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PRESENTATION

Operator

Good afternoon, and welcome to MACOM's Fiscal Fourth Quarter and Fiscal 2017 Financial Results Conference Call. (Operator Instructions) As a reminder, this conference call is being recorded today, Tuesday, November 14, 2017. I will now turn the call to Steve Ferranti, Vice President of Investor Relations at MACOM. Steve, please go ahead.

Stephen Ferranti

Thank you, Karen. Good afternoon, everyone, and welcome to MACOM's Fiscal Fourth Quarter and Fiscal Year 2017 Earnings Conference Call. Joining me today are MACOM's President and Chief Executive Officer, John Croteau; and Senior Vice President and Chief Financial Officer, Bob McMullan.

If you have not yet received a copy of the earnings press release, you can obtain a copy at MACOM's website at www.macom.com under the Investor Relations section.

Before turning the call over to John, I would like to remind everyone that management's prepared remarks and answers to your questions contain forward-looking statements, which are subject to certain risks and uncertainties. Because actual results may differ materially from those discussed today, MACOM claims the protection of the safe harbor for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995.

For a more detailed discussions of risks and uncertainties that could result in those differences, we refer you to MACOM's filings with the Securities and Exchange Commission, including its current report on Form 8-K filed today, quarterly reports on Form 10-Q filed on August 2, April 22 and February 1, 2017, and its annual report filed on Form 10-K on November 17, 2016.

Any forward-looking statements represent management's views only as of today, November 14, 2017. MACOM assumes no obligation to update these statements in the future.

The company's press release and management's statements during this conference call will include discussion of certain adjusted non-GAAP measures and financial information, including all income statement amounts and percentages other than revenue referred to on today's call, unless otherwise noted.

These financial measures and a reconciliation of GAAP to adjusted non-GAAP results are provided in the company's press release and related Form 8-K, which was filed with the SEC today and can be found at the Investor Relations section of MACOM's website.

For those of you unable to listen to the entire call at this time, a recording will be available via webcast for at least 30 days in the Investor Relations section of MACOM's website. And with that, I'll turn over the call to John for his comments on the quarter.

John Croteau - *MACOM Technology Solutions Holdings, Inc. - President, CEO & Director*

Thanks, Steve. Welcome, everyone, and thanks for joining us today. I'll begin today's call with an overview of our fiscal fourth quarter results for 2017 and then turn the call over to Bob McMullan, our CFO, who will review our financial performance in further detail. I'll then conclude today's prepared comments by providing a summary of key business highlights during the quarter and guidance for the fiscal first quarter of 2018.

Revenue for the fourth fiscal quarter was $166 million, coming in at the low end of our guidance range. Overall demand was largely in line with expectations that we had factored into our Q4 guidance. As expected, we saw a hard pause in network infrastructure demand in China, impacting our entire range of Networks businesses. In total, Networks was down 25% sequentially, though it still grew 3% year-on-year.

We have a very strong quarter in A&D and Multi-market businesses, which grew 32% and 16% year-over-year, respectively. The shortfall between our reported Q4 results and the upper end of our guidance can instead be attributed to supply constraints that materialized over the course of the quarter, which impacted our ability to meet strong demands for our 100-gig data center products.

I'd like to take a moment to provide some additional color on each of these dynamics. First, and by far the most impactful, the hard pause in China leading up to and through the recent government transition in Beijing continues to negatively affect all of our Networks businesses, including legacy data center products, which, in total, had reached 75% of total revenue by the fiscal third quarter last year. While market conditions in other geographic regions remain solid, this multi-quarter freeze in China has had an outsized impact on our business as China represents the largest region for global network infrastructure demands. The corresponding inventory overhang reverberates even further on a global basis. All told, this looks and feels like the whipsaw effect of an old-fashioned semiconductor cycle.

Second, in data centers where demand for 100-gig solutions remains very strong, we're now being hampered by supply chain challenges. We're competing for capacity allocation at both front-end wafer and back-end packaging and assembly suppliers to sustain our production ramps. More specifically, our SiGe-based analog products are competing for the same capacity as others RF product servicing iPhone production, which is surging later than usual this year. Delivery commitments and lead times from our suppliers stretched out last quarter and won't recover until after the first of the year. In spite of this, our 100-gig data center revenue was up 76% year-on-year and, as expected, enabled 4 million ports in 2017.

To be clear, demand for 100-gig data center products continues to be robust. We're in the midst of the transition from 40- to 100-gig CWDM inside the data center where we've established a prominent position servicing cloud service providers. Early indications are that these cloud customers have begun consolidating their supply chains. We're well positioned to benefit from both of these developments over the course of 2018.

Finally, in our A&D and Multi-market business, we had a very strong quarter, partially cushioning the weakness in Networks. We saw strength from specific programs as well as some catch-up on backlog that had been deferred from previous quarters. We exit fiscal '17 leaving $12 million of customer demand unfulfilled as high rel qualifications continue into the new fiscal year. If we had shipped as customers requested in 2017, then year-on-year growth in A&D would have been 39.5%. Both of these businesses continue to outperform the broader market, driven largely by customer programs and share gains in Mimix, which grew 49% year-on-year during a period of 0 market growth according to a recent Strategy Analytics report.

Looking ahead, we see no signs of a pickup in network equipment demand in the December quarter. Additionally, we expect ongoing supply constraints to continue to hamper our ability to meet strong data center demands while our A&D and Multi-market businesses return to a more normalized pattern following a strong quarter, resulting in a sequential decline in overall revenue. Our recent results have been clearly disappointing as we navigate through this downturn. We're taking steps to mitigate the earnings impacts.

More encouragingly, we do see light at the end of the tunnel. I was able to visit China 2 weeks ago to get a fresh first-hand read from our top customers. While there, I saw clear signs that demand should recover after the first of the year. Inventories are expected to burn off some time between December and Chinese New Year, and orders and backlog have begun to build for delivery in the March quarter.

It's worth noting that the 19th National Congress concluded last month in Beijing, new government is settling in, and plans are materializing for the next wave of network infrastructure spending. I was told that the new government maintains strong support for global leadership in fixed and mobile network infrastructure. We're encouraged by the round of 100-gig tenders that were recently awarded to our customers as these should serve as a further catalyst to kickstart demand.

Outside of China, on the supply side, we now have firm delivery commitments from wafer suppliers and subcons for fiscal Q2 and beyond. We're also in the process of qualifying alternate sources such that supply should catch up with continued strong data center demand likewise after the first of the year.

Finally, we're ramping major new 100-gig programs with cloud data center customers, giving us high confidence in accelerating growth over the course of fiscal 2018. We believe that the cloud data center opportunity across several OEMs and cloud service providers is playing out as outlined in our May analyst forums. Visibility in each of these fronts is improving daily such as that we're optimistic that this, the December quarter, will be the bottom from a demand perspective. I'll discuss this in more detail later in the call.

Now let me turn it over to Bob to review our fiscal fourth quarter financials in more detail.

Robert J. McMullan - *MACOM Technology Solutions Holdings, Inc. - Senior VP & CFO*

Thank you, John, and good afternoon, everyone. I will briefly present our annual results and then review MACOM's fiscal fourth quarter results and financial position.

For fiscal 2017, revenue grew to $699 million, up 28%. Non-GAAP gross margins were flat at 58%. Operating margins expanded to 26% from 25%. Non-GAAP net income grew to $145 million, up 38%. And EPS, on a 4-quarter basis, grew to $2.33, up from $1.91.

As to cash, global income taxes, we received net refunds of $3 million for the fiscal year and had an unused U.S. net operating loss carryforward of more than $1 billion.

Free cash flow was $60 million, adjusting for onetime transaction expenses of $32 million, up 28% year-over-year. All in all, a good year with above-average results.

To fiscal Q4. Revenue was $166 million, growing 9% year-over-year but down from $195 million or 14% sequentially.

Revenue by end-markets. Networks was $113 million and 68% of total revenues, up 3% year-over-year. Multi-market was $25 million and 15% of total revenues, up 16% year-over-year. And Aerospace and Defense was $28 million and 17% of total revenues, up 32% year-over-year. Of the total network revenue, Optical was $48 million or 42%, but was down 32% year-over-year. Data center was $47 million or 42% and was up 259% year-over-year. And other network revenues was $18 million or 16% and was down 32% year-over-year.

Non-GAAP gross profit and gross margin in fiscal Q4 was $97 million and 58.1% of revenue, respectively, compared to $89 million and 58.5%, respectively, year-over-year and $114 million and 58.5%, respectively, on a sequential basis.

In terms of operating expenses. Total non-GAAP operating expenses were $59 million compared to $51 million year-over-year and $61 million sequentially. Operating expenses were up 15% year-over-year and down 4% sequentially. Our R&D expense included more onetime cost for materials and assets and other development expenses that will go up and down quarter-to-quarter. With the reduction of revenue on our forward guidance in fiscal Q1, we are looking at what we are investing in and pruning spending on areas where technology and market adoption, particularly in the legacy wireless area, are now more defined.

Adjusted R&D and SG&A expenses were $35 million and $24 million, respectively, in fiscal Q4.

Non-GAAP income from operations and operating margin were $38 million and 22.8% of revenues, respectively, down $360,000 and down 230 basis points percentage-wise, respectively, year-over-year and down $15 million and 440 basis points, respectively, on a sequential basis due primarily to lower revenue.

Interest expense was $6 million and flat with fiscal Q3. Other income of $2 million represents income from a consulting contract that has now ended and will not be continued into fiscal 2018. Our normalized non-GAAP income tax rate in fiscal Q4 was 10%. We expect to reduce our tax rate to 8% through fiscal 2018, in line with our estimate of a long-term normalized tax rate. Our fiscal Q4 non-GAAP net income and EPS were $30 million and $0.46 per fully diluted share, respectively, essentially flat in terms of net income but down due to higher share count for EPS from $0.54 year-over-year and down from $44 million and $0.67, sequentially, primarily due to lower revenue.

Adjusted EBITDA, or earnings before interest taxes, depreciation and amortization, was $47 million, up 5% from $45 million in our fiscal 2016 fourth quarter and down 23% from $62 million sequentially.

GAAP cash flow from operations was $12 million, which included AMCC transaction-related cash payments of $3 million. Investments in working capital increased due to timing of revenue, influencing accounts receivable and higher inventory reduced cash flows from operations. Cash flow from operations in fiscal 2016 fourth quarter was $25 million and $28 million during the third fiscal quarter of 2017. After deducting capital expenditures and excluding acquisition-related payments, adjusted non-GAAP free cash flow was $7 million and 25% of non-GAAP net income in fiscal Q4 compared to $18 million and 59% of non-GAAP net income in the fiscal fourth quarter of 2016 and $20 million and 46% of non-GAAP net income sequentially, also after excluding AMCC transaction-related payments.

To MACOM's balance sheet. At fiscal fourth quarter end, our cash, cash equivalents and short-term investments were $214 million, down from $249 million due to completing 2 small acquisitions during the quarter for approximately $38 million in aggregate cash consideration. Accounts receivable were $136 million, up from $130 million sequentially.

Days sales outstanding were 74 days compared to 61 days sequentially. Inventory was $136 million, up 13% from $120 million sequentially. Inventory turns were 2.1x compared to 2.7x sequentially.

Long-term debt was $679 million inclusive of capital leases. We also had $160 million of availability in an undrawn credit line.

Capital expenditures in the fiscal fourth quarter were $8 million or 5% of revenues compared to $8 million or 4% of revenues sequentially. Depreciation expense was $7 million as compared to $7 million sequentially. Our annual investment in capital expenditures exceeded our depreciation expense, reducing our free cash flow by $7 million during fiscal '17.

Before closing, I'd like to note that beginning next quarter, in conjunction with the start of the new fiscal year, we will modify our end market reporting to better reflect our evolving mix of businesses. Starting in fiscal Q1, we will report Multi-market and A&D sales as one combined end market, industrial and defense. Sales into each of these end markets have become quite modest as a percentage of revenue and they share common investment in dual-use catalog parts serving both industrial and military applications with common frequency bands. We feel this is simpler and a better gauge in the outlook and performance of that business. In addition to industrial and defense, we will begin formally reporting data center revenue as its own end market. The economic driver of this market is capital investment from enterprise and hyperscale cloud service providers.

The third and final end market will be telecom, which is driven by capital investment by fixed and mobile operators. Based upon these new end market definitions, fiscal Q4 revenue in data centers was $47 million, up 259% year-over-year. Telecom was $66 million, down 32% year-over-year. And industrial and defense was $53 million, up 24% year-over-year. We have posted to our Investor page of our website, for your information, a summary of our historical quarterly revenue breakdown by these new end markets for fiscal '16 and '17.

Finally, while it took longer than we anticipated, we have concluded the divestiture of the Compute business. MACOM contributed the Compute business assets and IP to a new entity in exchange for a minority ownership position. We did not receive a cash payment in this transaction. MACOM has no obligation for further cash investments, and we believe the potential long-term appreciation of MACOM's stake in NewCo offers our shareholders the best potential for maximizing value in connection with this divestiture. Back to you, John.

John Croteau - *MACOM Technology Solutions Holdings, Inc. - President, CEO & Director*

Thanks, Bob. Let me reiterate why we remain confident about our prospects for resuming growth and improving profitability in 2018 and beyond.

Like other communications semiconductor suppliers, we've been swimming against an industry-wide riptide for the entire second half of 2017. It's been painful for everyone involved, but we understand the root causes and believe we see signs of an inflection point. There's a marked change from when I visited China last quarter and described the customer visibility in our last call as limited to none. We believe the tide should turn in the March quarter across many of our Networks businesses. We've seen this play out before, most notably in the 2012, '13 time frame, which happened to be the 18th National Congress in China. As recovery gains traction, orders typically turn back on swiftly and, in one case, they already have.

Outside of China, business remains healthy. To put things in perspective, last quarter our Metro/Long-haul business in China was down over 43% year-on-year while outside of China, it was up 48% year-on-year. Once provincial deployments resume in China, Metro/Long-haul should resume growth on a global basis.

More importantly, beyond the cyclical recovery in Networks, we have successfully expanded our customer footprint and market share in current areas of strength as well as established compelling adjacent growth engines for 2018.

I'd like to provide you some very specific examples.

First and by far the most impactful, cloud data centers. We're poised to be a major beneficiary of the upgrade from 10- and 40-gig architectures to 100-gig that's well underway inside of data centers. We hold a highly differentiated position with leadership across all analog and photonic content: TIAs, drivers, CDRs, lasers, photodetectors, silicon photonics and mixed-signal PHYs such that we're uniquely capable of enabling high-volume supply chains for low-cost transceivers.

Let me be clear. We see a coming sea change in the supply chain for cloud service providers toward their preferred high-volume manufacturers. Still in the early stages, but it is unequivocally happening. Despite the supply constraints that we faced in Q4, data center revenue grew 259% year-on-year, and demand for 100-gig CWDM solutions, where our content is significantly higher, is accelerating.

Our 25G laser shipments are ramping aggressively in our 4-inch Lowell fab that are qualified in our optical subcons as well as transceiver and cloud customers. During the fourth quarter, we doubled unit shipments of 25G lasers and expect to double them again in the December quarter. We expect manufacturing output to approach 1 million CWDM lasers this quarter and continue to accelerate from there. That's on top of PSM, LAN WDM and PON laser production.

Lastly, we're creating further separation from the competition with extensions to PAM-4. We have over 50 customer engagements for our PAM-4 PHYs, and we recently secured premier design wins with 2 franchise players in the Networks and data center industry.

Within data centers, we believe these players will make single lambda PAM-4 standardization fait accompli. In aggregate, we estimate that the potential opportunity for MACOM for 100- to 400-gig connectivity in cloud data centers will be explosive, measuring in the multibillion-dollar range over the next few years. Ultimately, our ability to scale data center revenues in 2018 will be determined by how quickly our transceiver customers and subcons can ramp their own production.

This operational challenge should not be glossed over. Put in context, the volume required by one program at one cloud service provider approximates the unit demand across the entire Metro/Long-haul market for 100-gig transceivers. And that demand of that one cloud customer is quickly accelerating past overall telecom industry demands, and that is not the only customer and the only program with that demand profile. There are others.

The second area of SAM expansion is in fiber to the premises or PON. Since our last earnings call 2 months ago at CIOE in Shenzhen, we announced comprehensive 10G PON portfolios for all analog and photonic content for both central office OLT and client-side ONU solutions. To date, in 2.5G, we had only played on the client side and primarily with lasers. By comparison, in 10G PON, we've staked out our position earlier in the cycle with a full product portfolio, spanning lasers, photodetectors, silicon photonics and supporting analog electronics across both central office and subscriber side applications. This translates into a significantly greater opportunity for MACOM in the coming quarters and years as these deployments ramp. I would caution, however, that we are currently in the early stages of the 10G PON cycle with many customers still in the design stage.

The third area of SAM expansion is in mobile infrastructure, which is emerging as a much broader opportunity for MACOM than just GaN. To date, we've been a relatively small player supplying mostly lasers for fiber fronthaul and backhaul and point-to-point radio chipsets. Outside of that, we have not historically participated in base stations. Over the next few quarters, that should begin to change, starting with 4G LTE power amplifiers, which represents roughly $1 billion TAM. We're now qualified with initial GaN design wins ramping into production, and we're competing on a program-by-program basis for additional wins versus traditional LDMOS competitors. Building on top of this foundation, we see our addressable opportunity in mobile infrastructure expanding geometrically over the next few years. The next generation of mobile cloud applications and corresponding migration from 4 to 4.5, 4.9 and 5G plays to all of our strengths as a company, not just GaN. Borrowing from existing traction in civil and defense radar programs and leveraging 8 years of collaboration with MIT Lincoln Labs, our active antenna technologies are now front and center in base stations as mobile operators strive to increase bandwidth, decrease latency and improve spectral efficiency with massive MIMO arrays.

Another major catalyst for expansion within wireless base stations is our Optical capabilities. As the antennas and Networks evolve to accommodate more and more data, line speeds for fronthaul and backhaul are pushing to 100-gig and beyond. You can't deploy the antenna if you can't get the data to and from the remote radio heads.

During my trip to China, customers were speculating that the market for 100-gig Optical transceivers could double over the next 5 years in the back of 5G. Customers are beginning to realize the unique role that MACOM can play, literally from RF to light, in hope they realize the vision of mobile cloud networks that deliver much greater bandwidth, lower latency and better spectral efficiency.

Let me emphasize something here before I close. I'm talking about existing products tied to existing customer engagements on current generation as well as future generation designs. So to 2x2 and 4x4 MIMO as well as massive MIMO arrays, 4G LTE as well as 4.5, 4.9 to 5G, 100 gig CWDM as well as 400 gig PAM-4.

Now let's talk about next-quarter guidance. For the fiscal first quarter ending December 31, 2017, we expect revenue to be in the range of $130 million to $136 million. Adjusted gross margin is expected to be between 55% and 58%, and adjusted earnings per share between $0.10 and $0.16 on an anticipated 66.5 million fully diluted shares outstanding. It's worth spending a moment to provide additional color on the December guide. In the September quarter, the true depth of the China networks downturn was partially masked by strong shipments in the A&D Multi-market. Entering the December quarter, we expect Networks demand to remain soft in China and supply chain constraints to persist in data centers while the A&D and Multi-market businesses return to more normalized levels at calendar year-end.

This is a transitional quarter for MACOM. We expect the December quarter will be the bottom of a down cycle in network infrastructure, which appears to be on the verge of turning. At the same time, we've expanded our customer footprint, and several of our hyper growth drivers look to be approaching major inflection points as we secure deals with industry franchise players.

We believe that MACOM is well-positioned to succeed in multiple areas of the industry hyper growth, cloud data centers and the mobile cloud such that when global demand and our base Networks business recover from the temporary pause in China, MACOM will return to our long track record of outperformance over the course of 2018.

Operator, you can now open the call to questions.

QUESTIONS AND ANSWERS

Operator

(Operator Instructions) Our first question comes from the line of Blayne Curtis of Barclays.

Blayne Peter Curtis - *Barclays PLC, Research Division - Director and Senior Research Analyst*

Maybe, John, just a clarification on the December guidance for the new bucket, you said that you had supply constraints. Just curious if that meant that data center would be down in December. And then maybe if you could just talk about competitive landscape, are others seeing the same supply constraint? And kind of just how does it affect your ramp and your competitive positioning?

John Croteau - *MACOM Technology Solutions Holdings, Inc. - President, CEO & Director*

Yes, good question, Blayne. So in terms of data center, one of the things I had mentioned is the bulk of the majority of the decline over in China is telecom. We also, if you remember, bought with AMCC a legacy position in data center, a big chunk of that business actually goes through China, customers like ZTE. That is likewise impacted. It's not just telecom; it's datacom over in China. So that is definitely declining. I should be clear about the supply constraint. The delivery output from our suppliers is not dropping. It's just not growing with our demand. We had anticipated in our guide that we would continue growth, and we just got clipped in terms of wafer allocation as well as back-end assembly from our suppliers. So it's just limiting our ability to make up for the telecom shortfall with continued growth in data center for one more quarter. By the March quarter, we should be totally back in action. We got commitments from those suppliers and others to catch up to demand.

Blayne Peter Curtis - *Barclays PLC, Research Division - Director and Senior Research Analyst*

Got you. And then just on data center again in terms of your being able to ship your lasers and getting qualified on some of these bigger projects, just kind of curious if you can lay out maybe some time line and milestones as to when you think you got some better visibility there.

John Croteau - *MACOM Technology Solutions Holdings, Inc. - President, CEO & Director*

Yes, good question. So the way to think about the data center thing as it relates to our lasers is the short term and the model to date has been supplying analog components and lasers and photonics to transceiver guys who address that market. We will continue to do that. They're great customers. We support them fully. They have our commitment. Where the huge inflection point is enabling Etched Facet Technology and the L-PIC extensions to be able to enable much higher volume manufacturers being directed to us from the cloud guys. And in that respect, we're in great shape with the qualifications with the guys who matter, the volume suppliers that the big guys are directing to us. We're fully qualified with the lasers, and we're ramping up the L-PICs now. So we're very, very well poised. And the strongest position we have there is CWDM. So some of the reports you see from transition to -- from 40 to 100 gig is absolutely what we're involved in, in our favor. And as I mentioned in the scripted remarks, there is kind of a sea change in shifting over to these higher volume guys. These are the suppliers that the cloud guys want to depend upon to be able to scale from the market going from 1.6 million to 4 million units to 10 -- to tens of millions of units. So that's where the real rubber hits the road. And what that's what you're going to see play out throughout the course of 2018.

Blayne Peter Curtis - *Barclays PLC, Research Division - Director and Senior Research Analyst*

Excellent. And if I can just squeeze in one for Bob, on gross margin. The guidance, obviously there must be some absorption with the lower revenue number, maybe mix as well. Just can you talk about the factors driving the lower gross margin in December?

Robert J. McMullan - *MACOM Technology Solutions Holdings, Inc. - Senior VP & CFO*

Yes. Blayne, good question, again. I would not say it's so much an absorption where, as we've said many times before, we're sort of a boutique manufacturing fab here, unlike the big guys, it's really more product mix. And as we've talked about, some of those products that are soft in terms of our revenue guidance are really some of our higher-margin products.

Operator

And our next question comes from the line of Quinn Bolton with Needham.

Nathaniel Quinn Bolton - *Needham & Company, LLC, Research Division - Senior Analyst*

I wanted to follow up on that data center business. John, it looks like the business was down mostly because of the legacy AMCC revenue. Just wondering if you could help size that portion of the business some -- you look back 3 quarters ago when you acquired AMCC, looks like data center jumped from about 16.8 million up to 50 million. Is AMCC more than half of data center revenue?

John Croteau - *MACOM Technology Solutions Holdings, Inc. - President, CEO & Director*

I don't believe so. To be honest, I don't have the numbers in front of me to give you a very specific answer. I can tell you the part of the portfolio is the legacy OTN framers and mappers that we had classified as data centers. So to be consistent, it is data center revenue being down. In the September quarter, the issue -- the analog business, which is what I would call the organic growth part of the portfolio, at least, that was the real breakout that we've had. That's just being clipped. We're draining buffer stocks, and we're just not being able to grow the way we -- the demand profile is shaping up. For the September quarter we were and we're limited for the December quarter as well. I can't quantitatively break out the relative mix.

Nathaniel Quinn Bolton - *Needham & Company, LLC, Research Division - Senior Analyst*

Okay. Then maybe I think it was all the way back at the data center Analyst Day now, maybe close to a year ago, you guys had estimated that you might have $40 of analog content, I'd say especially on CWDM. You guys hit your goal of enabling 4 million ports this year. One, Is $40 still the right content assumption we should be thinking about 100-gig module? And second, you hit your 4 million port target in fiscal '17, do you have a new target in fiscal '18?

John Croteau - *MACOM Technology Solutions Holdings, Inc. - President, CEO & Director*

We absolutely have targets. There's many more targets than we had before. And I can't speak to the $40 because... to remember how that was calculated: we took the total revenue and divided it by the number of ports enabled and averaged out the $40. The difference customer to customer and design to design with how much content we ship varies dramatically: some of the new stuff when we talk about CWDM, some of the more integrated L-PIC solutions and so on. The content goes way up beyond that, frankly. But in some of those ports, in the 4 million ports, we might just be shipping CDRs, for instance. So we've got to be careful about calling that an average content per port.

Nathaniel Quinn Bolton - *Needham & Company, LLC, Research Division - Senior Analyst*

Okay. Lastly, and just quickly, for Bob. You mentioned in the prepared script that you're taking some steps to mitigate the impact of the short-term revenue dip. Can you be more explicit sort of with what that impact might be on OpEx as you look forward to the December and future quarters?

Robert J. McMullan - *MACOM Technology Solutions Holdings, Inc. - Senior VP & CFO*

Quinn, that would translate -- so here's what we're doing. There are very clear technologies today that we're continuing to invest in and those that no longer make sense at all. And from that perspective, we're trimming various expenses. We talked about the timing of investment for the things that are variable, go up and down. So we're controlling those expenses in the fourth quarter to make them essentially flat or very up slightly on a dollar basis.

Operator

Our next question comes from the line of Harlan Sur with JPMorgan.

Harlan Sur - *JP Morgan Chase & Co, Research Division - Senior Analyst*

Yes. So again, on the September quarter results and the data center business, which declined about $10 million sequentially, I think throughout all of the [Q&A] I think a bigger part of that is the AMCC part of the business. But I'm just curious on the high-performance analog product side, which I think you guys showed recently has been driving good sequential growth, drivers, amplifier, CDRs, did this business actually grow in the September quarter? Or was it flattish, driven by some of the SiGe constraints? And what are you anticipating for the HPA products as you contemplate -- what is being contemplated for HPA within the December quarter guide?

John Croteau - *MACOM Technology Solutions Holdings, Inc. - President, CEO & Director*

Yes. We don't guide on a forward-looking basis by product line. That gets dangerous, that bobs around within the quarter, but let me explain what is happening with HPA. So our wafer output -- our wafer purchases in our back end was held flat, right, where we have growing demand, very strong growing demand, very demanding customers, very vocal customers, which, as you can imagine in an environment of current demand elsewhere, is kind of an interesting juxtaposition. But what will moderate quarter-to-quarter with that is draining buffer stocks. So we had held very solid buffer stocks for parts of this business. It's a logical thing to do so that you can respond to demand. But of course, as the demand surges and supply doesn't keep up, the logical thing to do is to ship the buffer stocks because, frankly, customers are demanding it. So that can end up looking like a sequential decline in revenue when it's actually just a supply constraint. But from a demand standpoint, I want to be very, very clear. We have very strong and continue to grow demand in that analog part of the business across everything in data centers. The #1 issue we have is customers on us on a daily basis pounding for deliveries. There's no demand-related issue on the data center side whatsoever.

Harlan Sur - *JP Morgan Chase & Co, Research Division - Senior Analyst*

Okay. And then on the -- I appreciate the insights there. On the confidence in December being the bottom, you talked about seeing some order visibility for the March quarter, so are you seeing better bookings patterns in both Metro and Long-haul part of the business and your data center products? Or is it primarily just some of the resolution of these bottlenecks in the supply chain on the data center front that is driving the inflection in March? So I just want to get a sense of how broad based is the order of pickup that you're seeing, potentially in the March quarter.

John Croteau - *MACOM Technology Solutions Holdings, Inc. - President, CEO & Director*

That is the perfect question. I can tell you right now, having just gone to China, on various levels, one of which is absolutely order intake. It's across several of our Networks businesses, across many of the telecom, maybe not all, but the ones that matter including Metro/Long-haul. Order intake has absolutely begun. Prior to this, you realize it was a nuclear winter from June all the way up until now for the December deliveries. It was effectively 0. Orders have started there. It's across fiber backhaul. There's very strong demand popping up with, frankly, expedites, believe it or not, for -- there's a 900 megahertz narrowband IoT buildout that's happening in China. 5G field trials are being pulled in, so we have expedites across a lot of things. I can tell you, right now, what's developing is our laser production, both through cyclical recovery on the telecom side, but also the secular growth on datacom side. We're in the same situation in terms of trying to expand capacity and expand output to the best of our ability, beginning with the March quarter. So it's -- the recovery is actually quite widespread. It's not just a single segment within Networks, but it is very clear. And I'll leave the last, this color, that I think is useful. The behavior of the executives that I met with in China 2 weeks ago was profoundly polar opposite different than what I experienced in June. In June, everybody had their heads down. They hunkered down saying no orders, no deliveries, shutoff. Two weeks ago, they were back in the saddle. It was the classic negotiation. There's always price as part of the discussion point, but we started talking absolutely about capacity allocations, the ability to pick up on some developing very strong demand. So I have no problem whatsoever calling December the bottom.

Harlan Sur - *JP Morgan Chase & Co, Research Division - Senior Analyst*

Okay, and just one -- appreciate that, that was -- appreciate the insights there. Can you just help us understand what is the -- it's changed quite a bit, but give us your sense on what is the seasonal pattern for the A&D and Multi-markets business thinking about the March quarter?

John Croteau - *MACOM Technology Solutions Holdings, Inc. - President, CEO & Director*

For the March quarter, it should be back very solid. I mean, I can tell you the secular growth across our Multi-market and A&D businesses is quite good. Both have delivered and continue to project for better than our 20% model. The issue right now is calendar year-end with A&D are just -- that's the first quarter of the new fiscal year in defense spending, whereas the September quarter was a very strong one in terms of programs. And then just our own artifact, which was if you remember we had pushed some backlog on high-rel products that we shipped a big chunk of that in the September quarter so it will look like a decline in the December quarter. But the secular demand across those businesses is quite solid. I'd sum it up like this, the industrial and defense is what we're going to call it on a go-forward basis. We have only grown our diode preeminent position in high-performance diodes. Organically and inorganically, the pickup of metallics with the high-rel portfolio is -- has been spectacular. Our Mimix grew 49%, I believe was the number. So the Mimix are growing obviously from share gains because the market is not. And as the transistors turn on with GaN outside the base stations, that is, I'm confident, can be delivered in excess of our 20% model.

Robert J. McMullan - *MACOM Technology Solutions Holdings, Inc. - Senior VP & CFO*

And component design wins around radar programs are growing across 2018 as well.

John Croteau - *MACOM Technology Solutions Holdings, Inc. - President, CEO & Director*

Yes. So it's going to be a very solid part of our growth. And the cash flow for that business, that is not heavy investment. So it's a good thing to see. Good drop-through.

Operator

Our next question comes from the line of Vivek Arya with Bank of America.

Adam Gonzalez - *BofA Merrill Lynch, Research Division - Research Analyst*

This is Adam Gonzalez, on for Vivek. I'll start with a simple one. I guess, just given everything that you know at this time, just what kind of top line growth rate do you think would be prudent to assume for MACOM in fiscal '18?

Robert J. McMullan - *MACOM Technology Solutions Holdings, Inc. - Senior VP & CFO*

Well, we guide one quarter at a time, Adam. Our targets remain intact. Our operating target model calls for 20% annual growth, 60% gross margin, and we're targeting 30%. Obviously, we're behind the curve with our first quarter, but we still strive as a business to deliver as close to those quarters as we can. And it's early innings, and a lot of demand is there and it'd to be crazy to call it today, but we'll continue to monitor it. But that's our view.

John Croteau - *MACOM Technology Solutions Holdings, Inc. - President, CEO & Director*

Yes. If I can add some more color. The best way to think about us is our ability to achieve our 20% growth model on secular growth is, if anything, growing. I mean, I can tell you when we talk about the mobile infrastructure piece of it, whether it's GaN and expanding beyond that, the cloud data center stuff, the 20% growth is not at all an issue. On a sustained basis, compound growth of 20%. What we have superimposed in that right now is an old-fashioned semiconductor industry cycle. We're suffering through the bottom of the trough. And if history proves itself right, what comes out is you go from famine to feast. And I can tell you in one particular part of our business, specifically around the lasers, that is exactly what we're already experiencing. So it's way too early to call March -- to call second half of the year, but I can tell you the second half of the year, cyclical recovery should be clearly be in place by then, worst case. And with the secular growth, I think you're going to -- I think when everything is written, it's going to be a very solid year yet again.

Adam Gonzalez - *BofA Merrill Lynch, Research Division - Research Analyst*

I guess as my follow-up, can you talk a little bit about the competitive landscape for Internet data center high-speed optical links?

John Croteau - *MACOM Technology Solutions Holdings, Inc. - President, CEO & Director*

Yes. So there's kind of 2 models to keep in mind. There's the transceiver model, which is a very valid model. We've got some great customers, all the major names we sell to, literally almost everybody, analog components, in some cases, lasers. And depending on which product it is, it's a totally different competitor. On the analog stuff, some tech tends to compete with us on that class of product in that kind of volume in PON and in data center. In lasers, it's typically Renaissance, traditionally the CyOptics of Broadcom, Avago Broadcom. The PAM-4 PHYs, I'd say MaxLinear is probably the closest one to being able to catch up to us with a single-lambda stuff.

Robert J. McMullan - *MACOM Technology Solutions Holdings, Inc. - Senior VP & CFO*

Broadcom, as well...

John Croteau - *MACOM Technology Solutions Holdings, Inc. - President, CEO & Director*

Yes, Broadcom -- single lambda. Yes. So it's different components, that's a component play. When we talk about some of the high-volume connectivity stuff, it's more kind of integrated solutions, and there's no indigenous competition. There's no one who has a complete portfolio that we have any ability to put it through that kind of high-volume supply chain, at least no one yet.

Robert J. McMullan - *MACOM Technology Solutions Holdings, Inc. - Senior VP & CFO*

Including all protocols.

John Croteau - *MACOM Technology Solutions Holdings, Inc. - President, CEO & Director*

Yes. So we have CWDM. We've got -- across everything, we've got -- which you'll see as DR1, FR4, which is 100 and 400 gig PAM 4 in the form of solutions and all geared for millions of unit type quantities. So that's an order of magnitude, bigger opportunity literally than the first phase. First phase is very valid, will continue. I'm sure those customers will thrive in their own space. But the answer is different depending on which model you talk about at which point in time.

Operator

And our next question comes from the line of Mark Delaney with Goldman Sachs.

Mark Trevor Delaney - *Goldman Sachs Group Inc., Research Division - Equity Analyst*

First question is I'm hoping to better understand the Networks segment in the December quarter and maybe where China is assumed to be running at in terms of revenue levels at this point, because I think China had already been zeroed out in the PON piece as of the September quarter. And if I recall properly, your Metro/Long-haul China I think was already down, like 50% to 60%. But I'm coming up with something like down another 15% to 20% sequentially in the Networks segment is what seems to be baked into the December quarter guidance. So can you just help us understand is that all incremental China weakness? Where is China running at? And if it's not China, where's the incremental Networks weakness in the December quarter?

John Croteau - *MACOM Technology Solutions Holdings, Inc. - President, CEO & Director*

Yes. I think off of the top of my head, Mark, your calculations for Networks is not inaccurate. I think the one thing that we had said before was it was the indigenous demand in China, the end market demand. What I think we couldn't yet call was the inventory overhang as it relates to that inventory burning off, servicing other parts of the world. So like I said, we basically had 0 order intakes since June, and where in September you had backlog because the orders up through May had been quite reasonable. We entered the September quarter with backlog that we simply don't have right now. That's the fundamental difference. I think the other thing that is part of the sequential decline, which optically looks bad, is we're coming off that pulse of A&D as well as Multi-market business, which we had taken that previous high-rel demand and we had pushed it and we shipped the chunk of that finally in the September quarter, so sequentially it looked like a decline, and compounded with the fact that, frankly, year-end -- calendar year-end for A&D as well as Multi-market is just seasonally weak. But I think your calculation on the Networks stuff is not off.

Mark Trevor Delaney - *Goldman Sachs Group Inc., Research Division - Equity Analyst*

Okay, that helps. And a follow-up on that and then just a separate question I was hoping to ask. But on A&D, I think in the prepared comments, is it John or Bob, that you said there's still $12 million of unfilled A&D demand, but guiding that down in December. So can you just help us with that disconnect on the A&D commentary.

John Croteau - *MACOM Technology Solutions Holdings, Inc. - President, CEO & Director*

Yes. So when we talk about that particular demand, it's high-rel. So this is GaAs, space class in some cases, product. And we talk about qualifications and when we talk about production lead times, you're talking about many months. In some cases, you're burning in product for a very long time. And where we ended up is with a very severe bottleneck in our Lowell factory as it relates to being able to do these qualifications, which I have not anticipated early in the year. The big surprise on the upside was demand for 25-gig lasers went from over the horizon to instantly being top priority, and something just had to push. On top of that, we're completing all the GaN qualifications. So different GaN programs and so on. So it's -- that's the reason why we can't just instantly ship the extra $12 million. There's a certain capacity we have through the quality organization to do those quals and high-rel production.

Mark Trevor Delaney - *Goldman Sachs Group Inc., Research Division - Equity Analyst*

Okay, that's helpful. And then lastly for me on inventory, which came up obviously a lot on a days basis, but also on a dollars basis. How does the company plan to potentially work those inventory levels down? Is there a factory capacity that we should be thinking of? Or other ways that maybe inventory needs to come down. And if so, how should that impact gross margin?

Robert J. McMullan - *MACOM Technology Solutions Holdings, Inc. - Senior VP & CFO*

Excellent question, Mark. So let me just highlight, you'll see this in the K when it's out, that 90% of our inventories are either in finished goods or raw materials. We don't have a lot of work in process, so we try to get the cycle times as quickly processed and not really hang up a lot of the inventory in dollars that are not defined. So inventories are higher. We've taken advantage of certain softness in markets for some wafers in businesses that in the past have been difficult to obtain when volume comes back quite heavily. In other cases, we built product and had product that we expected greater demand, and it's across all our lines of businesses. But as the demand comes back, we'll ship the products. Growth will drive inventories. The longer-term view is they'll be down slightly, but as growth kicks in again and secular drivers come back, we'll continue to grow inventories over the course of 2018 in line with that demand in that business.

Operator

Our next question comes from the line of Tore Svanberg with Stifel.

Tore Svanberg - *Stifel, Nicolaus & Company, Incorporated, Research Division - MD*

Yes. The first question is on PAM-4. So John, you mentioned you have about 50 engagements with customers. You also cautioned that this really -- they have to get the production going. So can you maybe elaborate a little bit on what are some of the things they need to have on the production side for those design wins or engagements to materialize, please?

John Croteau - *MACOM Technology Solutions Holdings, Inc. - President, CEO & Director*

Well, for the guys who matter, I wouldn't say that all 50 of those guys matter. The big numbers and the franchise players that I talked about, I mean, I'll be very happy through the course of this year when we can talk about the full scope of the quality of customers we have. But the guys who matter are going to be very, very careful about what I say. We made comments in the past about our customers' program status and we've been chastised appropriately. Guilty as charged. So I really can't talk about what they need to do to be able to get those programs into production. I apologize. There's a lot of other guys who are doing designs as well; they'll all contribute. But to me, we're fixated on the guys, the big guys who matter.

Tore Svanberg - *Stifel, Nicolaus & Company, Incorporated, Research Division - MD*

That's fair. And in relation to China, I think you mentioned in your prepared remarks that there is one part of China that's already growing. I don't know if that was in relation to the improvement in orders you're seeing for the March quarter or you're actually starting to see some China shipments coming back this -- in this quarter.

John Croteau - *MACOM Technology Solutions Holdings, Inc. - President, CEO & Director*

Well, it's kind of too late, right, because we're in the middle of November and this has been developing in the time since I was over there 2 weeks ago. So obviously, whatever we can push out the door and make a material impact this quarter, we'll do that. But you really need a little more visibility than 4 or 6 weeks. But I'll pull off the baskets. In the laser space across fiber backhaul, fronthaul, PON, data center, which is obvious, all hell has broken loose. We're now in the state of scrambling to try to figure out how we scale production even quicker, things came back, turn on much quicker than we anticipated than anybody anticipated. So it's full on for the March quarter. I think the only caution I would give everybody about the March quarter is sitting right in the middle of it is Chinese New Year. And it's kind of like Thanksgiving where everybody goes home at Thanksgiving here. The difference in China is half of the workforce does not come back. They restaff and they retrain, so it's really much more disruptive to the production cycles over in China. So traditionally, that first calendar quarter is soft. I don't know how much that can moderate the recovery, but I can very confidently say by the time March comes and get past Chinese New Year, I think I'd be almost surprised if everything across the board isn't back into full-on mode.

Tore Svanberg - *Stifel, Nicolaus & Company, Incorporated, Research Division - MD*

So sounds good. Just one last clarification question for Bob. Bob, on the question on OpEx, did you say that total OpEx would be flat to up? Or is it variable OpEx that would be flat to up?

Robert J. McMullan - *MACOM Technology Solutions Holdings, Inc. - Senior VP & CFO*

No. It's total OpEx.

Operator

Our next question comes from the line of C.J. Muse with Evercore.

Christopher James Muse - *Evercore ISI, Research Division - Senior MD, Senior Equity Research Analyst and Fundamental Research Analyst*

I guess, a couple of follow-up questions on the data center side. First up, can you talk about the near-term supply constraints and whether that's had any impact on your competitive positioning? And then thinking a bit longer term as you've highlighted the tremendous growth opportunities with the big cloud players, how are you getting them comfortable that you can scale adequately for them?

John Croteau - *MACOM Technology Solutions Holdings, Inc. - President, CEO & Director*

Yes. So in terms of the competitive position, we haven't seen any material impact. I mean, it's been the relative inability to supply upside to their forecasts. So if we had customer forecasts, we would've had to forecast into suppliers and they would've had commitments to us. It's the absence of accurate forecasts coming from our customers that's the problem. So they're obviously not surprised. But they're with us. They understand exactly what situation it has caused. And last thing you want to do is have upside capacity request at a time when Apple is surging iPhone production. I mean, to simplify it, that's exactly what happened on both front end and back end. We're competing with people like Skyworks, for instance, from the same suppliers who manufacture RF products for the iPhone. So I don't think there's any material impact to our short-term positioning with that analog part of the portfolio. We've been talking about within a quarter of pushing -- it's not like a year issue. In terms of the comfort with the cloud guys, they clearly see the fact that our technology, our supply chain, our products come from a heritage of supplying similar volumes to what they require inside the data center. So if you look at our lasers, the 25-gig lasers run on the same lines. It's a process and product extension from our 2.5 and 10-gig lasers that we're running 5 million to 8 million units a month; and frankly, we'll be back there within months. We're ramping right now, such that we could double that and supply the entire data center industry. Now there's a lot of work to be done. There's a lot of operational execution. There'd be a lot of yield improvement. But the nature of the technology can service the magnitude of the opportunity. And frankly, they haven't heard that from anybody. When you look at the silicon photonics and the L-PICs with the lasers embedded in them, you look at the supply chain partners that we have, they can supply the wafers to be able to manufacture that to the same scale. The analog products that I was just talking about inside of data centers are the same product lines, same design teams, same vendors where we've been supplying PON historically. PON is an 80 million unit market traditionally. So yes, it's a higher speed and higher performance analog component, but all of our supply chain for these semiconductor components fits the scale capacity model. And then the icing on the cake is our ability to take those solutions and support the people that they want to supply millions to tens of millions of units of transceivers is quite unique. So the cloud customers, I've never seen a situation where we've been sponsored by the quality of customers and industry leaders like we have. But that's exactly what's going on.

Operator

(Operator Instructions) Our next question comes from the line of Chris Caso with Raymond James.

Christopher Caso - *Raymond James & Associates, Inc., Research Division - Research Analyst*

I wonder if you could talk about cash flow. What was free cash flow in the quarter? And I guess, my calculations, it looked like the cash balance came down by about $30 million or so. I'm not sure if that number is correct. Could you talk about that?

Robert J. McMullan - *MACOM Technology Solutions Holdings, Inc. - Senior VP & CFO*

Yes, Chris. In my prepared remarks, I mentioned that the company completed 2 small acquisitions. And that really is the delta in the cash flow balance between what we generated and where the balance came out.

Operator

And our final question for today comes from the line of Richard Shannon with Craig-Hallum.

Richard Cutts Shannon - *Craig-Hallum Capital Group LLC, Research Division - Senior Research Analyst*

Maybe a 2-parter on the guidance for the quarter based on a couple of previous questions. It wasn't clear to me whether you expected the Networks business to decline more or less than the combined A&D and Multi-markets for the December quarter. Can you clarify that for me, please?

John Croteau - *MACOM Technology Solutions Holdings, Inc. - President, CEO & Director*

I think the numbers, percentage-wise, aren't appreciably different.

Richard Cutts Shannon - *Craig-Hallum Capital Group LLC, Research Division - Senior Research Analyst*

Okay. I was getting pretty close as well, just want to make sure that wasn't too far off. Second question on data center, maybe a 2-parter here. So you've talked about shipping or you're expecting to ship around 1 million units in the December quarter. Did I catch that correctly, John?

John Croteau - *MACOM Technology Solutions Holdings, Inc. - President, CEO & Director*

CWDM lasers, that's correct.

Richard Cutts Shannon - *Craig-Hallum Capital Group LLC, Research Division - Senior Research Analyst*

Just CWDM lasers?

John Croteau - *MACOM Technology Solutions Holdings, Inc. - President, CEO & Director*

That was -- the number was just for CWDM. In addition, we ship LAN WDM, PSM, CW and PON. But that number was just CWDM output.

Richard Cutts Shannon - *Craig-Hallum Capital Group LLC, Research Division - Senior Research Analyst*

Okay. For the CWDM output, is that primarily to one customer? And can you clarify whether it's more one of the traditional transceiver guys or a cloud guy?

John Croteau - *MACOM Technology Solutions Holdings, Inc. - President, CEO & Director*

So it's a combination of a bunch: some traditional, some specific cloud demand.

Richard Cutts Shannon - *Craig-Hallum Capital Group LLC, Research Division - Senior Research Analyst*

Okay, perfect. And my last quick follow-up. I think you mentioned -- and you just mentioned a few seconds ago about primarily being CWDM4. Can you clarify whether that's full spec or the light version or a combination thereof?

John Croteau - *MACOM Technology Solutions Holdings, Inc. - President, CEO & Director*

I believe it's the full spec. We also ship light, but yes, it's far more complex. I won't take the time to respond now, but yes.

Operator

And that concludes our question-and-answer session for today. I'd like to turn the floor back over to our hosts for any closing comments.

John Croteau - *MACOM Technology Solutions Holdings, Inc. - President, CEO & Director*

Very good. So before closing out today's call, I want to mention that we will be attending a number of investor events between now and year-end, including the Raymond James Technology Conference on December 4 in New York, Barclays Global TMT Conference on December 6 in San Francisco, Cowen's Networking and Cybersecurity Summit on December 12 in New York, and finally, the D. A. Davidson Laser/Optical Forum on December 14 in Boston.

Please email us at ir@macom.com or contact your sales representatives if you would like to arrange a meeting at one these upcoming conferences.

That concludes today's remarks. Operator, you may now disconnect the call.

Operator

Thank you. Ladies and gentlemen, thank you for your participation in today's conference. This does conclude the program, and you may now disconnect. Everyone, have a great day.
