>Certification of Chief Financial Officer pursuant to Securities Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.</u>
32.1	<u>Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.</u>
32.2	<u>Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.</u>
101.INS	Inline XBRL Instance
101.SCH	Inline XBRL Taxonomy Extension Schema
101.CAL	Inline XBRL Taxonomy Extension Calculation
101.DEF	Inline XBRL Taxonomy Extension Definition
101.LAB	Inline XBRL Taxonomy Extension Labels
101.PRE	Inline XBRL Taxonomy Extension Presentation
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.

May 11, 2020

ALPHA AND OMEGA SEMICONDUCTOR LIMITED

By: /s/ YIFAN LIANG
Yifan Liang
Chief Financial Officer and Corporate Secretary
(Principal Financial Officer)

Second Supplemental Agreement to the Joint Venture Contract on Incorporation of Chongqing Alpha and Omega Semiconductor Limited (“Joint Venture”)

This supplemental agreement (“**Agreement**”) is entered into by and among the following parties in Chongqing and becomes effective on July 11, 2018 (“**Date of Effectiveness**”):

1. **Alpha and Omega Semiconductor Limited (“AOS”)**, a company duly incorporated under the laws of Bermuda;
2. **Alpha & Omega Semiconductor (Shanghai) Ltd. (“AOS SH”)**, a company duly incorporated in Shanghai, China under the laws of the People’s Republic of China (“**China**”);
3. **Agape Package Manufacturing (Shanghai) Ltd. (“APM SH”)**, a company duly incorporated in Shanghai, China under the laws of China;
4. **Chongqing Strategic Emerging Industry Equity Investment Fund Partnership (LP) (“Strategic Industry Fund”)**, a partnership duly organized in Chongqing under the laws of China; and
5. **Chongqing Liangjiang New Area Strategic Emerging Industry Equity Investment Fund Partnership (LP) (“Liangjiang Strategic Fund”)**, a partnership duly organized in Chongqing under the laws of China.

The parties are hereinafter collectively referred to as the “**Parties**” and individually as a “**Party**”.

Whereas,

1. The Parties have executed the Joint Venture Contract on Incorporation of Chongqing Alpha and Omega Semiconductor Limited (“Joint Venture”) (“Joint Venture Contract”) and the Supplemental Agreement to the Joint Venture Contract on Incorporation of Chongqing Alpha and Omega Semiconductor Limited (“Joint Venture”) (“Supplemental Agreement”); they also signed the Articles of Association of the Joint Venture (“Articles of Association”), which is now in effect, on March 13, 2018; and
2. In order to successfully establish the Joint Venture and put it to operation, the Parties intend to increase the investment in the Joint Venture upon consensus through negotiation.

For confirmation of the matters relating to investment increase in the Joint Venture, the Parties reach the following agreement upon consensus through negotiation:

1. The total investment in the Joint Venture will increase to USD 500 million.

2. The registered capital of the Joint Venture will increase to USD 355 million, and the additional contribution of USD 25 million will be subscribed by the following Party:

S/N	Contributor	Subscribed Capital Contribution (USD)	Form of Capital Contribution
1	AOS	25 million	In Cash
Total		25 million	—

3. After the increases of the investment in the Joint Venture by the said Party, the registered capital of the Joint Venture will reach USD 355 million. The ownership structure and ratio of contributions will be as follows:

S/N	Contributors	Subscribed Capital Contribution (USD)	Forms of Capital Contribution	Ratio of Capital Contribution (%)
1	Chongqing Strategic Emerging Industry Equity Investment Fund Partnership	108 million	In Cash	30.423
2	Chongqing Liangjiang New Area Strategic Emerging Industry Equity Investment Fund Partnership	54 million	In Cash	15.211
3	Alpha & Omega Semiconductor (Shanghai) Ltd.	31 million	Packaging equipment	8.732
4	Agape Package Manufacturing (Shanghai) Ltd.	43 million	Packaging equipment	12.113
5	Alpha and Omega Semiconductor Limited	119 million	Patents and know-hows (USD 84 million); and in cash (USD 35 million)	33.521
Total		355 million	----	100

4. AOS shall pay the subscribed registered capital in the amount of USD 25 million to the account of the Joint Venture by August 20, 2018 after the Date of Effectiveness. Each Party shall be obligated to procure the directors of the Joint Venture appointed thereby to attend in person, or through a proxy authorized thereby, the board meeting to deliberate the capital increase plan hereunder, and to approve the plan at the meeting or sign related written resolution of the board meeting to approve the plan.

AOS shall pay the subscribed capital contribution in full and in time according to the provisions hereof, to avoid the risk of default by the Joint Venture resulting from deferred capital increase.

5. The Joint Venture shall amend the part of Articles of Association relating to the amount and ratio of capital contribution after this Agreement is executed.
6. This Agreement shall constitute an integral part of the Joint Venture Contract. Where there is any inconsistency between this Agreement and the Joint Venture Contract, this Agreement shall prevail; for matters not covered herein, relevant provisions of the Joint Venture Contract shall apply.
7. This Agreement shall become effective on the Date of Effectiveness after it is executed by the Parties.
8. This Agreement shall be executed in ten (10) counterparts, with each Party holding one (1) counterpart and the Joint Venture holding five (5) counterparts.

[Signature page follows]

(Signature page of the Second Supplemental Agreement to the Joint Venture Contract for Chongqing Alpha and Omega Semiconductor Limited (“Joint Venture”))

This Agreement has been signed by the duly authorized representatives of the Parties in ten (10) counterparts in Chongqing, China.

Chongqing Strategic Emerging Industry Equity Investment Fund Partnership (LP)

By: /s/ Zhou Yibo

Name: Zhou Yibo

Title: Authorized representative of the Managing Partner
(Partnership seal)

Chongqing Liangjiang New Area Strategic Emerging Industry Equity Investment Fund Partnership (LP)

By: /s/ Zhu Jun

Name: Zhu Jun

Title: Representative of the Managing Partner
(Partnership seal)

Alpha and Omega Semiconductor Limited

By: /s/ Mike Fushing Chang

Name: Mike Fushing Chang

Title: Chairman of the Board

Alpha & Omega Semiconductor (Shanghai) Ltd.

By: /s/ Du Zhen

Name: Du Zhen

Title: Legal Representative
(Company seal)

Agape Package Manufacturing (Shanghai) Ltd.

By: /s/ Xue Bing

Name: Xue Bing

Title: Legal Representative
(Company seal)

Third Supplemental Agreement to the Joint Venture Contract on Incorporation of Chongqing Alpha and Omega Semiconductor Limited (“Joint Venture”)

This supplemental agreement (“**Agreement**”) is entered into by and among the following parties in Chongqing and becomes effective on December 19, 2018 (“**Date of Effectiveness**”):

1. **Alpha and Omega Semiconductor Limited (“AOS”)**, a company duly incorporated under the laws of Bermuda;
2. **Alpha & Omega Semiconductor (Shanghai) Ltd. (“AOS SH”)**, a company duly incorporated in Shanghai, China under the laws of the People’s Republic of China (“**China**”);
3. **Agape Package Manufacturing (Shanghai) Ltd. (“APM SH”)**, a company duly incorporated in Shanghai, China under the laws of China;
4. **Chongqing Strategic Emerging Industry Equity Investment Fund Partnership (LP) (“Strategic Industry Fund”)**, a partnership duly organized in Chongqing under the laws of China; and
5. **Chongqing Liangjiang New Area Strategic Emerging Industry Equity Investment Fund Partnership (LP) (“Liangjiang Strategic Fund”)**, a partnership duly organized in Chongqing under the laws of China.

The parties are hereinafter collectively referred to as the “**Parties**” and individually as a “**Party**”.

Whereas,

1. The Parties have executed the Joint Venture Contract on Incorporation of Chongqing Alpha and Omega Semiconductor Limited (“Joint Venture”) (“Joint Venture Contract”) and the Supplemental Agreement to the Joint Venture Contract on Incorporation of Chongqing Alpha and Omega Semiconductor Limited (“Joint Venture”) and Second Supplemental Agreement to the Joint Venture Contract on Incorporation of Chongqing Alpha and Omega Semiconductor Limited (“Joint Venture”) (“Supplemental Agreements”); they also signed the Articles of Association of the Joint Venture (“Articles of Association”), which is now in effect, on July 11, 2018; and
2. In order to successfully establish the Joint Venture and put it to operation, the Parties intend to increase the investment in the Joint Venture upon consensus through negotiation.

For confirmation of the matters relating to investment increase in the Joint Venture, the Parties reach the following agreement upon consensus through negotiation:

1. The registered capital of the Joint Venture will increase to USD 379 million, and the additional contribution of USD 24 million will be subscribed by the following Parties:

S/N	Contributors	Subscribed Capital Contribution (USD)	Forms of Capital Contribution
1	Strategic Industry Fund	16 million	In Cash
2	Liangjiang Strategic Fund	8 million	In Cash
Total		24 million	—

2. After the increase of the investments in the Joint Venture by the said Parties, the ownership structure and ratio of contributions of the Joint Venture will be as follows:

S/N	Contributors	Subscribed Capital Contribution (USD)	Forms of Capital Contribution	Ratio of Contribution (%)
1	Chongqing Strategic Emerging Industry Equity Investment Fund Partnership	124 million	In Cash	32.7
2	Chongqing Liangjiang New Area Strategic Emerging Industry Equity Investment Fund Partnership	62 million	In Cash	16.4
3	Alpha & Omega Semiconductor (Shanghai) Ltd.	31 million	Packaging equipment	8.2
4	Agape Package Manufacturing (Shanghai) Ltd.	43 million	Packaging equipment	11.3
5	Alpha and Omega Semiconductor Limited	119 million	Patents and know-hows (USD 84 million); and in cash (USD 35 million)	31.4
Total		379 million	----	100

3. Strategic Industry Fund and Liangjiang Strategic Fund shall pay their subscribed registered capital in full to the account of the Joint Venture by December 29, 2018 after the Date of Effectiveness. Each Party shall be obligated to procure the directors of the Joint Venture appointed thereby to attend in person, or through a proxy authorized thereby, the board meeting to deliberate the capital increase plan hereunder, and to approve the plan at the meeting or sign related written resolution of the board meeting to approve the plan.
4. The Joint Venture shall amend the part of Articles of Association relating to the amount and ratio of capital contribution after this Agreement is executed.

5. This Agreement shall constitute an integral part of the Joint Venture Contract. Where there is any inconsistency between this Agreement and the Joint Venture Contract, this Agreement shall prevail; for matters not covered herein, relevant provisions of the Joint Venture Contract shall apply.
6. This Agreement shall become effective on the Date of Effectiveness after it is executed by the Parties.
7. This Agreement shall be executed in ten (10) counterparts, with each Party holding one (1) counterpart and the Joint Venture holding five (5) counterparts.

[Signature page follows]

(Signature page of the Third Supplemental Agreement to the Joint Venture Contract for Chongqing Alpha and Omega Semiconductor Limited (“Joint Venture”))

This Agreement has been signed by the duly authorized representatives of the Parties in ten (10) counterparts in Chongqing, China.

Chongqing Strategic Emerging Industry Equity Investment Fund Partnership (LP)

By: /s/ Zhou Yibo

Name: Zhou Yibo

Title: Authorized representative of the Managing Partner

(Partnership seal)

Chongqing Liangjiang New Area Strategic Emerging Industry Equity Investment Fund Partnership (LP)

By: /s/ Zhu Jun

Name: Zhu Jun

Title: Representative of the Managing Partner

(Partnership seal)

Alpha and Omega Semiconductor Limited

By: /s/ Mike Fushing Chang

Name: Mike Fushing Chang

Title: Chairman of the Board

Alpha & Omega Semiconductor (Shanghai) Ltd.

By: /s/ Du Zhen

Name: Du Zhen

Title: Legal Representative

(Company seal)

Agape Package Manufacturing (Shanghai) Ltd.

By: /s/ Xue Bing

Name: Xue Bing

Title: Legal Representative

(Company seal)

FIRST AMENDMENT

THIS FIRST AMENDMENT (this “**Amendment**”) is made and entered into as of August 28, 2019, by and between **ECI FIVE OAKMEAD LLC, a Delaware limited liability company (“Landlord”)**, and **ALPHA AND OMEGA SEMICONDUCTOR INCORPORATED, a California corporation (“Tenant”)**.

RECITALS

- A. Landlord (as successor in interest to OA Oakmead II, LLC, a Delaware limited liability company) and Tenant are parties to that certain Lease dated December 23, 2009 (the “**Original Lease**”), which Original Lease has been previously amended by that certain First Addendum to Lease dated December 23, 2009 (the “**First Addendum to Lease**”) and that certain Acceptance Agreement dated April 23, 2010 (collectively, the “**Lease**”). Pursuant to the Lease, Landlord has leased to Tenant space currently containing approximately **57,310** rentable square feet (the “**Premises**”) in the building located at 475 Oakmead Parkway, Sunnyvale, California (the “**Building**”).
- B. The Lease by its terms shall expire on April 30, 2020 (“**Prior Termination Date**”), and the parties desire to extend the Lease Term, all on the following terms and conditions.

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Landlord and Tenant agree as follows:

1. **Extension.** The Lease Term is hereby extended for a period of ten (10) years and shall expire on April 30, 2030 (“**Extended Termination Date**”), unless sooner terminated in accordance with the terms of the Lease. That portion of the Lease Term commencing the day immediately following the Prior Termination Date (“**Extension Date**”) and ending on the Extended Termination Date shall be referred to herein as the “**Extended Lease Term**”.
2. **Base Monthly Rent.** As of the Extension Date, the schedule of Base Monthly Rent payable with respect to the Premises during the Extended Lease Term is the following:

Period	Rentable Square Footage	Monthly Rate Per Square Foot	Base Monthly Rent
5/1/20 – 4/30/21	57,310	\$2.65	\$151,871.52
5/1/21 – 4/30/22	57,310	\$2.73	\$156,456.36
5/1/22 – 4/30/23	57,310	\$2.81	\$161,041.08
5/1/23 – 4/30/24	57,310	\$2.89	\$165,625.92
5/1/24 – 4/30/25	57,310	\$2.98	\$170,783.76
5/1/25 – 4/30/26	57,310	\$3.07	\$175,941.72
5/1/26 – 4/30/27	57,310	\$3.16	\$181,099.56
5/1/27 – 4/30/28	57,310	\$3.25	\$186,257.52
5/1/28 – 4/30/29	57,310	\$3.35	\$191,988.48
5/1/29 – 4/30/30	57,310	\$3.45	\$197,719.56

All Base Monthly Rent shall be payable by Tenant in accordance with the terms of the Lease, as amended hereby.

3. **Additional Security Deposit.** Upon Tenant's execution hereof, Tenant shall pay Landlord the sum of **\$76,597.52** which is added to and becomes part of the Security Deposit, if any, held by Landlord as provided under Section 3.5 of the Original Lease as security for payment of rent and the performance of the other terms and conditions of the Lease by Tenant. Accordingly, simultaneous with the execution hereof, the Security Deposit is increased from \$75,274.00 to \$151,871.52.
4. **Additional Rent.** For the period commencing on the Extension Date and ending on the Extended Termination Date, Tenant shall pay all Additional Rent payable under the Lease, including Tenant's Share of Common Operating Expenses, in accordance with the terms of the Lease, as amended hereby.
5. **Improvements to Premises.**
 - 5.1 **Condition of Premises.** Tenant is in possession of the Premises and accepts the same "as is" without any agreements, representations, understandings or obligations on the part of Landlord to perform any alterations, repairs or improvements, except as may be expressly provided otherwise in this Amendment. Tenant hereby agrees and acknowledges that Landlord has fulfilled its obligations set forth in Exhibit "B" to the Original Lease.
 - 5.2 **Responsibility for Improvements to Premises.** Tenant may perform improvements to the Premises in accordance with the **Exhibit A** attached hereto and Tenant shall be entitled to an improvement allowance in connection with such work as more fully described in **Exhibit A**. Landlord, at Landlord's sole cost, shall perform the following repairs to the parking lot serving the Building using Building standard materials and as otherwise reasonably determined by Landlord: (i) repair asphalt; (ii) repair the drain in the rear part of the parking lot; (iii) seal the parking lot; and (iv) paint the curbs. Landlord shall also perform certain HVAC Work in the Premises, as further described in Section 8 below and **Exhibit A** attached hereto.

6. **Extension Option.** Section 2 of the First Addendum to Lease is hereby deleted in its entirety and is of no further force or effect. Provided that (i) Alpha and Omega Semiconductor Incorporated, a California corporation, has not assigned the Lease or sublet any or all of the Premises other than to a Permitted Transferee (it being intended that all rights pursuant to this provision are and shall be personal to the original Tenant under the Lease and shall not be transferable or exercisable for the benefit of any transferee other than a Permitted Transferee), and (ii) no Event of Tenant's Default exists under the Lease, as amended hereby, at the time of exercise or at any time thereafter until the beginning of such extension of the Lease Term, Tenant shall have the option (the "**Extension Option**") to extend the Lease Term for one (1) additional consecutive period of five (5) years (the "**Extension Period**"), by giving written notice to Landlord of the exercise of such Extension Option at least twelve (12) months, but not more than fifteen (15) months, prior to the expiration of the Extended Lease Term. Tenant's exercise outside of the period between such dates shall be of no force or effect. The exercise of the Extension Option by Tenant shall be irrevocable and shall cover the entire Premises leased by Tenant pursuant to the Lease, as amended hereby. Upon such exercise, the term of the Lease shall automatically be extended for the Extension Period without the execution of any further instrument by the parties; provided that Landlord and Tenant shall, if requested in writing by either party, execute and acknowledge an instrument confirming the exercise of the Extension Option. Any extension of the Lease Term shall be upon all the terms and conditions set forth in the Lease, as amended hereby, and all Exhibits thereto, except that: (i) Tenant shall have no further option to extend the Lease Term; (ii) Landlord shall not be obligated to contribute funds toward the cost of any remodeling, renovation, alteration or improvement work in the Premises; (iii) Landlord shall not be obligated to pay any fee or commission to any broker; and (iv) Base Monthly Rent for the Extension Period shall be one hundred percent (100%) of the then Fair Market Base Rental (as defined below) for the Premises for the space and term involved, which shall be determined as set forth below.
- 6.1 "**Fair Market Base Rental**" shall mean the "fair market" Base Monthly Rent at the time or times in question for the applicable space in the Building, based on the prevailing rentals then being charged to tenants in other office and research and development buildings in the general vicinity of the Building of comparable location and quality as the Building, for leases with terms approximately equal to the term for which Fair Market Base Rental is being determined, taking into account: the desirability, location in the building, size and quality of the space, including interior finishes and other tenant improvements; included services and related operating expenses and tax and expense stops or other escalation clauses; and any other special rights of Tenant under the Lease in comparison to typical market leases (e.g. for parking, signage, and extension or expansion options). Fair Market Base Rental shall also reflect the then prevailing rental structure for comparable office and research and development buildings in the general vicinity of the Building, so that if, for example, at the time Fair Market Base Rental is being determined the prevailing rental structure includes periodic rental adjustments or escalations, Fair Market Base Rental shall reflect such rental structure.
- 6.2 Landlord and Tenant shall endeavor to agree upon the Fair Market Base Rental. If they are unable to so agree within thirty (30) days after receipt by Landlord of Tenant's notice of exercise of the Extension Option, Landlord and Tenant shall mutually select a licensed real estate broker who is active over the five (5) year period ending on the date of such appointment in the appraising or leasing, as the case may be, of such office and research and development buildings in the general vicinity of the Building. Landlord shall submit Landlord's determination of Fair Market Base Rental and Tenant shall submit Tenant's determination of Fair Market Base Rental to such broker, at such time or times and in such manner as Landlord and Tenant shall agree (or as directed by the broker if Landlord and Tenant do not promptly agree). The broker shall select either Landlord's or Tenant's

determination as the Fair Market Base Rental, and such determination shall be binding on Landlord and Tenant. If Tenant's determination is selected as the Fair Market Base Rental, then Landlord shall bear all of the broker's cost and fees. If Landlord's determination is selected as the Fair Market Base Rental, then Tenant shall bear all of the broker's cost and fees. If the parties compromise and mutually agree upon Fair Market Base Rental, each party shall pay the cost and fees of its own broker.

- 6.3 In the event the Fair Market Base Rental for the Extension Period has not been determined at such time as Tenant is obligated to pay Base Monthly Rent for the Extension Period, Tenant shall pay as Base Monthly Rent pending such determination, the Base Monthly Rent in effect for such space immediately prior to the Extension Period; provided, that upon the determination of the applicable Fair Market Base Rental, any shortage of Base Monthly Rent paid shall be paid to Landlord by Tenant or any overage of Base Monthly Rent paid shall be paid to Tenant by Landlord.

7. **Right of First Offer to Purchase.**

- 7.1 If, during the Lease Term, Landlord intends to formally offer for sale to unaffiliated third parties Landlord's interest in the title to the Building and the legal parcel of land upon which the Building is situated, as a stand-alone sale transaction only and not a part of a portfolio offering or otherwise bundled with or conditioned on the sale of other assets (the "**Offer Property**", such offering being a "**Public Offering**"), Landlord shall first give written notice to Tenant of the purchase price and other material terms upon which Landlord in its sole discretion is willing to sell the Offer Property to Tenant ("**Landlord's Offer Notice**"). The right to receive the Landlord's Offer Notice and exercise other rights set forth in this Section 7 shall be personal to Tenant and not transferable to or exercisable by any subtenant or assignee of Tenant, and shall not apply at all in connection with unsolicited offers to purchase the Offer Property received by Landlord absent a Public Offering, which Landlord may, in its sole discretion, consider, negotiate and accept without notice to Tenant.

- 7.2 Should Tenant be entitled to receive the Landlord's Offer Notice, Tenant shall have the one time right of first offer ("**Right of First Offer**") to buy the Offer Property upon the economic terms and conditions contained in Landlord's Offer Notice and subject to the other terms and conditions set forth in this Section 7, provided that within ten (10) Business Days after receipt of Landlord's Offer Notice, Tenant delivers a written notice (the "**Purchase Commitment**") to Landlord of Tenant's desire to pursue the proposed sale transaction described in Landlord's Offer Notice. Notwithstanding anything to the contrary contained herein, at Landlord's option, Tenant shall have no such Right of First Offer and Landlord need not provide Tenant with Landlord's Offer Notice (if the same has not yet been delivered), and Tenant's other rights under this Section 7 shall lapse and be of no further force and effect, if:

7.2.1 Tenant is in default under the Lease beyond any applicable notice and cure periods at the time that Landlord would otherwise be required to deliver Landlord's Offer Notice, or at any time thereafter prior to the closing of the sale of the Offer Property to Tenant or Tenant's designee; or

7.2.2 twenty percent (20%) or more of the Premises is sublet at or prior to the time Tenant delivers the Purchase Commitment; or

7.2.3 the lease has been assigned by Tenant at or prior to the time Tenant delivers the Purchase Commitment; or

7.2.4 Tenant is not occupying at least 80% of the Premises at or prior to the time Tenant delivers the Purchase Commitment.

- 7.3 If Tenant timely delivers the Purchase Commitment, the parties shall have a period of fifteen (15) Business Days following Landlord's delivery of the proposed purchase and sale agreement containing all of the terms and conditions upon which Landlord shall sell to Tenant and Tenant shall buy from Landlord the Offer Property (the economic terms and conditions of which shall be consistent with the Landlord's Offer Notice) to negotiate, execute and deliver such a formal, binding purchase and sale agreement (the "PSA"). If the parties fail to execute and deliver the PSA within said fifteen (15) Business Day period, all rights of Tenant to purchase the Offer Property shall terminate, Tenant shall be deemed not to have exercised its Right of First Offer, and Landlord shall have no further obligation to notify Tenant of any proposed offer or sale of the Offer Property and Landlord shall thereafter have the unconditional right to offer, negotiate and sell the Offer Property to any party free of Tenant's Right of First Offer. If Tenant does not exercise or is deemed not to have exercised its Right of First Offer, or otherwise loses its rights under this Section 7, or if Tenant defaults under the PSA, Landlord shall be free of any obligations pursuant to this Section 7 and may sell the Offer Property, to any purchaser, on whatever terms and conditions Landlord, in its sole discretion, deems acceptable.
- 7.5 Tenant's rights under this Right of First Offer may not be assigned, sold, encumbered, or otherwise transferred by Tenant without Landlord's express prior written consent, which may be withheld or conditioned by Landlord in Landlord's sole discretion; and any such assignment, sale, encumbrance, or transfer by Tenant without Landlord's consent shall be void and of no force and effect.

8. **HVAC Work.**

- 8.1 Landlord shall, at Landlord's sole cost and expense, on the roof of the Building, (i) replace certain HVAC units and related systems to service the Building (the "**New HVAC Units**"), (ii) remove certain abandoned HVAC units (the "**Abandoned HVAC Units**") serving the Premises, and (iii) leave in place certain existing HVAC units (the "**Existing HVAC Units**") and perform certain repairs to such Existing HVAC Units, as further described on **Schedule 3 to Exhibit A** attached hereto. The installation of New HVAC Units, removal of Abandoned HVAC Units and performance of repairs to Existing HVAC Units is collectively referred to herein as the "**HVAC Work**", and the New HVAC Units and the Existing HVAC Units are collectively referred to herein as the "**HVAC Units**". Except as otherwise expressly provided in the following sentence, Landlord shall be solely responsible for all costs and expenses related to the HVAC Work. The HVAC Work shall include all engineering and design costs associated therewith, and the re-ducting and re-zoning as shown on **Schedule 4 to Exhibit A** to the extent needed to ensure that all HVAC Units are properly working and conducting air balancing for the New HVAC Units and Existing HVAC Units. Tenant shall be responsible for the cost to re-duct, re-zone and rebalance the HVAC Units serving any new office space (subject to the Improvement Allowance, as defined below). Landlord shall use reasonable efforts to substantially complete the HVAC Work by December 31, 2019.

- 8.2 Upon the installation of the New HVAC Units, title to the New HVAC Units shall pass to Landlord without any additional consideration to Tenant and upon the expiration or earlier termination of the Lease, the HVAC Units shall remain at the Building; provided that Tenant, not Landlord, shall be responsible for all costs and expenses related to the use, maintenance and operation of the HVAC Units (including the New HVAC Units following the installation thereof), subject to the terms of the Lease and this Amendment, including, without limitation, Section 8.3, below, and Landlord's obligations under Section 5.6 of the Lease (including, without limitation, future replacement of HVAC equipment).
- 8.3 Subject to Landlord's obligations under Section 5.6 of the Lease (including, without limitation, replacement of HVAC Units), Tenant, at its sole cost and expense, shall procure and maintain in full force and effect, a contract (the "**Service Contract**") for the service, maintenance, repair and replacement of the HVAC Units with a HVAC service and maintenance contracting firm reasonably acceptable to Landlord ("**Service Contractor**"). Subject to Landlord's obligations under Section 5.6 of the Lease (including, without limitation, replacement of HVAC Units), Tenant shall follow all reasonable recommendations made by the Service Contractor for the maintenance, repair and replacement of the HVAC Units. The Service Contract shall require the Service Contractor to perform all required maintenance protocols established by the equipment manufacturer, and shall further provide that the Service Contractor perform inspections of the HVAC Units at intervals of not less than three (3) months, and that having made such inspections, the Service Contractor shall furnish a complete report of any defective conditions found to be existing with respect to the HVAC Units, together with any recommendations for maintenance, repair and/or replacement thereof. Said report shall be furnished to Tenant with a copy to Landlord. In addition, but subject to Landlord's obligations under Section 5.6 of the Lease (including, without limitation, replacement of HVAC Units), Tenant shall be responsible for the cost of repairs to the HVAC Units serving the Premises to the extent such repairs are not fully covered by the Service Contract on such HVAC Unit.
- 8.4 Notwithstanding anything to the contrary in Section 8.3 above, for the first twelve (12) months following Landlord's completion of the HVAC Work, Landlord shall service, maintain, repair and replace, as applicable, all of the HVAC Units; provided, however, that the cost to service, maintain, repair and replace the Existing HVAC Units and the cost to service and maintain (but not repair or replace) the New HVAC Units during such twelve (12) month period shall be included in Common Operating Expenses in accordance with Section 5.6 of the Lease; provided, however, any HVAC Service Contract obtained by Landlord shall be at a commercially reasonable rate. In addition to the foregoing, with respect to each New HVAC Unit, for the first twelve (12) months following the installation of each New HVAC Unit (each twelve (12)-month period referred to as the "**New HVAC Warranty Period**"), Landlord shall be solely responsible for the cost to repair and replace the New HVAC Units (and such cost shall not be included in Common Operating Expense). Landlord's obligation to pay for such cost to repair and replace any New HVAC Unit shall be applicable to any New HVAC Units requiring repair and/or replacement during the applicable New HVAC Warranty Period, regardless of when such repair and replacement work is actually commenced and completed. Except as provided in the foregoing sentence, following the New HVAC Warranty Period, all HVAC Units shall be serviced, maintained and repaired by Tenant, at its sole cost, in accordance with the terms of Section 8.3 above.

9. **Other Pertinent Provisions.** Landlord and Tenant agree that, effective as of the date of this Amendment (unless different effective date(s) is/are specifically referenced in this Section), the Lease shall be amended in the following additional respects:

- 9.1 **Landlord's Address for Notices.** Landlord's address for notices set forth in Section Q of the Summary of the Original Lease is hereby deleted in its entirety and replaced with the following:

"ECI Five Oakmead LLC
c/o Embarcadero Capital Partners, LLC
1301 Shoreway Road, Suite 250
Belmont, CA 94002
Attn: John Hamilton

with a copy to:

Mr. Gregory B. Shean Farella Braun + Martel LLP The Russ Building, 30th Floor
235 Montgomery Street
San Francisco, CA 94104"

- 9.2 **Rent Payment Address.** Notwithstanding anything to the contrary contained in the Lease, Landlord's address for payment of rent shall be the following:

ECI Five Oakmead LLC P.O. Box 398679
San Francisco, CA 94139-8679

- 9.3 **Permitted Tenant's Alterations Limit.** The Permitted Tenant's Alterations Limit set forth in Section O of the Summary of the Original Lease is hereby deleted and replaced with \$175,000, and the second (2nd) sentence of Section 5.2A of the Original Lease is hereby amended and restated in its entirety as follows: "Tenant shall be entitled, without Landlord's prior approval, but with prior notice to Landlord, to make Tenant's Alterations (i) which do not affect the structural or exterior parts or water tight character of the Building, (ii) do not affect the Building systems (i.e., any HVAC Unit or plumbing systems), and (iii) the reasonably estimated cost of which, plus the original cost of any part of the Premises removed or materially altered in connection with such Tenant's Alterations, together do not exceed the Permitted Tenant's Alterations Limit specified in Section O of the Summary per Tenant's Alteration."

- 9.2 **Cannabis.** Tenant shall not bring upon the Premises or the Building or use the Premises or permit the Premises or any portion thereof to be used for the growing, manufacturing, administration, distribution (including without limitation, any retail sales), possession, use or consumption of any cannabis, marijuana or cannabinoid product or compound, regardless of the legality or illegality of the same.

- 9.3 **Management Fee.** Notwithstanding anything to the contrary contained in Section 8.2(c) of the Original Lease, the total amount charged for any management fee and included in Tenant's Share of Common Operating Expenses shall not exceed the monthly rate of three percent (3%) of Base Monthly Rent.
- 9.4 **Tenant Entity Name Correction.** References to Tenant in the Lease as "Alpha and Omega Semiconductor, Inc., a California corporation" are in error and the parties hereto acknowledge and agree that the definition of Tenant is as is stated in this Amendment. ALPHA AND OMEGA SEMICONDUCTOR INCORPORATED, a California corporation, hereby ratifies the Lease and agrees that it is bound by all terms and conditions of the Lease as of the original lease execution date, in the same manner and to the same extent as though the correct tenant name had been reflected therein.

10. **Miscellaneous.**

- 10.1 This Amendment, including **Exhibit A** (Tenant Alterations) attached hereto, sets forth the entire agreement between the parties with respect to the matters set forth herein. There have been no additional oral or written representations or agreements. Under no circumstances shall Tenant be entitled to any rent abatement, improvement allowance, leasehold improvements, or other work to the Premises, or any similar economic incentives that may have been provided Tenant in connection with entering into the Lease, unless specifically set forth in this Amendment.
- 10.2 Except as herein modified or amended, the provisions, conditions and terms of the Lease shall remain unchanged and in full force and effect. In the case of any inconsistency between the provisions of the Lease and this Amendment, the provisions of this Amendment shall govern and control. The capitalized terms used in this Amendment shall have the same definitions as set forth in the Lease to the extent that such capitalized terms are defined therein and not redefined in this Amendment.
- 10.3 This Amendment may be executed and delivered by facsimile in one or more counterparts, each of which shall constitute one and the same Amendment. If this Amendment is signed and delivered in such manner, Landlord and Tenant shall promptly deliver an original signed version to the other. Any digital image copy of this Amendment (to the extent fully executed and delivered) shall be treated by the parties as a true and correct original of the same and admissible as best evidence to the extent permitted by a court of proper jurisdiction.
- 10.4 Submission of this Amendment by Landlord is not an offer to enter into this Amendment but rather is a solicitation for such an offer by Tenant. Landlord shall not be bound by this Amendment until Landlord has executed and delivered the same to Tenant.
- 10.5 Tenant hereby represents to Landlord that Tenant has dealt with no broker in connection with this Amendment other than Newmark Cornish and Carey and Kidder Matthews. Tenant agrees to indemnify and hold Landlord, its members, principals, beneficiaries, partners, officers, directors, employees, mortgagee(s) and agents, and the respective principals and members of any such agents harmless from all claims of any other brokers claiming to have represented Tenant in connection with this Amendment. Landlord hereby represents to Tenant that Landlord has dealt with no broker in connection with this Amendment. Landlord agrees to indemnify and hold Tenant harmless from all claims

of any brokers claiming to have represented Landlord in connection with this Amendment.

- 10.6 Pursuant to California Civil Code Section 1938, Landlord hereby notifies Tenant that as of the date of this Amendment, the Premises have not undergone inspection by a “Certified Access Specialist” (“CASp”) to determine whether the Premises meet all applicable construction-related accessibility standards under California Civil Code Section 55.53. Landlord hereby discloses pursuant to California Civil Code Section 1938 as follows: “A Certified Access Specialist (CASp) can inspect the subject premises and determine whether the subject premises comply with all of the applicable construction- related accessibility standards under state law. Although state law does not require a CASp inspection of the subject premises, the commercial property owner or lessor may not prohibit the lessee or tenant from obtaining a CASp inspection of the subject premises for the occupancy or potential occupancy of the lessee or tenant, if requested by the lessee or tenant. The parties shall mutually agree on the arrangements for the time and manner of the CASp inspection, the payment of the fee for the CASp inspection, and the cost of making any repairs necessary to correct violations of construction-related accessibility standards within the premises.” Landlord and Tenant hereby acknowledge and agree that in the event that Tenant elects to perform a CASp inspection of the Premises hereunder, such CASp inspection shall be performed at Tenant’s sole cost and expense and Tenant shall be solely responsible for the cost of any repairs, upgrades, alterations and/or modifications to the Premises or the Building necessary to correct any such violations of construction-related accessibility standards identified by such CASp inspection as required by Law, which repairs, upgrades, alterations and/or modifications may, at Landlord’s option, be performed by Landlord at Tenant’s expense, payable as additional rent within ten (10) days following Landlord’s demand. The terms and conditions of this Section 10.6 shall apply only in the event Tenant conducts an Inspection; otherwise, the terms and conditions of the Lease, as amended, shall govern with respect to each of Landlord’s and Tenant’s liability for compliance with applicable Laws.
- 10.7 If Tenant is billed directly by a public utility with respect to Tenant’s electrical usage at the Premises, then, upon written request, Tenant shall provide monthly electrical utility usage for the Premises to Landlord for the period of time requested by Landlord (in electronic or paper format) or, at Landlord’s option, provide any written authorization or other documentation required for Landlord to request information regarding Tenant’s electricity usage with respect to the Premises directly from the applicable utility company.
- 10.8 Redress for any claim against Landlord under the Lease and this Amendment shall be limited to and enforceable only against and to the extent of Landlord’s interest in the Building. The obligations of Landlord under the Lease are not intended to and shall not be personally binding on, nor shall any resort be had to the private properties of, any of its trustees or board of directors and officers, as the case may be, its investment manager, the general partners thereof, or any beneficiaries, stockholders, employees, or agents of Landlord or the investment manager, and in no case shall Landlord be liable to Tenant hereunder for any lost profits, damage to business, or any form of special, indirect or consequential damage.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, Landlord and Tenant have entered into and executed this Amendment as of the date first written above.

LANDLORD:

ECI FIVE OAKMEAD LLC,
a Delaware limited liability company

By: Embarcadero Capital Investors Five LP,
 a Delaware limited partnership,
 its sole member

By: ECP Five, LLC,
 a Delaware limited liability company,
 its general partner

By: /s/ John Hamilton
 John Hamilton
 Manager

TENANT:

ALPHA AND OMEGA SEMICONDUCTOR
INCORPORATED, a California corporation

By: /s/ Steve Sun
Name: Steve Sun
Title: VP of HR

By: /s/ Yifan Liang
Name: Yifan Liang
Title: CFO

EXHIBIT A – TENANT ALTERATIONS

attached to and made a part of the Amendment dated as of August 28, 2019, between ECI FIVE OAKMEAD LLC, a Delaware limited liability company, as Landlord, and ALPHA AND OMEGA SEMICONDUCTOR INCORPORATED, a California corporation, as Tenant

I. Tenant Improvements

1. Tenant Improvements. Following the full and final execution of the Amendment to which this Exhibit A is attached, Tenant shall, with reasonable diligence through the Contractor (defined below) selected by Tenant and reasonably approved by Landlord pursuant to the provisions of this Section 1, construct and install the improvements and fixtures provided for in this Exhibit A (“**Tenant Improvements**”). At least ten (10) Business Days prior to the date Tenant enters into any contract for construction of Tenant Improvements, Tenant shall submit to Landlord for Landlord’s prior approval (not to be unreasonably withheld, conditioned or delayed), the name of the general contractor, and those subcontractors whose work affects the Building structure, the Building systems, or the roof of the Building, and such additional information on such contractors as Landlord may reasonably request. Landlord shall have the reasonable right to review and approve or disapprove each contractor and subcontractor submitted by Tenant based upon such contractor’s or subcontractor’s qualifications, including (a) quality of work, (b) creditworthiness, (c) experience in general construction of Tenant Improvements, and in constructing improvements similar to the Tenant Improvements, and (d) references. Landlord shall have the right to designate any subcontractor whose work affects the structure of the Building, the roof, any life safety systems, and the Building systems. The contractor selected by Tenant, as approved by Landlord, is herein called the “**Contractor**”. The Contractor shall carry insurance in accordance with the requirements set forth in Schedule 1 attached hereto. The Contractor shall deliver Contractor’s insurance certificates to Landlord at least ten (10) days prior to commencing construction of the Tenant Improvements.

1.1 Plans. The Tenant Improvements shall be constructed substantially as shown on a conceptual space plan (“**Space Plan**”) for the Premises to be prepared by a space planner (“**Space Planner**”) who is to be retained by Tenant as the space planner for the Premises. Landlord shall have the right to approve the Space Planner, which approval shall not be unreasonably withheld, conditioned or delayed. The Space Plan shall be subject to Landlord’s approval, which approval shall not be unreasonably withheld, conditioned or delayed. The Space Plan which Landlord approves is herein called the “**Approved Space Plan**”. Landlord shall use reasonable efforts to approve or disapprove the Space Plan by written notice to Tenant within five (5) Business Days after receipt.

The Space Planner will prepare and deliver to Landlord and Tenant detailed plans and specifications consistent with the Approved Space Plan and sufficient to permit the construction of the Tenant Improvements by the Contractor (“**Construction Documents**”). Landlord shall approve or disapprove the Construction Documents by written notice to Tenant and the Space Planner within five (5) Business Days after receipt, specifying in reasonable detail any changes or modifications Landlord reasonably desires in the Construction Documents. Landlord shall not unreasonably require changes or modifications or withhold its approval of the Construction Documents; provided, however, Landlord may, in its sole and absolute discretion, require changes or modifications or withhold its approval of the Construction Documents if (1) the Tenant Improvements will affect the Building’s structure or the Building systems, (2) any element of the Tenant Improvements fails to comply with any applicable Law, or (3) the cost of removing the Tenant Improvements at the end of the Lease Term would be excessive in Landlord’s reasonable estimation. The Space Planner will then revise the Construction Documents

and resubmit them to Tenant and to Landlord for Landlord's approval. Landlord shall approve or disapprove the same within five (5) Business Days after receipt. The revised Construction Documents, as approved by Landlord, are hereinafter referred to as the "**Final Construction Documents**". Tenant shall be responsible for the costs of all Construction Documents, which may be paid for out of the "**Improvement Allowance**" (as defined below). In the event that Landlord fails to approve or disapprove any Construction Documents that are materially consistent with the Approved Space Plan within ten (10) Business Days following Tenant's submission thereof the Landlord, such failure shall be deemed Landlord's disapproval of the Construction Documents as the Final Construction Documents.

1.2 Governmentally-Required Changes. Tenant acknowledges that, pursuant to all applicable Laws and regulations (including, without limitation, Title III of the Americans with Disabilities Act of 1990 and the Building Code of the City of Sunnyvale, California), the construction of the Tenant Improvements in the Premises may result in additional governmentally-required alterations or improvements to the Premises or the Building. If the proposed design and construction of the Tenant Improvements results in any such governmentally-required alterations or improvements being imposed as a condition to the issuance of applicable permits or approvals, then Tenant shall be solely responsible for all costs and expenses relating to such additional governmentally-required alterations and improvements (which shall be constructed by Landlord); provided, however, that if the performance of such governmentally-required alterations or improvements can be avoided by modifying the cost, design or manner of construction of the Tenant Improvements, then Tenant may elect to modify the Tenant Improvements in accordance with the provisions of this Tenant work letter (including, without limitation, Section 1.5 below). Landlord shall notify Tenant in writing of any such required alterations or improvements promptly after Landlord is notified of the same.

1.3 Construction. Following approval by Landlord and Tenant of the Final Construction Documents, and the Contractor providing evidence of its insurance, Tenant shall cause the Contractor to promptly commence and diligently proceed to cause the Tenant Improvements to be constructed in accordance with the Final Construction Documents, and Article 5 of the Original Lease. Tenant shall provide Landlord with at least fifteen (15) days' prior written notice of the date for its commencement of construction of the Tenant Improvements in order to permit Landlord to post, file, and record such Notices of Nonresponsibility and other instruments as may be necessary to protect Landlord and its property from claims by contractors for construction costs that are to be paid by Tenant. Tenant will obtain, comply with and keep in effect all consents, permits and approvals required by any governmental authorities (collectively, "**Permits**") that relate to or are necessary for the lawful construction of the Tenant Improvements. At the time Final Construction Documents are ready for submission to any governmental authorities for review in connection with the Permits, Landlord shall be notified in writing by Tenant. Prior to applying for any of the Permits or submitting documentation in connection therewith, Tenant shall provide Landlord with the opportunity to review and approve (which approval shall not be unreasonably withheld, conditioned or delayed) any Permit applications Tenant intends to file. Tenant shall further provide Landlord with any comments to any submitted plan documents made by any governmental authority promptly upon Tenant's receipt of same (all of which comments shall be subject to the provisions of Section 1.4 below), and copies of all Permits required for construction of the Tenant Improvements upon issuance. Tenant shall comply with all applicable Laws and with all recorded restrictions (to the extent Tenant has been provided copies of same) affecting the Property. Landlord shall have the right to suspend any construction activity by Tenant that materially or adversely detracts from harmonious labor relations at the Building.

1.4 Cost of Tenant Improvements. (a) Landlord shall contribute up to \$573,100.00 (i.e., \$10.00 per rentable square foot of the Premises) (the "**Improvement Allowance**") toward Tenant's performance of the Tenant Improvements. Landlord shall be entitled to deduct from the Improvement Allowance a construction coordination fee in an amount equal to two percent (2%) of the actual Improvement Allowance used by Tenant. The Improvement Allowance may only be used for architectural/engineering costs, project management costs, and hard costs in connection with the Tenant

Improvements. In no event shall the Improvement Allowance be used for the purchase of data and telecommunications cabling, equipment, furniture or other personal items or personal property of Tenant.

(b) Tenant shall pay the balance, if any, of the total Tenant Improvements costs in excess of the Improvement Allowance. If the cost of the Tenant Improvements exceeds the Improvement Allowance, Tenant shall be entitled to the Improvement Allowance in accordance with the terms hereof, but each individual disbursement of the Improvement Allowance shall be disbursed in the proportion that the Improvement Allowance bears to the total cost for the Tenant Improvements, less the ten percent (10%) retainage referenced below.

1.4.1 Disbursement of Improvement Allowance. Landlord shall disburse the Improvement Allowance to Tenant as the construction of the Tenant Improvements progresses, as follows: Tenant shall deliver to Landlord, not more frequently than once per any thirty (30) day period (with a minimum request of One Hundred Thousand Dollars (\$100,000), except for the final request for disbursement which shall not be subject to any dollar limitation), an application for payment, accompanied by documentary evidence as reasonably required by Landlord (including, at a minimum, copies of the paid invoices and conditional or unconditional, as applicable, mechanics' lien waivers reasonably required by Landlord from the previous disbursement and signed by the applicable party) of the costs incurred by Tenant for the design and construction of the Tenant Improvements since the last application for reimbursement. Within thirty (30) days after Landlord's receipt of such an application for reimbursement, Landlord shall pay to Tenant the amount of such application based upon the costs actually incurred by Tenant for construction of the Tenant Improvements; provided, however, Landlord shall retain an amount equal to ten percent (10%) of each application (the "**Landlord Retention**"), which Landlord Retention shall be released pursuant to the provisions of Section 1.4.3 below. In no event shall Landlord be required to disburse more than the Improvement Allowance.

1.4.2 Evidence of Completion. Within thirty (30) days following substantial completion of the Tenant Improvements (which shall mean completion of the Tenant Improvements and receipt of permit sign-offs, subject only to correction of punch-list items that do not affect safe occupancy of the Premises), Tenant shall submit to Landlord:

(a) A statement of Tenant's final construction costs, together with receipted evidence showing payment thereof, reasonably satisfactory to Landlord, and, to the extent not previously delivered, fully executed and notarized unconditional lien releases in the form prescribed by law from Tenant's contractors, copies of all detailed, final invoices from Tenant's contractors and subcontractors relating to the Tenant Improvements.

(b) All Permits and other documents issued by any governmental authority in connection with the approval and completion of the Tenant Improvements, and all evidence reasonably available showing compliance with all applicable Laws of any and all governmental authorities having jurisdiction over the Premises, including, without limitation, a certificate of occupancy or its equivalent such as duly signed-off job cards, and/or building permit sign-offs, and/or other appropriate authorization.

(c) A valid certificate of substantial completion executed by the Space Planner confirming that the Tenant Improvements have been substantially completed in accordance in all material respects with the Final Construction Documents, subject to punch-list items to be completed by Tenant's Contractor.

(d) A written certificate, subscribed and sworn before a Notary Public, from Tenant's general Contractor as follows: "There are no known mechanics' or materialmen's liens outstanding, all due and payable bills with respect to the Tenant Improvements have been paid,

and there is no known basis for the filing of any mechanics' or materialmen's liens against the Premises or the Building, and, to the best of our knowledge, waivers from all subcontractors and materialmen are valid and constitute an effective waiver of lien under applicable law."

(e) Copies of all of Tenant's contractors' warranties.

(f) A reproducible copy of the "as built" drawings of the Tenant Improvements, which drawings shall show the dimensions and location of all elements of the Tenant Improvements completed in accordance with the Final Construction Documents.

(g) Any other items reasonably requested by Landlord.

Within thirty (30) days after receipt of all of the above, Landlord shall make its disbursement of the final ten percent (10%) of the Improvement Allowance (or so much of the Improvement Allowance that has not yet been paid by Landlord, but in no event to exceed, in the aggregate, the actual cost of the design and construction of the Tenant Improvements) to Tenant or Tenant's contractors, as applicable, as required above.

1.4.3 Deadline on Use of Improvement Allowance. Tenant shall have until December 31, 2020 to submit to Landlord a written request, with supporting documentation for the then completed construction of Tenant Improvements, for disbursement of the Improvement Allowance. Tenant shall lose any portion of Improvement Allowance which Tenant has not requested be disbursed on or before December 31, 2020 in accordance with the requirements contained above. Any portion of the Improvement Allowance not used in the design, construction and installation of the Tenant Improvements shall be retained by Landlord, and Tenant shall have no right to receive or apply toward Tenant's rental obligations any portion of the Improvement Allowance not actually used.

1.5 Changes. If Tenant desires any change, addition or alteration in or to any Final Construction Documents ("Changes") Tenant shall cause the Space Planner to prepare additional Plans implementing such Change. Tenant shall submit all proposed Changes to Landlord for Landlord's prior written approval (which approval shall not be unreasonably withheld, conditioned or delayed) If Landlord fails to approve the Change within five (5) Business Days after receipt, then Landlord shall be deemed to have disapproved the Change.

2. Ownership of Tenant Improvements. All Tenant Improvements, whether installed by Landlord or Tenant, shall become a part of the Premises, shall be the property of Landlord and, subject to the provisions of the Lease, shall be surrendered by Tenant with the Premises, without any compensation to Tenant, at the expiration or termination of the Lease in accordance with the provisions of the Lease.

II. HVAC Work

1. Landlord shall perform the HVAC Work, at Landlord's sole cost and expense (subject to the terms of Section 2 below), using Building standard methods, materials and finishes and as otherwise reasonably determined by Landlord and otherwise in accordance with all applicable Laws. The HVAC Work is further depicted on **Schedule 3** attached hereto. Landlord shall determine the brand of the New HVAC Units, the manner in which the New HVAC Units are lifted to, and installed on, the roof of the Building, and the manner in which the New HVAC Units are connected to the Premises. Landlord shall enter into a direct contract for the HVAC Work with a general contractor selected by Landlord. In addition, Landlord shall have the right to select and/or approve of any subcontractors used in connection with the HVAC Work.

2. All other work and upgrades in connection with the HVAC Work, subject to Landlord's approval, shall be at Tenant's sole cost and expense, plus any applicable state sales or use tax thereon, payable upon demand as additional rent under the Lease. Tenant shall be responsible for any delay in completion of the HVAC Work resulting from any such other work and upgrades requested or performed by Tenant.

3. Tenant acknowledges that the HVAC Work may be performed by Landlord in the Building during normal business hours following the execution of the Amendment. Landlord and Tenant agree to cooperate with each other in order to enable the HVAC Work to be performed in a timely manner and with as little inconvenience to the operation of Tenant's business as is reasonably possible. Notwithstanding anything herein to the contrary, any delay in the completion of the HVAC Work or inconvenience suffered by Tenant during the performance of the HVAC Work shall not delay the Extension Date, nor shall it subject Landlord to any liability for any loss or damage resulting therefrom or entitle Tenant to any credit, abatement or adjustment of rent or other sums payable under the Lease.

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SCHEDULE 1 TO EXHIBIT A

INSURANCE REQUIREMENTS

1.1 Without limiting Contractor's indemnifications of Tenant set forth in the Lease, Contractor shall maintain as a part of the cost of the Tenant Improvements, and shall require that each subcontractor of every tier maintain at its own expense, at all times during the Tenant Improvements and for such additional periods as required by the Lease, the insurance as described below and covering all additional insured parties as more specifically named in Schedule 2 attached hereto unless otherwise amended from time-to-time with a project order to address project specific hazard conditions. This insurance shall be endorsed to provide that it shall not be terminated, be permitted to expire, be subject to non-renewal, nor be materially altered except on thirty (30) days prior written notice to Landlord. All of such insurance shall be maintained in coverage amounts, with deductible amounts, with insurers, and on forms acceptable to Landlord and Landlord's Lender (if any) and, for all policies, except Worker's Compensation, Employer's Liability Insurance and Professional Liability Insurance, shall continuously name Landlord, Landlord's affiliates and subsidiaries as may be designated by Landlord or Property Manager at any time and as may be changed from time to time, Property Manager, the Construction Manager (if any), Landlord's property management company for the Property (if different from the Property Manager named herein), Landlord's Lender (if any), and any other persons or organizations as Landlord may specify from time to time (collectively, with Landlord, the "**Landlord Parties**") as additional insureds, with coverage provided to such additional insureds at least as broad as provided to the named insured and as provided by endorsement form numbers CG 20 10 07 04 and CG 20 37 07 04 or their equivalent promulgated by the Insurance Services Office. All insurance policies required shall be issued by companies licensed in the State who maintain a current Policyholder Alphabetic Category Rating of not less than "A-" and Financial Size Category Rating of not less than "VII" according to the latest edition of Best's Key Rating Guide. Prior to Contractor commencing the Tenant Improvements, Contractor shall, and shall require each subcontractor of every tier to, furnish Landlord with Certificates of Insurance, on forms acceptable to Landlord, evidencing that insurance policies are in full force and effect that provide the required coverages and amounts of insurance listed below along with a copy of the endorsement providing additional insured coverage, the primary and non-contributing endorsement and the waiver of subrogation endorsements to the Landlord Parties. At Landlord's request, Contractor shall provide Landlord with copies of each insurance policy. Any other insurance carried by or available to any Landlord Parties which may be applicable, shall be deemed to be excess insurance and Contractor's and each subcontractor's insurance shall contain a provision that it is deemed primary and non-contributing with any insurance carried by or available to the Landlord Parties. Each required insurance policy except for Worker's Compensation, Employer's Liability and Professional Liability shall include a Separation of Insureds clause such that the insurance applies separately to each insured against whom a claim or suit is asserted and the policies shall not contain any limitation or exclusion for claims or suits by one insured against another. Contractor shall be responsible for any deductible amounts under the required insurance policies, except to the extent such amounts may be included as part of the cost of the Tenant Improvements. Contractor and each subcontractor of every tier shall provide the greater of (i) the insurance types, amounts and coverages already maintained by Contractor and each such subcontractor, determined individually with respect to each such party or (ii) the following insurance types, amounts and coverages:

(a) Workers' Compensation Insurance complying with applicable State and federal statutes and Employer's Liability Insurance with limits of not less than \$1,000,000 bodily injury by accident (each accident), \$1,000,000 bodily injury by disease (each employee) and \$1,000,000 bodily injury by disease (policy limit).

(b) Commercial General Liability (“CGL”) Insurance written on an “occurrence form” basis, including, but not limited to, Premises - Operations Liability, Products - Completed Operations Liability, Blanket Contractual Liability Coverage and liabilities arising out of the actions of Independent Contractors. Such insurance shall contain minimum limits of liability as follows: of not less than \$1,000,000 per occurrence limit, \$1,000,000 Personal and Advertising Injury limit, \$2,000,000 General Aggregate limit and \$2,000,000 Products-Completed Operations Aggregate limit, with a Per Project General Aggregate provision or endorsement. The required limits may be provided by any combination of CGL and umbrella or follow form excess policies [see Section 1.1(d) below]. Such insurance shall contain no explosion, collapse, or underground hazard exclusions. The deductible or self-insured retention amount required under any such policy shall not exceed \$10,000 per occurrence. The insurance and the Landlord Parties’ additional insured status thereon shall be maintained continuously in force at least until the expiration of five (5) years after the expiration or termination of the Lease or final completion of the Tenant Improvements, whichever is later. All such policies shall contain a provision that defense costs are paid in addition to and do not deplete any of the policy limits and a provision that the General Aggregate and, to the extent commercially reasonably available, Products - Completed Operations Aggregate apply separately to each project for which Contractor or any subcontractor of any tier performs operations away from premises owned by or rented to Contractor or any such subcontractor.

(c) Business Auto Coverage with a limit of liability of \$1,000,000 for any one accident or loss. Such insurance shall cover liability arising out of the use of owned, nonowned and hired automobiles. If Contractor or any subcontractor of any tier transports any hazardous materials, the business auto liability policy shall include ISO endorsement form MCS-90 or equivalent endorsement providing coverage for environmental and pollution claims and suits.

(d) Umbrella or follow form excess liability insurance at least as broad as the underlying CGL insurance. Umbrella/Excess Liability Insurance shall contain minimum limits of \$5,000,000 per occurrence and \$5,000,000 aggregate and shall be excess over the primary General Liability, Auto Liability and Employers Liability insurance. The required CGL, Business Auto and Employer’s Liability insurance limits may be provided on a combination of primary and umbrella/follow form excess insurance policies. Any such umbrella/follow form excess insurance policies shall provide that the coverage “follows form” to the underlying insurance and that such policy provides substantially equivalent or broader coverage than that provided by such underlying insurance, including the coverage for all required additional insureds; provided, however, that any material changes shall be subject to Landlord’s approval.

(e) If Contractor or any subcontractors of any tier use owned, chartered, leased or hired mobile construction equipment, Contractor shall, and shall require all such subcontractors to, maintain (or cause to be maintained) an “equipment floater” of the “all-risk” type, with limits not less than the full replacement cost of such equipment located at the jobsite and all of Contractor’s and any subcontractors’ business personal property, including tools and equipment, none of which will be insured under Landlord’s insurance policies.

(f) Unless otherwise specified or agreed to, an “installation” floater and/or Builder’s Risk coverage or other property insurance providing “all risk” or “special causes of loss form” insurance coverage for all property, equipment, supplies and materials purchased for the Building prior to their delivery to the Building and their installation or incorporation in the Building, and for all tools, equipment, other materials and other personal property owned, rented or used by Contractor or by any subcontractors of any tier and used in connection with the Tenant Improvements. Such insurance coverage shall be for an amount at least equal to 100% of the estimated replacement cost of all such property, tools, equipment, supplies, materials and other personal property.

(g) If Contractor or any subcontractor of any tier performs any of the Tenant Improvements on a design-build basis or performs other professional services, then Contractor and each such subcontractor shall also, for all such design-build Tenant Improvements and services, maintain professional liability insurance (and ensure that the engineer or other design professional performing the design Tenant Improvements or services maintain professional liability insurance) in an amount equal to the greater of (1) the professional liability insurance currently maintained by the engineer or other design professional performing such design work, or (2) \$2,000,000 per claim and \$2,000,000 annual aggregate. Each such professional liability policy shall provide full prior acts coverage or shall include a retroactive date no later than the date of commencement of the design-build Tenant Improvements or other professional services. Said insurance shall be maintained at all times during Contractor's, subcontractor's and the engineer's or other design professional's performance on the Building, and for a period of five (5) years after the expiration or termination of the Lease or final completion of the Tenant Improvements, whichever is later. In no event shall the self-insured retention on any such policy of insurance exceed \$25,000 per claim.

(h) If under circumstances other than Tenant Improvements done on a design-build basis, Contractor or any of its subcontractors of any tier or consultants provides and/or engages the services of any type of professional, including but not limited to engineers, architects and environmental consultants, whose failure due to a mistake or deficiency in design, formula, plan, specifications, advisory, technical, or other services could result in loss or liability, Contractor and each such other appropriate party shall obtain Professional (Errors and Omissions) Liability Insurance (with supervision of work exclusion deleted) with limits of liability of not less than \$2,000,000 per claim and \$2,000,000 annual aggregate. Each such professional liability policy shall provide full prior acts coverage or shall include a retroactive date no later than the date of commencement of the services. In no event shall the self-insured retention on any such policy of insurance exceed \$25,000 per claim.

(i) If Contractor's or any subcontractor of any tier's scope of Tenant Improvements requires asbestos or other toxic or hazardous material remediation, removal, abatement, storage or disposal work, including, but not limited to, demolition work, the Contractor and each such subcontractor shall provide Contractor's Pollution Liability Insurance and pollution legal liability for protection from claims and suits arising out of the performance of any Tenant Improvements involving such materials or operations. Coverage shall be continuously maintained in effect during the performance of such operations and Tenant Improvements and for not less than ten (10) years after the expiration or termination of the Lease or final completion of the Tenant Improvements, whichever is later, on an "occurrence form" basis, shall cover bodily injury or death, and property damage liability, defense costs, and clean-up costs. The limits of liability for this insurance shall be at least \$5,000,000 each occurrence and \$10,000,000 annual aggregate. Such policies shall include coverage for unknown UST's; a definition of "property damage" that includes diminution in value of third party properties; a statement that such insurance is primary and non-contributory, including, but not limited to, as to any surety contracts or bonds; a statement that the insured's rights will not be prejudiced if a failure to give notice due to the insured's belief that the occurrence was not covered; coverage for products brought onto the Building; a definition of stop loss or cleanup cost cap that includes monitoring activities; a definition of cleanup costs that include any costs associated with natural resources damages; and a statement that exclusions for modification of remedial action plans shall not include changes required by regulatory agencies.

1.2 Contractor shall report immediately to Landlord and confirm in writing any injury, loss or damage incurred or caused by Contractor or any subcontractors of any tier, or its or their receipt or notice of any claim by a third party, or any occurrence that might give rise to such claim. Contractor shall, upon completion of the Tenant Improvements, submit to Landlord a recap of all such injuries, losses, damage, notices of third-party claims, and occurrences that might give rise to such claims.

1.3 Waiver of Rights of Recovery and Subrogation. To the fullest extent permitted by law, Contractor hereby waives all rights of recovery against Landlord Parties on account of loss or damage occasioned to Contractor or others under Contractor's control or for whom it is responsible to the extent such loss or damage is insured against under any of Contractor's insurance policies which may be in force at the time of the loss or damage or would have been so insured against if Contractor had complied with its obligations under this Schedule 1. Contractor shall procure substantially identical waivers from its subcontractors of every tier in favor of the Landlord Parties. In addition, all of the insurance policies and coverages required to be obtained, pursuant to the provisions of this Schedule 1, by Contractor and/or any subcontractors of any tier, shall provide for or be endorsed to provide a waiver of rights of recovery (including, but not limited to, subrogation) against the Landlord Parties.

1.4 If Contractor fails to comply with any of the provisions of this Schedule 1, Contractor, at its own cost, shall to the fullest extent permitted by law, defend, indemnify, protect and hold harmless the Landlord Parties from and against any and all Claims (including, but not limited to, Claims arising or resulting from the death or injury to any person or damage to any property) to the extent that Landlord would have been protected by any and all insurance arrangements made by Contractor, or any third party, had Contractor complied with all of the provisions of this Schedule 1.

1.5 Neither Contractor nor any subcontractor of any tier shall settle any claims made under its insurance policies for the Building without first consulting with and obtaining the consent of Landlord. All insurance proceeds paid under any insurance policies for damage to the Building shall be paid to Landlord; provided, however, that in all cases, payment and use of insurance proceeds shall be done in compliance with the requirements of Landlord's Lender.

1.6 In the case of policies expiring while performance of the Tenant Improvements is in progress, a renewal certificate with all applicable endorsements must be received at the business office of Landlord prior to the expiration of the existing policy or policies. Permitting Contractor or any subcontractor of any tier to start Tenant Improvements, continue Tenant Improvements, or releasing any progress payment prior to or without compliance with any of these requirements shall not constitute a waiver of, or estoppel to assert, any such requirement. If at any time Contractor's or any subcontractor of any tier's insurance fails to meet the requirements stated herein, all payments may be held until the non-compliance has been corrected to Landlord's satisfaction.

1.7 None of the requirements contained herein as to types, limits and acceptability of insurance coverage to be maintained by Contractor and subcontractors of every tier are intended to, and shall not in any manner, limit or qualify the liabilities and obligations assumed by Contractor or any subcontractor of any tier under the Lease or at law, including, without limitation, such parties' indemnification obligations and liability in excess of the limits of the coverages required herein. Neither receipt of certificates, endorsements or policies showing less or different coverage than requested, nor any other forbearance or omission by Landlord, shall be deemed a waiver of, or estoppel to assert, any right or obligation regarding the insurance requirements herein. Contractor and subcontractors of every tier shall be solely responsible to pay any amount that lies within the deductible(s) or self-insured retention(s) of such parties' policies, regardless of the amount of the deductible(s) or self-insured retention(s) and regardless of the cause of the loss or damage.

1.8 None of the requirements contained herein shall relieve Contractor or any subcontractor of any tier of their respective obligations to exercise due care in the performance of their duties in connection with the Tenant Improvements or to complete the Tenant Improvements in strict compliance with the Contract Documents.

1.9 Contractor shall immediately notify Landlord in writing upon receipt by Contractor, or its insurance broker or agent, of any notice of cancellation, non-renewal or rescission of any policy required to be maintained by Contractor pursuant to this Section.

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SCHEDULE 2 TO EXHIBIT A

ADDITIONAL INSURED ENTITIES

- o ECI Five 475 Oakmead LLC (Owner)
- o Embarcadero Capital Investors Five LP
- o Embarcadero Capital Partners LLC
- o ECP Five LLC
- o Embarcadero Realty Services LP (Manager)
- o ECP Management, Inc

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SCHEDULE 3 TO EXHIBIT A**HVAC WORK****UNITS TO BE REPLACED**

Unit	Manufacturer	Tons
AC1	TRANE	15
AC2	TRANE	7.5
AC3	YORK	5
AC4	TRANE	12.5
AC6	TRANE	7.5
AC9	YORK	5
AC10	YORK	5
AC11B	TRANE	8.5
AC12	YORK	3
AC13	YORK	3
AC14	TRANE	10
AC16	YORK	3.5
AC19	TRANE	12.5
AC21	TRANE	6.25
AC23	TRANE	17.5
AC25	CARRIER	5
AC29	CARRIER	6.25
AC30	BDP	3
AC31	TRANE	10
AC32	TRANE	12.5
AC33	TRANE	10

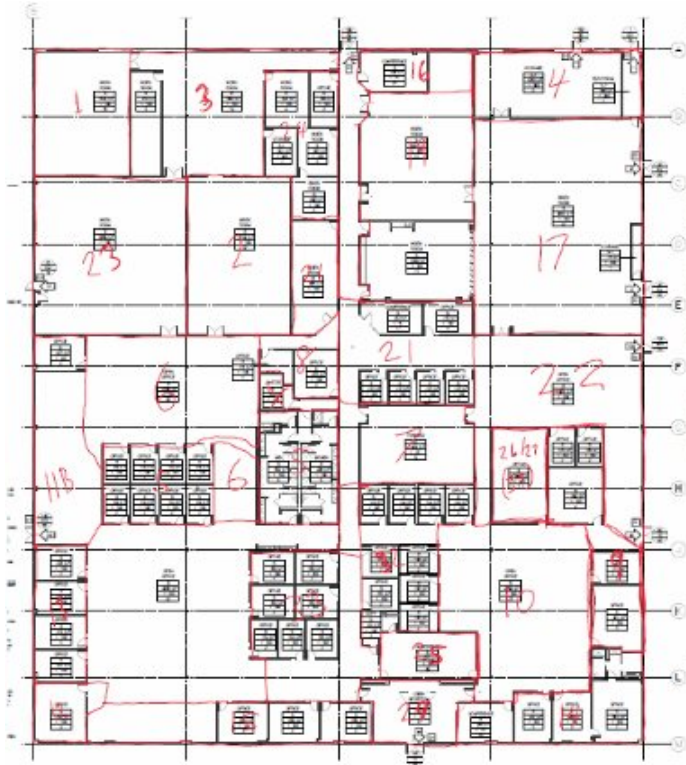
UNITS TO BE REMOVED

AC11A	WESTINGHOUSE	N/A
AC22	TRANE	12.5
AC28	CARRIER	N/A
AC34	YORK	3

HVAC REPAIRS

AC5	Indoor fan motors needs to be adjusted.
AC16	Contactors and capacitor need to be replaced.
AC17	Sheave needs replacement. Contactors need to be replaced.
AC19	Contactors need to be replaced.
AC23	Contactors need to be replaced
AC24	Ductwork needs to be sealed. Contactors need to be replaced.
AC25	Head pressure control and condenser fan motor have failed.
AC26	Compressor contactors and sheave need replacement.
AC27	Blower wheel sheave and contactors need to be replaced.
AC30	Contactors need to be replaced.
AC32	Inducer motor and blower motor sheave have failed.

SCHEDULE 4 TO EXHIBIT A
RE-DUCTING AND RE-ZONING WORK



**CERTIFICATION OF CHIEF EXECUTIVE OFFICER PURSUANT TO
SECURITIES EXCHANGE ACT RULES 13a-14(a) and 15d-14(a), AS ADOPTED PURSUANT TO
SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Mike F. Chang, certify that:

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

Date: May 11, 2020

/s/ Mike F. Chang

Mike F. Chang
Chief Executive Officer

**CERTIFICATION OF CHIEF FINANCIAL OFFICER PURSUANT TO
SECURITIES EXCHANGE ACT RULES 13a-14(a) and 15d-14(a), AS ADOPTED PURSUANT TO
SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Yifan Liang, certify that:

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

Date: May 11, 2020

/s/ Yifan Liang

Yifan Liang *Chief Financial Officer and Corporate Secretary*

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

I, Mike F. Chang, chief executive officer of Alpha and Omega Semiconductor Limited (the "Company"), certify for the purposes of 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to the best of my knowledge,

- a. the Quarterly Report of the Company on Form 10-Q for the fiscal quarter ended March 31, 2020 (the "Report"), fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and
- b. the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: May 11, 2020

/s/ Mike F. Chang

Mike F. Chang
Chief Executive Officer

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

I, Yifan Liang, chief financial officer of Alpha and Omega Semiconductor Limited (the "Company"), certify for the purposes of 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to the best of my knowledge,

- a. the Quarterly Report of the Company on Form 10-Q for the fiscal quarter ended March 31, 2020 (the "Report"), fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and
- b. the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: May 11, 2020

/s/ Yifan Liang

Yifan Liang
Chief Financial Officer and Corporate Secretary