Investor Presentation THIRD QUARTER 2019 Nasdag: AA01

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SAFE HARBOR STATEMENT

This presentation contains forward-looking statements. The statements contained in this presentation that are not purely historical are forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act of 1933, as amended (the "Securities Act"), and Section 21E of the Securities Exchange Act, as amended. These forward-looking statements involve assumptions and current expectations, which are subject to risks and uncertainties that could cause the company's actual results to differ materially from those anticipated in such forward-looking statements. These risks and uncertainties that could cause the company's actual results to differ materially from those anticipated in such forward-looking statements. These risks and uncertainties include but are not limited to: reduction in the size or quantity of customer orders; change in demand for the company's products due to industry conditions; our ability to maintain sufficient liquidity; changes in manufacturing operations; volatility in manufacturing costs; delays in shipments of products; disruptions in the supply chain; change in the rate of design wins or the rate of customer acceptance of new products; the company's relance on a small number of customers for a substantial portion of its revenues; potential pricing pressure; a decline in demand for our customers' products or their rate of deployment of their products; general conditions in the internet datacenter, cable television ("CATV"), fiber-to-the-home ("FITH"), or telecommunications ("Telecom") markets; changes in the world economy (particularly in the United States and China); changes in currency exchange rates; the negative effects of seasonality; impact of the Tax Cuts and Jobs Act of 2017, including its impact on deferred tax assets and the one-time transition tax on unremitted foreign earnings and on the realization of deferred tax assets; and other risks and uncertainties described more fully in the company's quartery such and ann

In some cases, you can identify forward-looking statements by terminology such as "believe," "may," "estimate," "continue," "anticipate," "intend," "should," "could," "would," "target," "seek," "aim," "believe," "predicts," "think," "objectives," "optimistic," "new," "goal," "strategy," "potential," "is likely," "will," "expect," "plan" "project," "permit" or by other similar expressions that convey uncertainty of future events or outcomes. You should not rely on forward-looking statements as predictions of future events. All forward-looking statements in this presentation are based upon information available to us as of the date hereof, and qualified in their entirety by this cautionary statement. Except as required by law, we assume no obligation to update forward-looking statements for any reason after the date of this presentation to conform these statements to actual results or to changes in the company's expectations.

In this presentation we include certain other non-GAAP measures that we believe are useful to investors in evaluating our operating performance. Non-GAAP measures should not be considered as an alternative to income (loss) after tax, earnings per share, or any other measure of financial performance calculated and presented in accordance with GAAP. Our non-GAAP measures may not be comparable to similarly titled measures of other organizations because other organizations may not calculate such other non-GAAP measures in the same manner. You are encouraged to evaluate these adjustments and the reasons we consider them appropriate. For a reconciliation of GAAP measures to our non-GAAP measures, please see the Appendix to this presentation.

This presentation shall not constitute an offer to sell or the solicitation of an offer to buy securities of the company, nor shall there be any sale of the any securities of the company in any state or jurisdiction in which such offer, solicitation or sale would be unlawful. Any offer, if at all, will be made only pursuant to Rule 144A or Regulation S under the Securities Act.

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nvestment

HIGHLIGHTS

A Leader in **Advanced Optics**

Dynamic Markets

Marquee **Customers**

Proprietary Manufacturing

Diversifying **Customer Base**





A leading provider of optical access products that enable the gigabit age



Bandwidth Demand Drives Revenue





Four End-Markets With Strong Demand Drivers



Growing Datacenter Market





*Source: Datacom Optical Components Forecast Report, 2018 - 2023 – Ovum | 2018

APPLIED OPTOELECTRONICS

DATACENTER MARKET CHARACTERISTICS DIFFER FROM CHARACTERISTICS OF TELECOM OPTICAL COMPONENT MARKET

Vertical Integration & In-house Manufacturing Optimal

DATACENTER MARKET

- Rapid product development cycles favor controlling a substantial part of the manufacturing process
- V
- Large production volume/relatively low diversity enables rapid ROI on factory equipment
- Integration of manufacturing process enhances efficiency

TELECOM MARKET



Telecom applications have much longer production cycles



Small volume/high diversity favors outsourcing



Initial costs of integration are high, and only economical with high production volume



100G Datacenter Transceiver Use Cases

100G Technology	Lasers	# Fibers	Transceiver Cost*	Fiber Cost/m*	Optimal Distance (d)
Short-Reach (SR) AOC	4xVCSEL	8	\$	\$\$	<150m
Long-Reach, PSM-4	4x1310-nm DFB (AOI) OR 1x1310-nm high power + modulators (SiPh)	8	\$\$	\$\$\$\$	150m <d<500m< td=""></d<500m<>
Long-Reach, CWDM (CWDM-4, CLR-4)	4xCWDM DFB	2	\$\$\$	\$\$\$	500m <d<2km< td=""></d<2km<>
Extended Reach, 4WDM-10	4xCWDM	2	\$\$\$\$	\$\$\$	2km <d<10km< td=""></d<10km<>
100G-BASE-LR4	4xWDM (cooled)	2	\$\$\$\$\$	\$\$\$	2km <d<10km< td=""></d<10km<>
Coherent (DP-QPSK)	1x1550 (tunable, narrow linewidth)	2	\$\$\$\$\$\$\$\$	\$\$\$	>80km

400G: Multiple Standards to Meet Multiple Use Cases

400G intra-datacenter electrical/optical standards currently in existence or being developed:

Reach Distance	Data Center Unique Spec	IEEE Standards	100G single Lambda MSA
70m for OM3, 100m	-	400G SR8 [*]	-
for OM4	-	400G SR4.2	-
	-	100G DR [*]	-
500m	-	400G DR4 [*]	-
21	-	-	100G FR*
2km	-	-	400G FR4*
10km	400G DR4+*	-	-

Details of Current 400G Transceiver Form-factors

	Key Considerations for Designers:		SFP-DD	QSFP-DD	OSFP	Сово
	Backward Compatibility					
✓	Connector Termination	Dimensions (mm)	SFP-DD	QSFP-DD	OSFP	СОВО
•	Latch Mechanism	Width	14	19	22.93	36
•	Mating Process	Length (overall)	64.15	93	100.4	40
V	Protruding area safety	Length inside cage	54.15	49.6	82.48	-
•	Electrical/optical breakout	Thickness	8.55	8.5	13.00	9.35
	Thermal dissipation	Electrical Channel	2x	8x	8x	8x, 16x
	Common management	Thermal Capability	1-3.5W	7 - 14W	12 - 16W	15 - 20W
Interface specification						

5G Requirements for Front/Mid-Haul Optics

Small-Cell Proliferation and C-RAN Evolution Is Expected to Create Need for New Optical Solutions

25 Gbps/50 Gbps/100 Gbps transceivers needed

Front-Haul:

- Link remote radio head (RRH) to base station
- Distances typically several km
- 25 Gbps in SFP-28 form factor
- Outdoor RRH require high-temperature optics

Mid-Haul:

- Longer distances typical in C-RAN (Cloud-Radio Access Network)
- 50 Gbps/100Gbps over 10+ km
- Typically standard commercial temperature range

Vertical Integration

¢,

High yield manufacturing

Flexible capacity support

Rapid response to customer & market demand



Cost advantages

Faster time to market

A KEY DIFFERENTIATOR



A Closer Look...

CRYSTAL GROWTH (Epitaxy)	AUTOMATION	LIGHT ENGINE ASSEMBLY
AOI's Differentiation: Combination of proprietary MBE and MOCVD processes	AOI's Differentiation: Custom-designed and proprietary production machinery	AOI's Differentiation: Robust silicon optical bench platform technology leveraged across 40G, 100G, 200G and 400G products
 Improved high-temp and high-speed performance Improved laser yield (low cost) DFB performance adequate for many applications where competitors use EMLs 	 Decreased per-chip testing cost Lower scrap rate = higher yield Scalable 	 Flexible manufacturing line between 40G and 100G products More efficient R&D spend Decreased scrap rate Lower equipment depreciation

Automated Manufacturing Process



Automated Robotic Test Stations Increase Throughput, Decrease Human Error in Handling Automated Receiver Sub-Assembly Decreased Labor by 58% and Improved Quality Control





Automated Light Engine Final Assembly Decreased Labor by 85% and Improved Process Control and Quality

Vertical Integration replicated across markets

In-house production and development of advanced laser diodes and light engines speeds time to market





RESEARCH & DEVELOPMENT

- Excellent laser technology
- Proprietary Silicon Photonics Technology
- Strong R&D teams in all 3 sites from lasers, transceivers to equipment



Customer NRE reimbursements

MANUFACTURING & OPERATIONS



- Experienced in high-volume manufacture
- Efficient supply chain



- Vertical integration from laser chips to
- transceivers to equipment with cost advantages



Financial Review



Data Center Drives Revenue

ANNUAL REVENUE BY END MARKET



* Reflects a \$900 thousand credit issued to a customer, which is adjusted out of our non-GAAP revenue in Q4/2018.
 All other revenue is on a GAAP basis.

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Recent Financial Performance

QUARTERLY REVENUE BY END MARKET



APPLIED OPTOELECTRONICS





Q3/19 Results

NON-GAAP*



REVENUE	\$ 46.1
DATACENTER	\$ 34.0
CATV	\$ 8.8
GROSS MARGIN	28.8%
OPERATING LOSS	\$ 5.1
NET LOSS	\$ 2.9

CASH** \$72.4

Q3/19

Please refer to the Safe Harbor statement on the use of Non-GAAP metrics, as well as the attached GAAP-non-GAAP reconciliation •

** Cash: Cash, cash equivalents, short-term investments, and restricted cash.



Balance Sheet Highlights

\$ IN MILLIONS	9/30/2017	9/30/2018	9/30/2019		
CASH ⁽¹⁾	\$72	\$64	\$72		
WORKING CAPITAL ⁽²⁾	\$153	\$132	\$126		
PROPERTY, PLANT & EQUIPMENT, NET	\$181	\$223	\$246		
TOTAL ASSETS	\$439	\$482	\$484		
TOTAL DEBT ⁽³⁾	\$41	\$71	\$52		
STOCKHOLDERS' EQUITY	\$324	\$336	\$302		

(1) Cash: Cash, cash equivalents, short-term investments, and restricted cash.

(2) Working Capital: Total current assets less total current liabilities.

(3) Total Debt: Short-term loans, notes and bank acceptances payable and total long-term debt. Convertible notes outstanding are to be settled in common stock, not cash, so are excluded from total debt.

Investing in Capacity & Vertical Integration



Other category includes furniture and fixtures, computer equipment and software and transportation equipment.

2019 figure reflects an estimate and does not indicate spending by expenditure type

Investment

SUMMARY

A leader In Advanced Optics



Manufacturing

expertise creates

differentiation &

sustains margin

Operating model provides significant leverage

Focus on fast growing markets including hyperscale datacenters Marquee global customers

Extensive internally developed technology

APPLIED OPTOELECTRONICS



Questions









MANAGEMENT TEAM



Dr. Thompson Lin FOUNDER, PRESIDENT & CEO

20 + YEARS



Dr. Stefan Murry CFO & CSO

20+ YEARS



Dr. Fred Chang COMPONENT BU HEAD

16+ YEARS



Dr. Alex Anselm SEMICONDUCTOR PRODUCTS **DIVISION HEAD**

18+ YEARS



Jessica Hung VP OF FINANCE & CORPORATE CONTROLLER

11+ YEARS



Joshua Yeh ASIA GM

NON-GAAP FINANCIAL MEASURES

We provide non-GAAP gross margin, non-GAAP net income (loss), and non-GAAP earnings per share to eliminate the impact of items that we do not consider indicative of our overall operating performance. To arrive at our non-GAAP gross margin, we exclude stock-based compensation expense, expenses associated with discontinued products, and non-recurring expenses, if any, from our GAAP gross margin. To arrive at our non-GAAP net income (loss), we exclude all amortization of intangible assets, stock-based compensation expense, non-recurring expenses, unrealized foreign exchange gain (loss), losses from the disposal of idle assets, if any, non-recurring tax expenses (benefits), and expenses associated with discontinued products, if any, from our GAAP net income (loss). Included in our non-recurring expenses in Q3 2019 and Q3 2018 are certain one-time legal (if any) and consulting fees (if any) and employee severance expenses (if any). Also included in our non-recurring expenses in the nine months ended September 30, 2019, but not included in our results in Q3 2019 or in the corresponding periods during the prior year, was the unamortized debt issuance costs associated with the extinguishment of certain debt. Non-cash expenses associated with discontinued products in Q3 2019 and Q3 2018 include inventory obsolescence charges associated with materials used in the manufacture of these discontinued products.

Our non-GAAP earnings per share is calculated by dividing our non-GAAP net income by the fully diluted share count (for periods in which non-GAAP net income is positive) or basic share count (for periods in which our non-GAAP net income is negative). We believe that our non-GAAP measures are useful to investors in evaluating our operating performance for the following reasons:

- We believe that elimination of items such as amortization of intangible assets, stock-based compensation expense, non-recurring revenue and expenses, losses from the disposal of idle assets, unrealized foreign
 exchange gain or loss, unamortized debt issuance costs associated with the extinguishment of debt, and depreciation on certain equipment undergoing reconfiguration is appropriate because treatment of these
 items may vary for reasons unrelated to our overall operating performance;
- We believe that elimination of expenses associated with discontinued products, including depreciation and inventory obsolescence is appropriate because these expenses are not indicative of our ongoing
 operations;
- We believe that non-GAAP measures provide better comparability with our past financial performance, period-to-period results and with our peer companies, many of which also use similar non-GAAP financial measures; and
- We anticipate that investors and securities analysts will utilize non-GAAP measures as a supplement to GAAP measures to evaluate our overall operating performance.

A reconciliation of our GAAP net income (loss) and GAAP earnings (loss) per share for Q3 2019 to our non-GAAP net income (loss) and earnings (loss) per share is provided below, together with corresponding reconciliations for the nine month period ended September 30, 2019.

Non-GAAP measures should not be considered as an alternative to net income (loss), earnings (loss) per share, or any other measure of financial performance calculated and presented in accordance with GAAP. Our non-GAAP measures may not be comparable to similarly titled measures of other organizations because other organizations may not calculate such other non-GAAP measures in the same manner. We have not reconciled the non-GAAP measures included in our guidance to the appropriate GAAP financial measures because the GAAP measures are not readily determinable on a forward-looking basis. GAAP measures that impact our non-GAAP financial measures may include stock-based compensation expense, non-recurring expenses, amortization of intangible assets, unrealized exchange loss (gain), asset impairment charges, and loss (gain) from disposal of idle assets. These GAAP measures cannot be reasonably predicted and may directly impact our non-GAAP gross margin, our non-GAAP net income and our non-GAAP fully-diluted earnings per share, although changes with respect to certain of these measures may offset other changes. In addition, certain of these measures are out of our control. Accordingly, a reconciliation of the non-GAAP financial measures is not available without unreasonable effort.



NON-GAAP RECONCILIATION

(In thousands, except percentages and per share data) Preliminary Unaudited

Revenue	1Q17	2Q17	3Q17	4Q17	CY2017	1Q18	2Q18	3Q18	4Q18	CY2018	1Q19	2Q19	3Q19	9MO2019
Datacenter	79,594	99,298	65,819	62,001	306,712	50,583	69,040	38,954	42,550	201,127	38,499	31,806	34,006	104,311
CATV	13,094	14,404	18,932	14,326	60,756	10,568	14,184	14,295	12,652	51,699	11,962	9,818	8,797	30,577
Telecom	3,171	3,077	3,474	3,177	12,899	3,586	4,157	2,656	2,760	13,159	1,738	1,630	2,868	6,236
FTTH	98	125	182	85	490	111	166	221	320	818	94	16	39	149
Other	267	467	472	266	1,472	391	275	260	627	1,553	426	141	374	941
Total Revenues	96.224	117.371	88.879	79.855	382.329	65.239	87.822	56.386	58.909	268.356	52.719	43.411	46.084	142.214
YOY Growth %	90.8%	112.4%	26.7%	-5.9%	46.6%	-32.2%	-25.2%	-36.6%	-26.2%	-29.8%	-19.2%	-50.6%	-18.3%	-32.1%
Cost of Goods Sold	54,674	63,955	49,382	47,118	215,129	39,148	52,316	37,232	44,384	173,080	39,254	31,607	32,794	103,655
COGS % of Revenue	56.8%	54.5%	55.6%	59.0%	56.3%	60.0%	59.6%	66.0%	75.3%	64.5%	74.5%	72.8%	71.2%	72.9%
Gross Profit	41,550	53,416	39,497	32,737	167,200	26,091	35,506	19,154	14,525	95,276	13,465	11,804	13,290	38,559
Gross Margin	43.2%	45.5%	44.4%	41.0%	43.7%	40.0%	40.4%	34.0%	24.7%	35.5%	25.5%	27.2%	28.8%	27.1%
Operating Expenses:														
Research and Development	7,167	7,632	8,790	9,630	33,219	10,409	10,922	12,698	10,512	44,541	10,545	10,494	9,819	30,858
R&D % of Revenue	7.4%	6.5%	9.9%	12.1%	8.7%	16.0%	12.4%	22.5%	17.8%	16.6%	20.0%	24.2%	21.3%	21.7%
Sales and Marketing	1,823	1,990	2,433	1,976	8,222	2,247	2,116	2,189	1,664	8,216	2,324	2,052	2,244	6,620
S&M % of Revenue	1.9%	1.7%	2.7%	2.5%	2.2%	3.4%	2.4%	3.9%	2.8%	3.1%	4.4%	4.7%	4.9%	4.7%
General and Administrative	6,520	6,859	7,641	7,342	28,362	7,458	7,732	7,896	6,545	29,631	7,381	6,938	6,309	20,628
G&A % of Revenue	6.8%	5.8%	8.6%	9.2%	7.4%	11.4%	8.8%	14.0%	11.1%	11.0%	14.0%	16.0%	13.7%	14.5%
Total Operating Expenses	15,510	16,481	18,864	18,948	69,803	20,114	20,770	22,783	18,721	82,388	20,250	19,484	18,372	58,106
Operating Expenses % of Revenue	16.1%	14.0%	21.2%	23.7%	18.3%	30.8%	23.7%	40.4%	31.8%	30.7%	38.4%	44.9%	39.9%	40.9%
Operating Income (Loss)	26,040	36,935	20,633	13,789	97,397	5,977	14,736	(3,629)	(4,196)	12,888	(6,785)	(7,680)	(5,082)	(19,547)
Operating Margin	27.1%	31.5%	23.2%	17.3%	25.5%	9.2%	16.8%	-6.4%	-7.1%	4.8%	-12.9%	-17.7%	-11.0%	-13.7%
Other Income (Expense):														
Interest Income	35	70	61	55	221	52	85	86	59	282	72	310	347	729
Interest Expense	(299)	(245)	(248)	(66)	(858)	(71)	(279)	(274)	(482)	(1,106)	(823)	(1,490)	(1,517)	(3,830)
Other Income (Expense)	(36)	194	87	(20)	225	13	292	217	636	1,158	78	235	1,124	1,437
Foreign Exchange Gain (Loss)	(324)	(229)	(381)	(129)	(1,063)	(1,243)	378	1,055	(127)	63	(460)	272	257	69
Total Other Income (Expense):	(624)	(210)	(481)	(160)	(1,475)	(1,249)	476	1,084	86	397	(1,133)	(673)	211	(1,595)
Other Income % of Revenue	-0.6%	-0.2%	-0.5%	-0.2%	-0.4%	-1.9%	0.5%	1.9%	0.1%	0.1%	-2.1%	-1.6%	0.5%	-1.1%
Net Income (Loss) before Income Taxes	25,417	36,725	20,152	13,629	95,922	4,728	15,212	(2,545)	(4,110)	13,285	(7,918)	(8,353)	(4,871)	(21,142)
Net Margin	26.4%	31.3%	22.7%	17.1%	25.1%	7.2%	17.3%	-4.5%	-7.0%	5.0%	-15.0%	-19.2%	-10.6%	-14.9%
Income Tax Benefit (Expense)	(3,654)	(5,403)	1,865	4,313	(2,879)	882	(2,344)	5,294	3,638	7,470	2,474	3,191	1,940	7,605
Net Income (Loss)	21,763	31,322	22,017	17,942	93,043	5,610	12,868	2,749	(472)	20,755	(5,444)	(5,162)	(2,931)	(13,537)
Net Margin after Income Tax	22.6%	26.7%	24.8%	22.5%	24.3%	8.6%	14.7%	4.9%	-0.8%	7.7%	-10.3%	-11.9%	-6.4%	-9.5%

