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PRESENTATION

Operator

Good afternoon, and welcome to MACOM's Fiscal Third Quarter 2018 Financial Results Conference Call. (Operator Instructions) As a reminder, this conference call is being recorded today, Tuesday, July 31, 2018. I will now turn the call over to Steve Ferranti, Vice President of Investor Relations at MACOM. Steve, please go ahead.

Stephen Ferranti

Thank you, operator. Good afternoon, everyone, and welcome to MACOM's Fiscal Third Quarter 2018 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 had not yet received a copy of the earnings press release, you can obtain a copy on MACOM's website at www.macom.com, under the Investor Relations section.

Before I turn 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 more detailed discussions of the risks and uncertainties that could result in those differences, we refer you to MACOM's filings with the SEC, including its current report on Form 8-K filed today, its quarterly reports on Form 10-Q filed on February 17, 2018 and May 3, 2018 and its annual report on Form 10-K filed on November 15, 2017. Any forward-looking statements represent management's views only as of today, July 31, 2018, and MACOM assumes no obligation to update these statements in the future.

The company's press release and management statements during this conference call will include discussions of certain adjusted non-GAAP measures and financial information, including all income statement amounts and percentages 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 third quarter results for fiscal 2018, followed by a review of current end-market conditions and near-term business trends. I'll then turn the call over to Bob McMullan, our CFO, who will review our financial performance in further detail. I'll conclude today's prepared comments with guidance for the fiscal fourth quarter of 2018.

Jumping right into the numbers. Revenue for the fiscal third quarter was $145 million, with adjusted gross margin of 56% and adjusted earnings of $0.13 per diluted share. Overall, Q3 played out largely as expected, as we benefited from ongoing recovery in demand, following the cyclical downturn that impacted our end-markets over the course of calendar 2017.

During Q3, we successfully exited the manufacturing and sales of the LR4 subassemblies. Our Q3 guidance range had incorporated certain assumptions related to the timing of the close of that transaction, with the midpoint of our guidance assuming a couple million in revenue from a partial quarter of OSA sales. Timing was such that we shipped only $400,000 of OSAs in Q3, which contributed to revenue coming in slightly below the midpoint of guidance, the gross margin coming in favorably toward the upper end of guidance.

Overall, on a comparable basis, excluding the contribution of LR4 in Q2, Q3 revenue was up sequentially, and gross margin was up 200 basis points sequentially.

Looking into the details of Q3. The Data Center revenue was $45.9 million, up 8% sequentially. Overall demand for 100-gig connectivity within data centers continues to be robust and is shaping up to remain strong through the second half of 2018. This trend is supported by a healthy CapEx environment among the leading North American cloud service providers. In total, hyperscale Data Center CapEx is expected to grow by 40% in 2018, building on a healthy 2017.

Equally as important, this growth in capital investment is supported by corresponding growth in cloud services revenue, creating a virtuous demand cycle as more and more services migrate to cloud-based infrastructure. As a result, we believe we're still in the early innings of the long-upgrade cycle to 100-gig connectivity within cloud data centers.

Customer forecast project 2019 and 2020 to be strong growth years for CWDM, with the potential for overall unit demand to more than double in 2019, reaching volumes approaching 10 million units next year. We believe that we're well positioned to capitalize on this trend. In the coming quarters, we expect revenue from our 25-gig lasers, L-PICs and white-box transceiver solutions, for both CWDM4 and PAM-4, to layer in on top of our preeminent position in high-performance analog CDRs, drivers and TIAs across all connectivity standards.

I'm pleased to say that since our last earnings call, we've made tangible progress in yield improvements for our 25-gig lasers. Our team has worked diligently to establish process improvements that have enabled us to hit key yield thresholds for production readiness. Based on this progress, we are starting to execute a controlled production ramp, operationally scaling our 25-gig EFT lasers into high-volume production in our Lowell fab.

In parallel, we're continuing to invest in capital equipment for etching lasers and testing final products to expand overall equipment capacity across 2.5, 10 and 25G lasers. At a high level, 25G lasers remain a major choke point within the industry for fulfilling the growing demand for high-speed, optical connectivity.

As our production output ramps, we see ample opportunity to unlock the full potential for 100-gig volumes based on our scalable cost-efficient Etched Facet Technology. Based on our progress on yielding 25G lasers, last quarter we triggered an expansion of our roster of white-box transceiver partners, thereby launching our Data Center solutions business.

We entered into an agreement with a new customer, which had material revenue contribution in the quarter. This agreement enables a new high-volume optical manufacturer to enter the business of delivering fully qualified CWDM4 transceivers to cloud service providers, from their new 400,000-square foot manufacturing facility.

Our solutions business model and production-qualified transceiver designs accelerate the scalability of manufacturing footprint that's necessary to meet growing data center industry demands. This installs dedicated capacity and a ready-made supply chain, which will consume MACOM data center components, as we scale production in the second half of 2018 and beyond.

With increasing availability of our lasers, we believe that we are well positioned to step and repeat, scaling our solutions business by enabling multiple high-volume manufacturing partners to begin production ramps as necessary to meet industry demands over the course of the coming quarters.

Finally, corresponding with the availability of Broadcom's Tomahawk 3 chipset, we now anticipate our 100-gig PAM-4 portfolio to begin ramping, layering in on top of CWDM and major Tier 1 networking OEMs over the course of 2019. In aggregate, we believe the breadth of our portfolio per Data Centers is second to none, a key reason why North American cloud service providers are engaging with MACOM directly to scale their supply chains.

Equally as important, we're agnostic with respect to protocols at 100 gig and beyond, whether it's SR4s, CWDM, PAM-4, pre-standard, 200- and 400-gig solutions and eventually, 400-gig single lambda. We supply them all. Our front-line engagements with cloud service providers, module manufacturers, and networking equipment OEMs, provide MACOM with a unique perspective on the overall trends and technology adoption curves within the industry. Ultimately, steering our timing and road map of products and solutions.

In total, Data Center is shaping up to be a major growth driver for the remainder of 2018 and for many years to come. Now moving over to I&D.

Industrial and Defense was $48.4 million. This part of the business is performing quite well, with Q3 revenue up 10% sequentially, as we continue to capitalize on share gains as competitors undergo consolidation. We expect this business to remain robust for the foreseeable future. We enter Q4 with strong bookings and backlog, driven by new program bid activity and revived demands for legacy products where we hold preeminent market share. Demand is being driven, in part, by retrofitting and modernizing military equipment, particularly in radar and threat protection, where MACOM has long enjoyed an incumbent position, leveraging proprietary technologies like HMIC and AlGaS.

Perhaps even more exciting, we're building upon the strong base business in radar components, with new opportunities in active antennas, building our high-performance RF and microwave components and to transmit/receive modules and tile assemblies. Leveraging our pioneering work with Empire and MIT Lincoln Labs, we have a unique approach to providing a scalable solution, with a commercial class structure that's rooted in, again, our highly-proprietary core technologies.

As one example, we recently secured new business with Syracuse Research Corporation, or SRC, using our SPAR Tiles for active electronically scanned radar on a mobile platform called Sky Chaser, which combats the growing threat from readily available commercial drones and smart munitions. This new work covers both prototypes and the initial production ramp and will begin to contribute modestly to revenue in the second half of 2018. Based on current activity with other customers, government agencies and pending budget appropriations, this program looks to be a part of a much broader trend within the DoD and DHS, to address urgent needs of national security. We hope to have more to share with you about this in future earnings calls.

In total, we expect sales into Industrial and Defense to progressively grow through coming quarters in 2018, as we seek to capture share on top of strengthening demand in Industrial and Defense capital programs.

And finally, telecom revenue was $51 million, down 21% sequentially, due largely to the exit of the LR4 business. We believe that the overarching recovery in telecom-related spending in China continues to play out and that inventory corrections in segments like Metro/Long-haul have now largely run their course. That said, over the past 90 days, Chinese operators seem to have slow-rolled orders across their supplier base in certain segments like 4G LTE backhaul, anticipating resolution of ZTE status with the U.S. Department of Commerce. While we had already factored direct

ZTE sales out of our Q3 revenue assumptions, the broader spending delay from Chinese operators temporarily moderated the pace of China market recovery during the quarter. We view this as a temporary issue that is already largely behind us. Now that the U.S. Department of Commerce has terminated the denial order, new tenders have been awarded to ZTE from all 3 Chinese operators in a very public fashion. We're now engaged with ZTE and their suppliers to rebuild and resume their supply chain, though that process could takes months to get back to normal. We also resumed engagements with ZTE on additional growth prospects tied to greater share rewards as well as new programs. Again, this will take time to see orders, and ZTE works to regain traction, operationally.

In total, we see our overall telecom business set to resume growth, as network operators get back to their normal course of business and ramp global investments in 5G. Looking forward, we view traditional telecom product lines, like Metro/Long-haul drivers, 2.5-gig PON and 10G backhaul as stable cash flow businesses. Growth will instead come from 5G products like 25-gig lasers for fronthaul, at 100-gig CWDM solutions for mid-haul, both of which leverage our breakout in Data Centers, as well as leadership positions in AlGaS FEMs and GaN on Silicon power amplifiers.

Along these lines, in the third quarter, we saw a significant quarter-on-quarter growth in base station shipments for both GaN and FEM products. As a reminder, our FEMs are high-power equivalent of the multi-chip modules that mobile RF suppliers ship into handsets and smartphones. Inside our FEMs, proprietary AlGaAs and HMIC switches provide the industry's lowest insertion loss, and thereby, superior reception for high-power base station antennas. This provides a high barrier to entry and it's highly valued by our customers.

Our GaN and FEM products have begun to ramp across multiple customers and platforms for both macro base station and massive mono deployments. Q3 revenue included the start of early volume production on GaN shipments, supporting initial field deployments. We also expanded our pipeline of GaN design wins at target accounts, securing new business at 4.9 gigahertz.

In total, we expect our 5G base station and optical products to contribute to telecom growth quarter-by-quarter through the remainder of calendar 2018 and continue through the multi-year build-out of 5G networks worldwide.

With that, let me turn it over to Bob, to review our fiscal third 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 review MACOM's fiscal third quarter results and financial position, outline the financial effect of MACOM's exit of the LR4 subassembly business, other product lines and certain production facilities, and discuss the white-box Data Center transceiver agreement on a GAAP and non-GAAP basis.

First, fiscal third quarter's non-GAAP operating results. Non-GAAP revenue in the fiscal third quarter was $145 million, down 26% year-over-year and down from $150 million or 4% sequentially. Revenue for the sold LR4 subassembly business in the fiscal third quarter was $400,000 versus fiscal second quarter revenue of $12.4 million. Adjusting out the LR4 subassembly revenue in both fiscal quarters, revenues would have grown sequentially, from $138 million to $144 million or approximately 5%.

Revenue by end markets. Telecom was $51 million and 35% of total revenue, down 45% year-over-year. Data Center was $46 million and 32% of total revenues, down 21% year-over-year. And Industrial and Defense was $48 million and 33% of total revenue, up 9% year-over-year. Sequentially, telecom was down 21%; Data Center, up 8%; and Industrial, Defense, up 10%.

Non-GAAP gross profit and gross margin in the fiscal third quarter was $81 million and 56% of revenue, respectively, compared to $114 million and 58.5% of revenues, respectively, year-over-year, and $78 million and 51.6%, respectively, on a sequential basis.

In terms of operating expenses. Total non-GAAP operating expenses were $65 million, compared to $61 million year-over-year and $62 million sequentially. Adjusted operating expenses were up 6% year-over-year and up 4%, sequentially.

Adjusted R&D and SG&A expenses were $42 million and $23 million, respectively, in the fiscal third quarter.

Total non-GAAP income from operations and operating margins were $17 million and 11% of revenue, down 69% in dollars and down 58% on a percentage basis, respectively, year-over-year; and sequentially, up 5% in dollars and up 9% on a percentage basis.

Net interest expense was up sequentially $500,000, over fiscal Q2, due to higher interest rates.

Our normalized non-GAAP income tax rate in the fiscal third quarter continued at 8%. Our GAAP effective tax rate was less than 3%. As the cash taxes, we had cash net refunds of $600,000 based upon resolved and agreed IRS audits for tax years 2013 and 2014. We are amending our Federal 2015 return, which we expect will generate a future cash refund of $4 million. Additionally, we expect to receive tax refunds from state income tax filings yet to be calculated and yet to be amended.

Our fiscal third quarter non-GAAP net income and EPS were $9 million and $0.13 per fully diluted share, respectively, down from $44 million and $0.67 year-over-year. Sequentially, non-GAAP net income was up $100,000 and EPS was flat at $0.13.

Non-GAAP net income was down 80% year-over-year but flat sequentially. Non-GAAP EPS was down 80% year-over-year but flat sequentially. The share count used to calculate non-GAAP EPS was 65.6 million fully diluted shares.

Adjusted EBITDA or earnings before interest, taxes, depreciation and amortization, was $24 million, down 61% from $62 million in our 2017 fiscal third quarter, but up 3% from $23 million sequentially.

Moving to cash flow. GAAP cash flow from operations was $100,000 compared to our 2017 fiscal third quarter of $28 million and $11 million during fiscal second quarter of 2018. After deducting capital expenditures, adjusted free cash flow was negative $13 million, compared to $20 million in the fiscal third quarter of 2017 and down from negative $2 million sequentially.

Capital expenditures in the fiscal third quarter was $13 million or 9% of revenues, essentially flat with last fiscal quarter. Depreciation expense was approximately $7.6 million, flat with last fiscal quarter.

Our investment in capital expenditures exceeded our current levels of depreciation, reducing our free cash flow by approximately $5 million.

Key MACOM balance sheet numbers. At fiscal third quarter end, our cash, cash equivalents and short-term investments were $183 million, down from $190 million sequentially. Accounts receivable were $101 million, down from $107 million sequentially. Days sales outstanding were 64 days, down from 65 days sequentially. Inventories were $123 million down from $144 million sequentially. Inventory turns were flat at 2x, and days of inventory were 178 days compared to 180 days sequentially.

Long-term debt was $686 million inclusive of capital leases. Long-term debt is termed with minimum annual principal repayments until maturity at May 2024. We also have $160 million of availability in an undrawn credit line and did extend the maturity of our credit line to May 2021 during the quarter. Gross and net leverage were 6 and 4.4x, respectively.

As we announced at our last earning call, MACOM completed an agreement to exit the LR4 business of manufacturing and selling subassemblies. We expect that MACOM will continue to supply the buyer with semiconductor components going forward. MACOM is retaining key design talent and resources.

The structure of the exit includes the license fee, sale of related inventory and certain manufacturing equipment. Payments will generate $17 million of incremental cash flow during fiscal 2018 and early fiscal 2019. MACOM, in its fiscal third quarter, wrote down certain acquired intangibles and other assets. This noncash write-off amounted to $34 million and contributed to the reported GAAP loss.

Over the past few quarters, MACOM undertook a review of the efficiencies of operating 2 laser fabs. During this time, we see an improving production and successful output of our 4-inch Lowell fab, and we've decided to terminate manufacturing of Indium Phosphide lasers in our 3-inch facility. The complexities and duplicate costs of running 2 independent laser fabs, including redundant, production qualifications, are outweighed by maximizing production of the 4-inch wafers. And we began to consolidate all laser manufacturing in our 4-inch Lowell fab. This and other product line actions resulted in a nonrecurring charge of $18 million during the fiscal third quarter.

Finally, fiscal Q3 included $7 million of revenue in our new Data Center solutions business, in which we secured the first of what we believe to be many such agreements. This creates a new revenue stream, monetizing what were previously strategic investments in our Data Center business.

Back to you, John.

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

Thanks, Bob. To summarize, we've weathered the storm of last year's industry-wide downturn in China, and are currently navigating turbulence from lingering international trade tensions. While such macro events are impossible to predict and challenging to navigate, we remain committed to making necessary investments in bringing our portfolio of disruptive technologies to fruition within our targeted areas of global secular growth.

We believe we are now exceptionally well positioned to capitalize on the next phase of infrastructure spending well beyond China. Driven by 5G telecom, cloud data centers and, now, a surge in civil and defense spending, to address key areas of vulnerability for homeland and international security.

To be sure, sustaining these investments has created a near-term drag on EPS, but we believe we are rapidly approaching payoff. Looking ahead, we believe that the future contribution from these will provide significant operating leverage for the company as we monetize what were previously strategic investments with little revenue contribution.

As these efforts come to fruition, we are squarely fixated on getting back to our target financial operating model of 60% gross margin; 30% operating margin; and 60% free cash flow.

Moving forward, we are taking it one quarter at a time, guiding paced on customer backlog, order visibility and our operational ability to scale these new products and technologies. That brings me to Q4 guidance.

For the fiscal fourth quarter ending September 28, 2018, we expect revenue to be in the range of $149 million to $155 million. Adjusted gross margin is expected to be between 55% and 57%, and adjusted earnings per share between $0.15 and $0.17, on an anticipated 66.5 million fully diluted shares outstanding.

Operator, you may now open the call to questions.

QUESTIONS AND ANSWERS

Operator

(Operator Instructions) Our first question comes from the line of Quinn Bolton with Needham and Company.

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

John, can you walk us through just sort of this new Data Center solutions? It looks like it created a deferred revenue, in the June quarter, to the tune of $7 million that you included in non-GAAP revenue, and it looks like you're sort of backing that out of your forward guidance. Can you just give us a little bit more color what sort of led to that being classified as deferred revenue rather than actual revenue?

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

Yes. I'll have Bob talk about the accounting treatment. I'll cover the business model and the solutions. Bob do you want to?

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

Yes. So Quinn, thanks very much for being upfront here. So first of all, non-GAAP is appropriate. We think it reflects an accurate reflection of the business and operating for both the third quarter and the fourth quarter. Basically, we ran a multi-quarter negotiation. And we had visibility that we'll close in fiscal Q3, and we did include the amount in our financial guidance and the implications of that in that guidance. On the transaction itself, we had met all deliverables. We received customer written acceptance. And the customer payment is in transit, according to the contractual payment terms. So we felt, again, it's more accurate to reflect as a adjustment to revenue. There are some minor, we think, insignificant open items on the revenue recognition rules that will resolve themselves the next quarter.

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

So it sounds like you just -- you didn't have sort of all of the "accounting Ts crossed, Is dotted" to be able to recognize it as actual revenue in the June quarter?

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

Yes. I'd like to point it in the perspective of what we did have, and how we guided to include that number and the adjustment is the right way to look at the business and not inflating next year -- next quarter's guidance at the expense of this actual. It's just a small inconvenience.

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

Understood. And then, John, can you walk through the sort of business?

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

Yes. So the solutions model is basically -- you can imagine we have a market, in the case of CWDM4, which is expected to grow from 3 million to 4 million units to as much as 10 million next year. So it's a lot of end-market demands that needs to be fulfilled. So the production needs to be scaled at that industry level. It's very much bottleneck today in terms of critical components supply, like lasers, but also the manufacturers, to be able to produce 10 million of these 100-gig transceivers is a big deal. So our solutions model is we've invested very heavily in producing a transceiver, QSFP28 transceiver, which is fully qualified and in-production at places that matter in the industry, that I can't speak to, as well as the transmit/receive optical subassemblies, the TOSAs/ROSAs. So in this model, we basically transfer those designs and license those to high-volume manufacturers, who can then put those into large productions facilities and scale unit production to be able to scale that demand. And that on an ongoing basis, we monetize by selling components, these merchant market components at market prices. And then we also secure the revenue and the fees, to cover -- to monetize, basically, what we've invested in at the transceiver level. So it's pretty compelling. The people who are lining up, looking to be able to benefit from this, you can imagine being given a design that's already been qualified in places that matter is quite valuable to them.

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

And then just a follow-up on that. Back at OFC, I think you guys had mentioned 2 partners in the Asia subcontractor space that you'd partnered with. It sounds like this partner that you've been out today is a third partner for this business?

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

I'm going to avoid the question, directly, because this is pretty proprietary to MACOM, and we do have other negotiations ongoing, so if I could pass on that to a later date.

Operator

The next question comes from the line of Harsh Kumar with Piper Jaffray.

Harsh V. Kumar - *Piper Jaffray Companies, Research Division - MD & Senior Research Analyst*

I just wanted to follow up on the previous question by Quinn. So my understanding of what you just said is you have the design win or the design. Do you then sell your components to this manufacturer, the high-volume manufacturer? Or do you give it to them to make the final box, and is the final box yours or theirs to sell?

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

I'll work backwards of it, it's theirs to sell. So they fulfill demand directly with the cloud service providers. And by the way, it is exactly the same for 5G telecom. The mid-haul is shaping up to be CWDM4 as well. But we basically license them, transfer the design. So we invested in the full transceiver design and the TOSA/ROSA designs. So we put it into their factories and help them qualify that. And then on a sustained basis, we sell them the components to build those.

Harsh V. Kumar - *Piper Jaffray Companies, Research Division - MD & Senior Research Analyst*

Got it. So you're still in the same business you were which is selling components and nothing really different, except that you're actually going in and getting the design win. And that's the big value-add here, is that like almost a distribution model?

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

Oh, yes. Yes, it's, absolutely, it's a solution services model. So there's no design win, per se, we design it in ourselves, and we just put it into production in high-volume factories. And then it's pre -- like I said, it's already in production, qualified in places that matter. They bring their value there, which is very high-volume, low-cost manufacturing, so it's a very efficient supply chain. And we do what we do best, which is produce very high-volume components at very attractive cost structures. So everybody stays within their core competence. And the cloud service guys get what they want, which is a very efficient scalable supply chain.

Operator

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 hoping that I get some more color on the comment about improved yields for your 25-gig lasers. Do you have any quantification or better framing for us in order to help size the extent of the improvement that the company has achieved? And should we think about just growth additions and the number of lasers that MACOM's going to be manufacturing? Or are you going to be transitioning some of the manufacturing of PAM lasers over to your 25-gig lasers?

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

Yes. At this point, it looks like we can sustain PAM product and Data Center production, and that's one of the things about consolidating factories. The yields are improving to the point in the 4-inch factory that we don't feel we need this redundancy, with the downside of a redundancy on the COGs, for the second factory. In terms of the yields, I think it'd be so inappropriate for me to quantify our yields publicly. But I would say the way to think about it is it's very significant integer multiples, times increase in units out per wafer. So it's integer multiples, not percentage multiples. And what it really did is it hit the threshold where we turn on the factory. We were holding back because we didn't want to be inefficient in the capacity utilization. So right now, we filled our pipeline for the Lowell fab. So this is from FE, through etching, through the factory, through the front-end, through the back-end and out. So what you'll see in the coming quarters is stepped progress as those units begin flowing out of the factory later this quarter.

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

That's helpful. And then for my follow-up on the same topic, with the factory that you plan to shut down. Can you help us understand what the margin implications could be and when we can expect to see the improved margins from that activity?

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

Yes. So I'll point out we did guide, I believe, slightly up on gross margins, for our guide. So it is as we've talked about in the past, we have visibility to continue to improve towards that 60% target gross margin. So as we enter and exit fiscal '18 in September, the full benefit of that will start coming into our contribution and gross margin in the first quarter of fiscal '19. We -- in terms of overall mix, we see improvement across the board, and as John talked about, yield improvement in 25-gig lasers is important to that march to 60% as well. So all this together, I think we get there -- our line of sight continues to be very positive towards getting to the 60%.

Operator

Our next question comes from the line of Blayne Curtis with Barclays.

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

A couple more in the Data Center. I just want to understand, I think I understand how it works now. $7 million in the June quarter, is there another part of that payment in September? And I didn't know if you're willing to say what it is. And then, I guess, is the partner -- so I'm kind of curious about the customer associated with that partner or maybe, multiple customers, any color there. And I guess you'll, at some point, start shipping chips and maybe that's another way to look at it. When do you expect to be selling components to these ones.

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

Blayne, excellent. To the extent that we can't talk about it, those are the points we will. So next quarter, there is not similar revenue included. So we don't anticipate additional Data Center solutions contribution revenue, except from a GAAP basis that reverses the deferred. So you will see the reversal of revenue on a non-GAAP basis next quarter. You're correct, our bread-and-butter revenue, going forward with that customer, will be component sales at market-related prices. This payment is independent. There's no contingencies around component pricing or the like. It is at-market transaction. And those will be the first elements of increased consumption and growing the revenue. There are some other opportunities to earn additional fees with this customer. And as they become more visible, we think we'll include those in our guidance and report on them.

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

Ye. Let me emphasize that last point there, Blayne. So in our guide, we don't anticipate any further payments, but we do anticipate further payments from that customer and others on an ongoing basis. But our guide does not assume any.

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

Maybe just a clarification, do you -- when do you expect to ship components to this partner? And is there any visibility in end customers there?

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

In the current quarter, which is fiscal Q2, we are shipping components.

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

Sorry -- yes.

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

Sorry. Q4.

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

Timing, yes. Yes, we are shipping. And Blayne, we can't talk about the cloud service providers behind us. They're very sensitive about talking about their supply.

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

If I can just squeeze in one more. Obviously there's a lot of moving pieces on the cash flow. I'm just curious on the computer and peer minority investment, what's the status there because I saw the write-down was a lot bigger this last quarter?

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

So there is no -- to be specific, no write-down as related to ampere. We report our share of the LLC under SEC rules in our GAAP financial statements. And the negative contribution was in discontinued operations of $3.1 million in the quarter. We will continue to report that on a GAAP basis as a portion of that goes forward. We do not see any impairment to our carrying value. What we wrote off are, as we talked about, the exit from the LR4 business. The majority of that expense is the write-off of certain acquired intangible assets relative -- related to the FiBest acquisition back a few years ago, to partial write-down, not a full write-down because we're maintaining design capabilities and resources in place in Japan. Secondarily, the further write-down was about what I would call orphaned inventory related to the shutdown, the planned shutdown on the facility of the 3-inch indium phosphide laser fab.

Operator

Our next question comes from the line of Tim Savageaux with Northland Capital.

Timothy Paul Savageaux - *Northland Capital Markets, Research Division - MD & Senior Research Analyst*

I'd like to try to -- now that we're getting, I guess, a better sense of this $7 million of, I guess, not product revenue, right, but more of a fee, as you look at the opportunity here, maybe starting with the $10 million unit forecast for CWDM4 for calendar '19, I think we've discussed in the past taking that down to kind of a component opportunity that's in the neighborhood of $1 billion, with the agreement you have in place, with the way you're looking at the cloud opportunity now, what proportion of that $10 million would you say is reasonably addressable by MACOM directly or indirectly in calendar '19?

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

Good question. So the #1 choke point in our ability to address that market was our ability to yield lasers in sufficient quantity. Our cost structure is fantastic but if you can't produce them, it doesn't matter much, right? That, we feel now, is behind us. The yields continue to improve. And as I said, they hit the threshold at which it made sense to step in with both feet. I think our ability, how much the $10 million can be addressed, is a time-dimensional answer in terms of how quickly the transceiver people that we license -- because we will continue licensing people to enable several manufacturers, how quickly they can ramp to capture that. I think -- my speculation is there's a fair degree of consolidation going on in the supply base for those CWDM transceivers right now. And we'll probably exit a year from now with a fairly different structure of the industry than what currently exists. And we like to think that a very sizable portion of that exiting next year will be based upon our components and our solutions.

Timothy Paul Savageaux - *Northland Capital Markets, Research Division - MD & Senior Research Analyst*

Great. If I could follow up over in the telecom side, it sounds like implicit in your guidance is a resumption in growth in telecom. Can we maybe talk about any more detail about where that's coming from? Back, it sounds like it might be a simple as kind of backhaul coming back after that pause. And can you touch on what you're seeing in China, Metro/Long-haul as well?

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

Sure. So Metro/Long-haul, from a unit standpoint, seems to have recovered back to pre-downturn levels. So it's the reason why I made the comment that the inventory correction seems to have fully played out. I think between Metro/Long-haul drivers, 2.5G PON and the 4G -- the 10-gig 4G LTE backhaul, we view those as really kind of getting back to a healthy state and a new normal. And we consider them just stable cash flow businesses, and we're pretty deeply entrenched with our share. They're very, very nice cash flow businesses, but we don't expect that they're going to grow. The growth instead is coming in the 5G fronthaul, mid-haul, backhaul. Even the growth in the Metro/Long-haul is really 5G-related, 5G backhaul is very much like our metro deployments. So as it relates to China, it's all about 5G on a go-forward basis over there. And we feel we're exceptionally well positioned because they're borrowing a lot from what we've been just talking about in data centers. Fronthaul is now 25-gig industrial temp range lasers. It's right now we have mid-haul, 100 gig, CWDM4, right now. So we feel like as China gets back from this kind of transitional year from 4G and moving into 2019 with 5G, we're going to be having pretty strong tailwinds with that build-out.

Operator

Our next question comes from C.J. Muse with Evercore ISI.

Christopher James Muse - *Evercore ISI Institutional Equities, Research Division - Senior MD, Head of Global Semiconductor Research & Senior Equity Research Analyst*

I guess first question as you look to September quarter guide, are you expecting all segments to grow sequentially? Or is that $7 million deferred in Data Center too much to see sequential growth there? And as part of that, are you including any revenues from ZTE in the next?

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

Good question. So essentially, yes, all end markets are growing, at different rates but they are at growth. Remind everybody that, that number is -- has remained the same in terms of a guide, even though we exited 2 quarters ago, $12 million with LR4 revenue. So I highlight that because the underlying growth, exit that business is pretty solid and continues to be improving. And the second question is -- of what?

Christopher James Muse - *Evercore ISI Institutional Equities, Research Division - Senior MD, Head of Global Semiconductor Research & Senior Equity Research Analyst*

Did you include your ZTE in the guide?

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

Yes. So we're taking a very conservative and minimal approach to the contribution of ZTE in our fiscal fourth quarter.

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

So ZTE is engaging very aggressively in trying to get their supply chain rebuilt. It's just fits and starts. They can't go from a standing stop to instant on. There is some revenue, actually, in the -- but it's -- it started de minimis and it remains de minimis in terms of grand scheme of things. I think more importantly is seeing their demand resume for our customers. Again, we sell to a lot of OSA customers and subassemblies that ZTE consumes. And basically what happened, just to provide some more color on my scripted remarks, because the carrier saw a fairly quick resolution on the denial order, they seem to slow-roll things to be able to preserve ZTE shares. They didn't want them to come out of this impaired with the share reallocated to their competitors. So it kind of moderated the demand over in China for 90 days. But right now, it's back on and back on hard. It's just without orders in the backlog, we don't guide, without clear line of visibility. So as Bob said, I think that's a conservative stance we've taken. It remains to be seen if there's any tailwinds that come from it, but it's still early days yet. I mean, they're still trying to sort through. They've got a lot of suppliers. They're meeting something like 10 a day. So it's fairly chaotic over there right now.

Christopher James Muse - *Evercore ISI Institutional Equities, Research Division - Senior MD, Head of Global Semiconductor Research & Senior Equity Research Analyst*

That's very helpful. And as a follow-up, as you think about shutting down that second laser line, pulling L4 -- or lower margin LR4 out of the mix, what are you thinking in terms of cash flow breakeven revenue run rate to date?

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

So I can give you a couple other breakevens, real quick. That one you've got to do a little thinking in it. So look, our EBITDA is growing. The difference, to answer that question, is really the timing and the amount of CapEx per quarter. We have another quarter here that, again, as we pointed out, the EFT agreement coming online as we continue to expand production of the, again, power transceivers, requires us to make some capital investment. So it's really on the capital side. And I think if we reduce that from the $13 million level expected next quarter, again, that's really the difference between cash flow breakeven on a free cash flow basis. But we also are improving the contribution from EBITDA, and we're very, very focused on improving the working capital management and so forth. So I don't have a specific number to point that out, but I think you'll see our free cash flow improving across the line, with our revenue growth, our improved gross margins and EBITDA and operating margins, going forward here.

Operator

Our next question comes from Mark Kelleher with D. A. Davidson.

Mark Daniel Kelleher - *D.A. Davidson & Co., Research Division - VP & Senior Research Analyst*

I just want to look at the R&D, I think, take a little step-up in the quarter. Is there more than unusual elements in that step-up? And what should we think going forward in terms of, just in general, your R&D efforts should be?

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

Mark, good observation. And we -- these -- some of these increases here this quarter is what I would describe as variable costs, as we come on -- we continue to have new products and new applications, including things as simple as different packaging solutions. And before their products release to production, those expenses go through our R&D line. So there is a portion of that R&D expense each quarter, it has grown over recent quarters that is material related but variable in terms of its timing and the amount. So therefore, as you see in the guide, we see sort of that number for our operating expenses, sort of stabilizing from here going forward.

Mark Daniel Kelleher - *D.A. Davidson & Co., Research Division - VP & Senior Research Analyst*

Stabilizing at that number or that percent?

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

Around that level, yes.

Operator

Our next question comes from Tore Svanberg with Stifel.

Jeremy Lobyen Kwan - *Stifel, Nicolaus & Company, Incorporated, Research Division - Associate*

This is Jeremy Kwan for Tore. Just to follow up on the earlier CapEx question, can you help us understand how much of that $13 million is directly towards your expanding laser capacity, and maybe also how we can look at it, maybe, a little bit longer term, 12, 18 months out?

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

Yes, we can. And most of the -- there's 2 major -- 3 major elements that are consuming CapEx. We have, number one, as people know, we are definitely expanding our manufacturing capability here in Lowell by what is in process and soon to be completed over the next 3 or 4 months in extension of our facilities and expansion of our facilities here in Lowell. We're adding 60,000 square feet, that is a build-to-lease, build-to-suit facility, although we have decided to invest first, in short term, an actual portion of the capital expenditure versus leasing it out over time. Our rates and costs of the returns there are better to fund it upfront today than it is to lease it over the 20-year lease period or longer. The second area is in test equipment. As we continue to advance in, in these new evolving technologies and things at higher speed, higher performance, different materials, we are buying more and more test equipment across the board. And then finally, the third portion and the biggest portion is expanding the production capability, both in Lowell as well as some of our subcontractors, as well as we're putting additional equipment, to be in a position to have the capacity to meet future demand.

Jeremy Lobyen Kwan - *Stifel, Nicolaus & Company, Incorporated, Research Division - Associate*

And can you talk about how long you may have this elevated spending?

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

So our original target in terms of CapEx was 5% of revenue. We think because of the cyclical issues in the telecom space, specifically, that is depressing our revenue, as we grow, we'll be back to the 5% level, 5%, 6% level. So this is sort of an anomaly.

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

Right. I think the scenario where that would not be the case would basically be exceeding expectations on top line growth. Obviously, if you get more growth, then you have more opportunity, you have to feed that with more CapEx. So I think that's the problem with what we have.

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

Yes. And again, we're also getting back to our target operating model, which would generate close to 30% operating margin. So EBITDA would be higher on the first step than it is today.

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

Yes. So it will provide some color on what's kind of fueling that CapEx. So we're simultaneously ramping things like 25-gig lasers for Data Centers. We also have the associated transceiver TOSA solution stuff that is taking capital equipment. We've got the OpEx coming behind the lasers. We've got the GaN for base stations. We've got FEMs for base stations. And believe it or not, now we have panels receiving production orders, active antenna panels. So as you see the upside associated with this 25-gig laser breakthrough in terms of getting now to ramp, we're feeding very similar things, very high-quality customers. And frankly, we have to feed the CapEx to be able to scale that production.

Operator

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

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

Can you, guys, just give us an update on your L-PIC solution? I know it's been qualified by several customers, can you just give us an update on these quals, any line of sight in terms of design wins and timing of production and shipment? And I assume most of this have been focused on 100 gig, maybe you can give us some status as well on your 200 and 400 gig L-PIC development activities?

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

Yes. I mean, kind of, one of our themes now, as you might have picked up, is we're trying to focus in the short-term results and the short-term outlook, trying to stay away from talking about the futures. But I mean, the way I described the L-PIC situation is we have achieved similar yields improvements and breakthroughs for the L-PIC as with the lasers. And then the difference is where the lasers are within our internal factories, and we can talk about those internal factories. We actually source the PIC wafers from global foundries. So what's it really going to gate the ramp of the integrated version of the solutions business, which is the L-PIC, they'll be gated by global foundries' ability to ramp over this year and next. And that's where I am not really comfortable talking about their timing from a supply chain standpoint. But the good news is this, the way to think about the L-PIC is the same data center solutions that we've greased the skids with today, the transceivers and the TOSAs and ROSA designs, the L-PIC version, that also just drops into that same supply chain. And it's just a more integrated lower-cost, more manufacturable improvement to the same solutions model. So it's not like we have to wait for the L-PIC to be ramping our Data Center solutions business. Certainly, the L-PIC is further disruptive in terms of on costs, in manufacturing costs and manufacturability, but there's a lot of a way to go before we're limited by L-PIC availability. But everything -- improvements, everything anticipated as expected. It's all a matter now of just getting the PIC wafers scaled in production.

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

Great. You guys have a really nice, high-margin, kind of, sticky catalog business as part of your industrial segment. It's also very diversified. I assume you're also seeing strong demand pull there as well. Can you just give us a sense of what types of applications are driving the demand? And do you think that the broad catalog business is going to contribute to the sequential growth as well on a go-forward basis?

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

It's a fantastic question. I mean, one of nicest feelings is that core catalog business, first of all, the last remaining competitors are undergoing consolidation. And we're literally turning out to be the last guy standing in some of this stuff, which is a very nice place to be. There is a general surge and lift in demand for, what I would call, legacy programs, where we were designed in long ago, and then doing retrofits and upgrades in the field. So there's a rising tide associated with that catalog business. But on top of that, the 2 things that really are amazing is there's actually some new applications, potentially very substantial applications for use of some of this mature technology that will be continuing to fuel growth beyond just the surge. And then our antenna, active antenna business, is really just an assembled -- like the Data Center solutions business that we're just talking about, all based upon the same stuff. It's all based upon our core RF technologies, highly-proprietary. When we talk about an antenna, AlGaAs was perfected in those antennas. It's all about the antenna reception, whether it's for a radar application or a base station application, it's the same challenge and the same solution. So that Industrial and Defense business may be -- it's shaping up to potentially grow as fast as our Data Center business and the telecom and 5G gen channels. It's anything but a drag on our growth in our portfolio, which is -- it's great. When your core business tends to grow like that, that's special.

Operator

And I'm showing no further questions in queue at this time. I'd like to turn the call back to management for any closing remarks.

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

Great. Before closing out today's call, I want to mention that we'll be attending the Oppenheimer Technology, Internet & Communications Conference on August 7 in Boston, as well as Jefferies Semis, Hardware & Communications Infrastructure Summit on August 28 and 29, in Chicago. If you'd like to arrange a meeting at one of these events, please email us at ir@macom.com. That concludes today's remarks. Operator, you may now disconnect the call.

Operator

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