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PRESENTATION

Operator

Good afternoon, and welcome to MACOM's Fiscal Third Quarter Financial Results Conference Call. (Operator Instructions) As a reminder, this conference call is being recorded today, Tuesday, August 1, 2017. I will now turn the call over to Steve Ferranti, Vice President of Investor Relations at MACOM. Steve, please go ahead.

Stephen Ferranti - *MACOM Technology Solutions Holdings, Inc. - VP of Investor Relations*

Thank you, operator. Good afternoon, everyone, and welcome to MACOM's Fiscal Third Quarter 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, in the Investor Relations section.

Before I turn the call over to John, I'd 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 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 filed on Form 8-K filed today, quarterly reports on Form 10-Q filed on April 26, 2017, and February 1, 2017, and Annual Report on Form 10-K filed on November 17, 2016. Any forward-looking statements represent management's views only as of today, August 1, 2017, and 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 discussions 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. With that, I'll turn over the call to John for his comments on the quarter.

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

Thanks, Steve. Welcome, everyone, and thanks for joining us today. I'll begin today's call with an overview of our fiscal third 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 our execution and key highlights during the quarter and guidance for the fiscal fourth quarter of 2017.

Our third quarter financial results came in at the lower end of our guidance range. While we had anticipated soft demand in segments like PON and China-based Metro/Long-haul, both were significantly weaker than prior expectations. Partially offsetting that weakness, we had solid performance in our A&D and Multi-market businesses, along with breakout growth again in data centers.

Last quarter, we began highlighting a weakening environment for network infrastructure in China, which impacted not only our business but the entire Optical supply chain. Despite those major headwinds, we were able to deliver 5% sequential growth. Looking to Q4, demand in China remains very weak as Chinese provincial deployments continue to push out and carriers wind down spending in 2.5G PON in anticipation of 10G. These are major factors shaping Q4 guidance.

As a diversified high-performance analog provider with broad exposure to numerous end markets and geographies, there are always puts and takes in our business. For the third quarter, these roughly balanced out. However, in the fourth quarter, the degree of weakness we're seeing in China simply cannot be offset by the ramp of other growth drivers in the near term. Despite these short-term challenges, we remain highly confident that our growth strategy remains on track. We expect these cyclical headwinds to turn into tailwinds in fiscal 2018, and our additional growth drivers will layer in on top.

So over to the numbers. Revenue for our fiscal third quarter came in at $194.6 million, within our prior guidance range, up 5% sequentially and 37% year-on-year. Excluding the contribution from AppliedMicro and despite Optical being down 16%, we grew 7% organically on a year-over-year basis. Adjusted gross margin was 58.5% with adjusted earnings coming in at $0.67 per diluted share. By end market, Networks was up sequentially, growing 43.5% year-on-year. Multi-market grew sequentially and was up 17.5% year-on-year. Aerospace and Defense was slightly down sequentially but still grew 18.3% year-on-year.

Now 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, provide an update on our planned sale of the AppliedMicro compute business and end with commentary around our target financial operating model.

Revenue in the third quarter was $194.6 million, growing 36.7% year-over-year and up from $186.1 million or 4.6% sequentially.

Revenue by end markets, Networks was $150.1 million and 77.2% of total revenue, up 43.5% year-over-year; multi-market was $23 million and 11.8% of total revenue, up 17.5% year-over-year and Aerospace and Defense, $21.4 million and 11% of total revenues, up 18.3% year-over-year.

Of the total Network revenue, Optical was $55.7 million or 28.6% of total revenue, down 16.1% year-over-year. Data center was $57.8 million or 29.7% and up more than 300% year-over-year. And other network revenue was $36.7 million or 18.8% and up 52% year-over-year.

To provide additional color as to the decline year-over-year in Optical, PON was $8.3 million and 4.3% of total revenues, down 70.8% year-over-year compared to $28.2 million or 20% of total revenue.

Non-GAAP gross profit and gross margin in the fiscal third quarter was $113.7 million and 58.5% of revenues, respectively, compared to $81.5 million and 57.3% of revenues, respectively, year-over-year, and $108.9 million and 58.5%, respectively, on a sequential basis.

In terms of operating expenses, total non-GAAP operating expenses were $60.8 million compared to $46.6 million year-over-year and $60.3 million sequentially. Adjusted operating expenses were up 30.5% year-over-year and up 0.8% sequentially, including AppliedMicro's expenses for the full fiscal third quarter, partially offset by lower variable compensation expense. Adjusted R&D and SG&A expenses were $35.5 million and $25.3 million, respectively, in the fiscal third quarter.

Non-GAAP income from operations and operating margins were $52.9 million and 27.2% of revenues, up 51.7% in dollar and 11% on a percentage basis, respectively, year-over-year and up 8.9% in dollars and up 4.2% or 110 basis points, respectively, on a sequential basis. Net interest expense was $6.1 million as compared to $6.7 million in fiscal Q2 as the incremental $100 million we raised in our May refinancing was offset by lower interest rates. During fiscal 2017, we have reduced our interest rate by 75 basis points or 225 versus 300 basis LIBOR spread. We have also extended the maturity of our Term B debt from 2021 to 2024.

Other income of $1.9 million represents income from the consulted contract that continues through fiscal 2017 associated with the automotive business divestment. Our normalized non-GAAP income tax rate in the fiscal third quarter was 10% due to the expanding mix of international revenues managed by our offshore entities in lower or no-tax jurisdictions. As to cash taxes, we had payments of less than $200,000.

Our fiscal third quarter non-GAAP net income and EPS were $43.9 million and $0.67 per fully diluted share, respectively, growing from $27.9 million and $0.51 year-over-year, and $39.4 million and $0.63 sequentially. Non-GAAP net income grew 57.1% year-over-year and 11.4% sequentially. Non-GAAP EPS grew 31.4% year-over-year and 6% sequentially, lower than net income due to higher fully diluted shares. The share count used to calculate non-GAAP EPS was 65.9 million fully diluted shares.

Adjusted EBITDA or earnings before interest, taxes, depreciation and amortization was $61.6 million, up 46.2% from $42.1 million in our fiscal 2016 third quarter, and up 8.7% from $56.6 million sequentially. GAAP cash flow from operations was $27.9 million, which included acquisition-related cash payments of approximately $4 million. Cash flow from operations of fiscal 2016 third quarter was $19.2 million and $0.4 million during the second fiscal quarter of 2017, including $28.1 million acquisition-related expenses. After deducting capital expenditures and excluding acquisition-related payments, adjusted non-GAAP free cash flow was $20.1 million and 45.9% of non-GAAP net income in the fiscal third quarter compared to $12.1 million and 43.4% of non-GAAP net income in the fiscal third quarter of 2016, and $17.2 million and 43.7% of non-GAAP net income sequentially, after excluding acquisition-related payments.

Now to MACOM's balance sheet. At fiscal third quarter end, our cash, cash equivalents and short-term investments were $249.2 million, up from $144.2 million or $105 million, of which approximately $88 million were net proceeds from our Term B repricing and $17 million from operations.

Accounts receivable were $129.8 million, up from $127.7 million sequentially. Days sales outstanding were 61 days compared to 63 days sequentially.

Inventories were $120.3 million, down 13.8% from $139.6 million sequentially. Inventory turns were 2.7x compared to 2.2x sequentially.

Long-term debt was $677.4 million, inclusive of capital leases. We also had $160 million of availability in an undrawn credit line.

Capital expenditures in the fiscal third quarter were $8.2 million or 4.2% of revenues compared to $11.4 million or 6.1% of revenues sequentially.

Depreciation expense was approximately $6.7 million as compared to $6.2 million sequentially. Our investments in capital expenditures exceed our current levels of depreciation, reducing our free cash flow by $1.5 million.

I will now provide an update on the planned sale of AppliedMicro's compute business.

We believe we are nearing the conclusion of negotiations to finalize a definitive agreement with a domestic buyer, which we believe will be concluded within 30 days. Under currently proposed terms of the acquisition, MACOM will contribute the intellectual property, patents, employees and other assets and certain identified liabilities to the new entity. MACOM will not receive upfront cash proceeds but will participate in the long-term value creation through a minority equity ownership position.

We believe the pedigree of the new ownership and management team will provide a solid foundation for growth with the compute business while offering MACOM a future potential return on its investments in the business today. We plan to provide more specific information at the time of the announcement of the final agreement upon conclusion of negotiations.

I want to emphasize, MACOM's targeted financial operating model remains intact, notwithstanding the near-term challenge we expect in our fiscal fourth quarter. Our target financial operating model is for annual revenues growth of 20%, adjusted gross margins of 60%, generating adjusted operating margins initially at 30% but with strong opportunity to advance to 40% as revenue from large market new products take hold. Despite the fiscal fourth quarter challenges due to the cyclical disruption in China negatively impacting Long-haul/Metro and PON revenue in fiscal 2017, MACOM expects to deliver revenue growth for the fourth consecutive year of better than our target of 20% as well as delivering adjusted EPS growth of better than 20% as well.

MACOM's secular growth drivers, Optical 100G and beyond, data center, GaN base stations and active antenna remain a solid fundamental underpinning for continuing to meet our long-term target operating financial model. Back to you, John.

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

Thanks, Bob. Now let me explain what's going on as we see it, specifically in China. Clearly, we're dealing with rapidly changing demand conditions across a number of our addressable markets. The weakness that we highlighted last quarter in China actually became more pronounced across multiple carrier base segments, notably in PON and provincial Metro/Long-haul deployments. We're now seeing similar effects in the September quarter in other carrier-based segments such as wireless and fiber backhaul.

In PON, there's been a precipitous drop in order intake and visibility for 2.5G products, consistent with what's been reported about the transition to 10G PON. While we had anticipated the transition to 10G, the decline in 2.5G has been much quicker than our customers anticipated. This is reminiscent of the transition 5 years ago from 3G to 4G LTE mobile infrastructure.

Orders for 3G products dried up without warning, followed later by greater spending on 4G buildouts. Carriers had concluded that the 3G networks simply did not meet the demands of exploding data traffic from smartphones, so they stopped spending on 3G. We understand that Chinese carriers have similarly determined that the current 2.5G PON infrastructure cannot support mandated data rates for the client. Consistent with that, 2.5G orders have dried up and we have seen a distinct shift in focus among our first tier customer towards ramping 10G platforms in 2018.

Our competitive strength in PON lies in providing the cost structure, capacity and supply chain flexibility for high-volume client-side Optical network units or ONUs. The 10G PON opportunity today lies primarily in the central office with optical line terminals. OLTs are characterized by modest volumes and represent a relatively small short-term opportunity for MACOM.

We believe our PON business should recover to previous levels once client-side ONUs ramp to volume, at which time, we expect dollar volumes and gross margin structures to exceed that of 2.5G PON. We are therefore taking a very conservative view on PON demand in the September quarter. Client-side adoption of 10G will not be instantaneous, so we expect PON to remain soft during the transition.

During this transitional period for PON, our operations, quality and application engineering resources are instead fixated, in fact, consumed with scaling 25G lasers and 100-gig analog products for our breakout and cloud data centers. The pause in PON actually enhances our ability to focus and capture share in data centers. In Long-haul/Metro, where we're down sequentially but still up 29% year-on-year, the sequential decline was entirely attributable to China.

90 days ago, we relayed comments from Chinese carriers at OFC as well as customer sentiment that provincial deployments would resume this fall. Having just returned from China last month, I can tell you that we have no such visibility into any pickup in demands in the September quarter. Order intake in China has all but dried up as OEMs work through lingering inventory. Like PON, we're taking a very conservative view on metro and long-haul demands in the September quarter.

Despite these near-term weaknesses on the carrier side, we had another breakout quarter in cloud data centers with strong sequential growth and 310% growth year-on-year. Our strategy is playing out as envisioned and as articulated during our investor forums in Boston and in New York last quarter, as we remain engaged with all major cloud service providers and their transceiver suppliers.

Again, our approach is to follow the direction of the cloud service providers, aligning our products, cost structure, capacity and supply chain with their needs and those of their preferred transceiver suppliers.

We made 2 major strides last quarter in this space. First, our high-performance analog business had another strong quarter servicing cloud data centers, up strong sequentially with 115% year-on-year growth. Second, we tripled 25G laser output last quarter. More importantly, we're on track to complete qualification this month, August, to produce 25G lasers in our 4-inch line in Lowell, thereby alleviating the current industry bottleneck in laser supply for data centers as early as the December quarter.

Our production ramp of CWDM L-PICs for major cloud programs is on track, along with our single-lambda PAM-4 PHYs. At this juncture, we're heads down executing on each of these fronts operationally.

We continue to prioritize company resources on cloud data centers, a long-term market opportunity that we believe is large enough to one day offset future cyclicality on the carrier side of the business.

Okay. Moving on to connectivity, a.k.a. AppliedMicro. First, we secured a major design ends for MACsec with the leading global supplier of network infrastructure equipment servicing international demand for our hardware encryption. This is a watershed event in terms of proliferating MACsec beyond the borders of the U.S., and thus furthering our position, leading the establishment of a global standard for network security.

Second, our lead customer for single lambda PAM-4 is right on schedule for initial production builds and are on track to ramp the volume production. Further, in terms of broader IEEE adoption, we're now engaged with 21 customers, half of which have committed programs, and 5 are actively developing 100-gig transceivers using our single lambda PAM-4 solution.

Given that the cloud service providers now recognize MACOM leadership across the full scope of product categories for optical connectivity, we're poised to establish a preeminent position servicing this long-term sustainable market with high-value analog, mixed signal and photonic semiconductors. Operational execution in ramping MACOM production will remain paramount over the coming months and quarters as we continue to scale share in this hyper growth market called cloud data centers.

Moving over to the RF side of the house and GaN, at our May data center forum, we announced 2 design ends with lead programs in base stations. These initial production builds are a major gate in the step process of rolling out our GaN technology for deployment in macrocell base stations. We are confident that we're well-positioned to be one of the mainstream suppliers of RF power technology in the latest generation of 4G LTE base stations.

Looking beyond 4G, China Mobile recently announced the scope, time line and technical specifications for 5G deployments. China is predicted to invest 50% more in their 5G buildout over the next 7 years than they invested in 4G LTE over the previous 7 years. The next 12 months will be intense from a design end standpoint for volume deployments beginning in 2019. China's time line and technical requirements, which we expect will be followed by Japan, Korea and Europe, are now clear and aligned perfectly with multiple aspects of our growth strategies, not just GaN.

China Mobile's requirements call upon many aspects of our active antenna technologies and competencies as well as our optical capabilities for innovations in front haul and backhaul. For that reason, we're proud to announce that MACOM has been selected by China Mobile as a 5G innovation center partner. With 5G landing right in our wheelhouse, you can now understand why major base station customers have been sponsoring MACOM as a mainstream GaN supplier for 4G programs. We're squarely focused on near-term program execution for 2018 revenue with deterministic investment for 5G success in 2019 and beyond.

So to close, let's talk about next quarter guidance. For the fiscal fourth quarter ending September 29, 2017, we expect revenue to be in the range of $165 million to $174 million. Adjusted gross margin is expected to be between 58% and 61%, and adjusted earnings per share between $0.45 and $0.50, on an anticipated 66.7 million fully diluted shares outstanding. No doubt, we have some very tough sledding in the short-term with multiple carrier-based network segments cycling down simultaneously.

We're taking a conservative approach to Q4 revenue guidance with the intention of getting the worst behind us. We're also taking appropriate measures on operating expense to minimize short-term impact to our shareholder returns. At the same time, I'd like to emphasize that we remain highly confident that our growth drivers and financial model remain intact for 2018.

We continue to see the opportunity for 20%-plus growth with expanding margins and profitability. We believe today's headwinds will inevitably turn into tailwinds as these markets cycle back in coming quarters.

When you factor in the many breakthroughs and disruptive initiatives that are coming to fruition for MACOM, whether they be in cloud data centers, Metro networks, GaN power, active antennas, and optical connectivity in 4G and 5G base stations, you'll understand why we have never been more confident in the company's potential to outperform our industry for many years to come.

Operator, you can now open the call to questions.

QUESTIONS AND ANSWERS

Operator

(Operator Instructions) And our first question comes from Blayne Curtis of Barclays.

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

John, maybe just walk me through the June quarter. The Networks didn't miss, but within that, Optical is down. Maybe you could just walk me through data center and the big step-up in other, what went on there and then how you're looking at those 2 subsegments into September?

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

Yes, so you're talking about Q3 results, right?

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

Can you walk me through June, where you didn't miss Networks overall because, I think, data center and, really, other was up a lot. Can you walk me through why that was and then how you're thinking about them into September?

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

I would say the strength in data center continues unabated. Everything is clicking on all cylinders. And that, I think, we reported independently, as you can see that. On the other, I'm trying to think what was the major driver, Bob?

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

Yes, when you get into the detail, a lot of the crosspoint switches and some of the wireless stuff had a good quarter. It's hard to track crosspoints but -- because that portfolio was so diverse in its end markets, it was pretty robust in the quarter. And again, we had some weakness in backhaul products as well. So it goes to the diversification of the product mix that did lend itself to making the quarter this.

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

Actually, the big strong growth...

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

What was...

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

Sorry, Blayne, let me just make one more point and then we'll take your next question. Yes, I mean, the big strong growth sequentially was we had double-digit growth quarter-on-quarter in Metro/Long-haul outside of China. That remains continuing. And the projection in Q4 is similar. Sorry. So you had another question?

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

I was just going to clarify. I noticed some last time buys, so I was just kind of curious, maybe you guided what that was and does that have any impact in September?

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

No, no, no. If you're referring to the PowerPC stuff, that was about flat quarter-on-quarter, as anticipated.

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

There's no last time buys in the network business today.

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

Great and can you just help...

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

Sorry, Blayne, you're breaking up there on the question.

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

I'm sorry, I'm just traveling, but if you can hear me now, I was just curious, PON is down to pretty de minimis levels. You said you're taking a cautious view on Long-haul/Metro. Does that mean flat or you're actually modeling it down again in September? And then, if you can just also just talk about you had a growth trajectory in lasers, what's the -- is that still on plan to what you had previously stated about doubling?

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

Yes. So Metro/Long-haul is flattish from a Q3 to Q4 standpoint. That said, I won't say slightly down, double digit, low double-digit down quarter-on-quarter in China, continued growth double-digit sequential in Metro/Long-haul outside of China. You're right, we get down to de minimis levels on PON as we go into that transition. And did I miss -- there was another aspect to the question.

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

Data center is still strong. Our other network stuff.

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

Oh yes, lasers.

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

Our other network products, that's going to be down slightly. That's some of the stuff that's hard to predict in the portfolio, but still, at this point...

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

Let me give you a great example of the other stuff. The OTN framers coming in from the connectivity stuff that sell into telecom also shows slight weakness, and the backhaul stuff. We said wireless infra -- the mobile infrastructure stuff, fiber and wireless backhaul looks to be softening for the next quarter. You made a comment about the lasers. So our plan has been, as articulated in May, to double output quarter-on-quarter. We actually tripled last quarter. And we're really teed up for a breakout. From a supply standpoint, we're completing the Lowell qualification in August. So from a supply standpoint, we'll be unlimited beginning in the December quarter. Now that said, we need to complete the vendor qualification, the customer qualifications, get the orders and actually produce the materials. So that -- the laser opportunity looks to be poised for a breakout.

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

So I guess, I'm still confused, what is driving the sequential decline in September? Maybe I'll just ask at a high level.

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

China. So both PON drops down to de minimis levels and further decline in the Metro/Long-haul. If you look at the decline, it's about half that and half PON. And then, relative to consensus, the other $10 million would be a combination of backhaul and OTN framers. And all of that, everything I just mentioned, is 100% China.

Operator

And our next question comes from Harlan Sur of JPMorgan.

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

Can you just help us understand directionally, obviously, networking will drive almost or all of the decline in the September quarter. How do you see A&D and Multi-market trending quarter-on-quarter? And I think that you guys have put some of the A&D programs on hold, given the hold for data center products. Are you guys starting to reaccelerate some of the product position on some of these A&D programs?

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

Yes. So for the fourth quarter, you'll see, between our Multi-market and A&D businesses, good sequential growth. And part of that contribution is exactly what you mentioned. We deferred some of the fulfillment on demand orders that we had, and we'll be shipping at least part of that, if not all of it.

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

And then, maybe if you could just help us quantify, just looking back at the June quarter at your Optical business, of the $56 million in revenues for that segment, looks like $8 million was PON. So of that remaining $48 million, how much of that was focused on China metro and long-haul? Just kind of rough numbers would be great.

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

So I would say, in -- so last quarter, you're talking about Q3?

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

Yes.

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

Yes, so we try not to report on a product line basis, but it was down substantially. It was down 50% sequentially in China on the Metro/Long-haul business. So that's where you see -- I mean, we did not anticipate in our last guidance. That decelerated or further deteriorated after our guidance. We made up the difference, frankly, with outperforming on data centers, for the most part. And as well as outside of China, I mean, we're up close to 10% sequentially outside of China in Metro/Long-haul. So you can see the reason why I say this is a very acute China phenomenon that we're dealing with right now.

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

In fact, we've added more customers to the overall Long-haul/Metro roster. I think, we talked over 30 the last time. When you add the client side of the business that's emerging now on the Metro side, including guys that are taking samples and at least starts the design process, it's well over 50 customers today. So the potential and the way it's aligning to the rest of the world, and that includes great strength out of Japan, Europe and North America with multiple equipment suppliers and transceiver manufacturers, it's offset, though, by the world -- what's going on in China.

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

Okay. Bob, just one last question for you. Sorry, I haven't worked through the numbers yet, but can you just give us a rough sense on where you're going to take the OpEx levels this quarter?

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

OpEx at midrange, the EPS numbers around, it's up slightly to about $63 million.

Operator

And our next question comes from C.J. Muse of Evercore.

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

I guess, first question, high-level question here, if we look back to your last earnings cycle, you talked about PON turning weak, I think, in the last 4 weeks before reporting. And I assume that it's only gotten weaker through the quarter. And I guess, volatility there is not something that would be terribly unusual, but what I'm trying to understand is why you were so bullish on your investor days during that period. Can you help me understand kind of your thought process there and the timing of when PON really took a turn for the worse?

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

Well, I don't think we were bullish on PON in our investor -- the investor forums, I would say. But to answer your question, what happened...

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

No, it was more on your outlook and perhaps maybe it was more of your focus, but I think, we all interpreted a more robust data center ramp amidst that.

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

Well, we're exceeding our internal plans and expectations on the data center stuff, so there is nothing in our results at all that has to do with data center performance to expectation. This is 100% concentrated geographically in China and its multiple carrier segments. And to get to your specific question about PON is it's spot on the point. Going into the quarter last quarter and through our guidance, what I had -- my bellwether -- I just came back from China, normal customer connections and so on, making sure that our share is intact, the markets are happening. Frankly, the order intake dried up and trying to understand what the heck was happening. Going into the quarter, we were guided by our major customers saying, "Look, expect 15%, 20% unit decline year-on-year for the 2.5-gig PON." Well, what happened this quarter after we guided was, no, no, it dried up completely. One of our major customers literally stopped production, exited 2.5G PON production. And then, we started getting reports independently of the carriers concluding that they need to switch to 10-gig PON deployments rather than 2.5-gig. So that was a surprise. That was totally new information that was -- that we did not have insight into going into the last quarter guidance.

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

That's helpful. And I guess, as a follow-up question on the AMCC side, 2 questions there. I guess, first part, what should we be modeling there for the PowerPC end-of-life revenues for September? And then, as you think about getting a minority stake on the equity side, how does that change your thinking around the ROI of that acquisition?

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

Okay. Two questions. So first one is fairly simple. The PowerPC business is not a growth business. We said that from post last quarter in terms of getting it behind us in terms of its dilution to the margin. And I would not expect the large part of revenue to be part of that in the fourth quarter. And it's included in our guidance that way. ROI is a tricky thing. I think, we have -- that's one element. And again, we -- post acquisition, when we mentioned that we would be divesting the compute business, that we assume some minimum valuation in the fairness of opinion presented to the Board of Directors. We are conservative in the valuation of the carrying amount of those assets. Again, I reiterate, this is not going to be a business run by the former management team. It is a new, professional, extremely experienced processor team with an all-star cast. And I think, it's quite frankly an all or nothing, either they're going to be hugely successful or will have low returns.

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

I can provide a little more color. During the due diligence, which you can imagine, was very intense for this buyer, the customer feedback and major industry players, including cloud service guys, was spectacular. Very, very supportive for the transaction. And I think, the real bellwether that I had was what Bob was hitting on, which is the pedigree of the new ownership and management team is profoundly superior on a go-forward basis. So the opportunity -- it is all or nothing, either you succeed, and they're very well-poised for success. And when you see the pedigree, you'll understand what we're referring to. Or it flames out and it is what it is. But what we used in our fairness of opinion was relatively de minimis and, frankly, is dwarfed by the opportunities that we now see on the PAM-4 and the MACsec stuff. So we've always been fairly conservative in terms of the valuation on the compute business.

Operator

And our next question comes from Quinn Bolton of Needham & Company.

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

Just wanted to come back to the Other segment within Networks. Can you just describe what products are in that? I thought some of the wireless -- or sorry, optical backhaul for cellular networks is included in your Optical business. It sounds like that's perhaps in the Other bucket. So what's in Other?

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

Well, there's a portfolio of about 12 different product categories. And in any given quarter, these things move back and forth. We talked about the portfolio of crosspoint switches that has been around for a long time that has -- seems to continue to have new applications. It's a functionality in a chip that reduces latency issues, enhances latency. And it finds new markets. And the team's done a good job to continue to expand that opportunity. To focus on any single component is really hard and really is not giving the right context of the business.

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

We'll give you more flavor on some of the other diversity stuff. We've got the wireless backhaul point-to-point portfolio that we've had at MACOM for 5 years-plus. Fiber backhaul is reported in that. There's lasers going into mobile infrastructure. OTN framers and mappers, that is the business coming in from AppliedMicro. We have an old legacy Voice-over-IP piece that came in from Mindspeed 3 years ago. It's all kinds of bits and pieces. And like Bob said, on a quarter-by-quarter basis, things pop around up and down and sideways.

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

Got it. So within that Other bucket, the OTN framers, mappers, the lasers for cellular backhaul declined sequentially into September, given the China part of that business declines?

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

Correct.

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

Yes. So we're seeing exactly what other people are reporting, which is mobile infrastructure is looking weak for at least the September quarter. That's the only visibility we have. But it was previously strong. But that cycled back and forth over the past few years. But I can only tell you, September is looking soft for that business.

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

So then, just shifting over to the Optical business, which was in the mid-50 million, that's just the PON business and the Long-haul/Metro revenue? Or is there anything else in that Optical bucket?

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

No. It's Long-haul/Metro. It is the PON business, and the rest goes into the data center bucket today.

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

Yes, we pull -- you might as well pull data center-related stuff out, they used to have data center.

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

There is a small piece of the framer business and OTNs that go also into optical applications as well as other enterprise applications.

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

Okay. And I assume, given your comments on the data center business, that you would expect sequential growth in data center within the Optical bucket into the September quarter?

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

Yes.

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

Great. And just last question for me. You guys have talked conceptually about selling directly to some of the hyperscale customers where you provide your reference designs and they can build those. Can you say whether or not you've entered production in any of those types of engagements with that model?

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

Yes. So let me just clarify because there's a subtlety that is a sensitive point with our customers that I think people have misinterpreted our comments. So our model is we engage with the cloud service guys not just because of our desire to, but the cloud service and major data center guys are very professional in their supply chain management. It's like the personal computer industry. They engage directly with the semiconductor suppliers and electronic component suppliers to make sure the supply chain is set up with the right capacity, supply chain flexibility, the right products, the right technology, and so that's their model. It's not us trying to do something different. And we're recognized by all the major cloud guys. I mean, we had one of the mega guys at OFC come into our booth and say, we opened up all these transceivers and they're chock-full of MACOM components. 7 out of 10, by our estimate, includes our content. So they're engaging with us. And the answer is with all of these guys, we have a lot of customers, transceiver customers servicing each one of them. And there's multiple per one, right? And there's been some coverage lately of some successes and so on. Let me tell you my emotional reaction to that. That's one of many. It's not the only one. It's not a singular event. It's one of many with different product configurations, different standards and different transceiver suppliers.

Operator

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

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

First question is a follow-up on the China 100G pushouts relative to what the company had been looking for as of the last call of potential increase in the September quarter. And John, I know you said you were just over there, and I think, you made some comments specifically about what's happening in PON relative to your prior expectations. Could you just elaborate a bit more on the 100G opportunity, and is any of the weakness either share loss or incremental pricing pressure, or is it all just lower end demand?

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

No, I mean, one of the reasons why I go over to those customers is I'm very sensitive to share issues, gaining share and losing share. And yes, when orders dry up, you start worrying about the worst, right? I can tell you, 0 indication of share loss. We're mid-cycle with a lot of these programs, they just don't switch suppliers. I mean, it's not like these are multi-source things and so on. It's 100% end market-related issues. Let me give you the kind of flow, and if you look at major players in the industry, and I'll give you -- Acacia is a great bellwether selling into China as well, there are a lot of people who have been successful, not just us. In the December quarter and March quarters, very, very strong. And what happened was in the -- as we're exiting the March quarter with our April guidance, we started to see softening, and we tried to emphasize that. Some would argue, overemphasized that in our last earnings call. And then, after the earnings call, it continued, the visibility did not come back. At OFC, which was in March, we had major customers and carriers talking about provincial deployments that would begin in the fall, which would indicate -- people asked about the September quarter. I said, "Look, September is going to depend upon is that sooner in the fall or later in the fall." And now, people are saying, well, end of the calendar year. So we literally have customers who, mid-quarter, said stop shipping products, and they have not and will not place orders for delivery in September until they burn down the inventories and those provincial deployments continue.

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

This is telecom, too, this is a major qualification process, so you're not swapping out boards as...

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

Boards, components or otherwise. They're mid-programs. They're not new programs with changes in suppliers and so on. Very sensitive to the point. But I can tell you, this is 100% about specifically China and specifically end market health. Cyclical issues.

THOMSON REUTERS

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

Got it. That's helpful detail. Second question, switching gears a little bit on the 25G lasers. I think, you said you tripled output, so is my math right? You're 600,000 units as of last quarter? And then, as you bring on Lowell, hopefully, later this summer, does that get you all the way to that 5 million to 8 million units of capacity that you had in PON? Or is there still additional factories that would need to convert? And maybe you could also just talk a little bit about how the yields are on the 25G lasers versus 2.5G?

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

Well, yes, I mean, you're talking about a fully mature -- I mean, I think, we sold 200 million lasers in 2.5G, and you're talking about numbers that were orders of magnitude. So totally different stage of yield curves. But it is several integer, multiples, higher yields quarter-on-quarter, which is consistent with tripling capacity out of our Ithaca factory. I can just -- I'll put Lowell this way. Once we have Lowell qualified and we're midpoint through the high temperature operating life qualifications and everything's looking great and all indications are things will complete, I mean, it's a transfer of something from one factory to copy exactly to the next factory. We'll have the equipment capacity and the ability to start enough material that supply 100% of the data center market for these foreseeable several years. Now I should say, that doesn't mean we're qualified at all to customers necessary to place the orders and fulfill that demand, but there will no longer be any kind of capacity bottleneck in the industry servicing 100-gig transceivers, 100 gig or even 400-gig transceivers.

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

And Lowell is a 4-inch fab versus a 3-inch fab.

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

4-inch versus 3-inch. Frankly, from a yield standpoint, a lot more reliable and robust. It's a world-class compound semi fab that's perfect. And as you can see, I mean, we're shipping 8 million a month at peak in the PON. And there's no reason, at maturity, we can't do the same thing with 25-gig lasers.

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

Or more.

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

Or more. I mean, 8 million was not the limit by any means. But if we can sell 8 million per month of 25-gig lasers, I'll be pretty happy, put it that way.

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

Right. And if I could just sneak one more in on the GaN for base stations. I think, last quarter, we talked about having a couple of different qualifications, one at 900 megahertz and one at 1.8 gigahertz, and those were supposed to be done at June time frame. How did those fair? And are those programs still on track for production ramps in the, I think it was December to February time frame was what had been communicated previously?

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

Yes, the initial design ends we have, we actually have more frequency bands now than we had before. We -- I think, I talked about 901.8. We now have wins with 3.5 and 2.3. And all those initial quals completed, we have additional quals completing in September. We have a major customer audit, which is the conclusion of all this qualification stuff, August 10. Full expectation that, that's going to go well, in which case, we're going be off to the races with geometric proliferation of program wins and on a go-forward basis. But let me say what I've always said, which is we're not through the gate until we're through the gate. August 10 is not -- this is August 1, not August 10. And so everything is looking very, very exciting. My confidence genuinely over the past year quarter-to-quarter-to-quarter has continued to grow. The inflection point could be within the next 30 days.

Operator

And our next question comes from Tore Svanberg of Stifel.

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

I know you don't want to report on the product lines, but the Long-haul/Metro, which looks like it's around $47 million, how big of that is China? Is it half? Is it 1/4? Again, I'm not looking for a specific percentage but just rather, a rough magnitude.

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

So China business overall, at its peak, was almost 40% and our fiscal Q1, is down to 30%, but that's not just Long-haul/Metro. I...

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

Actually those numbers tie in with the stuff I have in front of me here, Bob.

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

Yes. It's just that we do sell some other products to China. And China includes Hong Kong because it's a port of entry and gets around some VAT taxes for some of the customers, for us at least. And so it's softening as this trend has happened.

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

Yes. Back in the second quarter for Metro/Long-haul, it was pretty close to 50-50, inside and outside China. Q3, you had fairly precipitous decline in China, continued sequential growth close to double-digit in outside China. So the China decline was precipitous. From that low number, we still see -- I mean, literally, orders have dried up. Customers do not want to take products in the September quarter, so there's another small sequential decline, much smaller than the previous one, but off that low number in China. And we continue to grow double digit sequential outside of China. So let me emphasize something, just to give you the image, from a design win footprint, market position overall, our position only grows. In terms of end market cyclical weakness, we have a short-term issue in China. Once the provincial deployments resume, we're back off to the races, right? So this is genuinely a cyclical issue dealing with end market demand. The overall market position we have is only strengthening on a global basis.

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

And as more of the contract manufacturers come into play in the data center market, that will also increase the China penetration of end market deliveries.

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

Yes.

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

Understood. And then -- so PON was about $8 million last quarter, how should we think about that revenue going forward? So will it pretty much go away in the September quarter? And maybe perhaps another way of asking the question is when will be the crossover between 2.5 and 10G? Will you start to see that crossover pretty soon?

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

So we're being very cautious on that exact point. This is a technology transition. It's not just a cyclical thing. The 2.5 is -- there was a clear inflection point. The answer that our business will come back, that inflection point produces an overhang with an inventory burn off. It's the bullwhip effect, semiconductor guys. So yes, 2.5G will come back at some lower level eventually, once they burn off the inventories. That's not about happening in September. I wouldn't anticipate that happening in December. On the 10-gig PON, there's really 2 waves to look to. One is the OLTs, the optical line terminals, which is the central office side of things. The issue there is it's moderate volumes. And our position of strength really comes in where you have the scale volume on the client side, the optical network units. And that is not an instant transition. So that -- PON is going to remain soft on the intermediate term. And again, I try to use the analogy of 3G to 4G transition in mobile infrastructure back in 2012. Things fell off like a rock in March 2012. And later quarters, year later, came back roaring like a lion where people couldn't supply enough product. That's what I anticipate with 10G. But I'll tell you, we are not close enough to the carriers to give you a date when that's going to happen. And frankly, I wouldn't believe it until I saw it in orders anyway.

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

To think about it, we already said we shipped 200 million 2.5-gig lasers. If there's 100% replacement market, we still have plenty of capacity for 10-gig lasers.

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

Sounds good. Just last question on single lambda PAM-4s, you said everything is on track there. So is it too early to talk about sort of what the revenue contribution could be there next year? Do you have any numbers you want to share with us?

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

No. And I'll tell you, one thing has become clear, especially after our data center investor forums. We got to be really careful about what we talked about, our lead customers' level of business. There's a high degree of sensitivity with our customers talking about their business to investors. When you get more diversified businesses with multiple customers, it helps. When you have one big lead customer driving your business, we have to be really cautious. So a long-winded way of saying no. I can tell you, their internal program delivering the full transceiver using that single lambda PHY is very smoothly flowing through. They'll be in a position this fall to be sampling for their customers. It's -- the risks that were there before this quarter, was, well, they would have to complete their product, so there's always technical risk in their own development, and that is going very well. And so everything looks to be right on track for their own internal schedules. And it is a strategic program of real significant interest to that customer. So they're very much motivated to drive that out of the marketplace. They think it's quite disruptive, in fact.

Operator

And our next question comes from Harsh Kumar of Stephens.

Harsh V. Kumar - *Stephens Inc., Research Division - MD*

I just wanted to follow up on the previous question. I think, Tore mentioned $47 million for Long-haul/Metro. First of all, do you agree with that number? And then, just relatively speaking, for -- you gave like a 50% down number. Was that number for PON -- or I'm sorry, for Long-haul/Metro, was that for June or for September guide for us to think about? Maybe just provide some color on that.

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

Yes, the $47 million number is our second fiscal quarter, so the March quarter. A little more than half of that was China. And China dropped by half. So you can see a 25% sequential drop in our total. At the same time, the non-China business grew sequentially close to 10%, so that offset that somewhat. But in total, there was a sequential decline in the June quarter in Metro/Long-haul, 100% -- more than 100% attributable to China.

Harsh V. Kumar - *Stephens Inc., Research Division - MD*

Got it. And then, you mentioned -- John, you mentioned that fiscal 2018, you expect Long-haul/Metro to pick up. Is there something that you're seeing? Or is this just based on previous experience that you've seen with other cycles? Just some color on that as well.

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

I'm sorry, which period did I say? It was...

Harsh V. Kumar - *Stephens Inc., Research Division - MD*

I think, you said next year, you expect Long-haul/Metro to pick up and come back.

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

Oh, geez, yes, I mean, look, let me caution one thing, having heard what people said at OFC and that not materializing, I'm a little bit snake-bit, and I don't want to be the prognosticator of recovery. But I'll tell you, the reality is, and you'll see our customers reporting over the next week or so, and I'll caution, our customers will see recovery sooner than us. We get the bullwhip effect on inventories. They're going to be talking about provincial deployments later this year. So we don't have to wait for next year for the China stuff to come back. It's going to be coming back naturally as those deployments proceed. No one has said those have disappeared. That's why I say this is a cyclical issue. And we get the bullwhip effect of the inventory effect. And meanwhile, outside of China, look, we're posting multiple quarters of, on average, 10% sequential growth. So we don't have to wait for next year for Metro/Long-haul to recover. It's going to be soon. But how soon it is, we guide one quarter at a time.

Operator

And our next question comes from the Vivek Arya of Bank of America Merrill Lynch.

Vivek Arya - *BofA Merrill Lynch, Research Division - Director*

I guess, we're all trying to guess how prolonged this downturn is. I think, of course, there's an understanding it's cyclical, but when the recovery would be is harder to predict. But when I look at the December quarter, seasonally, it has been flat to down for you guys over the last number of years. And I'm wondering what is the right way to think about it this time? Like, should we really be expecting a recovery so late in the year? Or just what are the puts and takes for December, even if it's on a conceptual basis, given potential for recovery versus GaN and base station, et cetera?

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

So let me put it this way, yes, so we have definitely seen in recent years, seasonal softening in our first fiscal quarter, the December quarter, no doubt. To be honest, this cyclical effect dwarfs that, right? This is a precipitous decline in some businesses that are in that same region. If we see the deployments begin in December quarter, like people talk about, that effect, in my opinion, could very well dwarf the other seasonality. How much? The puts and takes and relative balances, it remains to be seen. I would say, PON, I would not count on recovery in the December quarter. That's a technology transition. It's not just an inventory effect with a pushout in demand. And frankly, it's not that far off of what we anticipated anyway, to be honest. But at the same time, our data center business is marching along well ahead of our expectations on all fronts, on all form factors. The lasers, the analog stuff continues to post very strong sequential growth quarter-to-quarter-to-quarter. We had the L-PICs now rolling out. We're going to have first major customer with very high volume capability in the fall, sampling transceivers based upon our CWDM4 L-PIC. We're just -- well, I guess, next year, you'd actually see the material PAM-4 PHY stuff, but it's all a matter of balance of puts and takes. It's -- the thing we're dealing with right now is just multiple segments, bad luck, everything cycling down in China simultaneously.

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

Yes, MACsec is also well-positioned for...

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

Yes, so MACsec and PAM-4 are ahead of our expectations, both in terms of revenue recognition as well as design win and customer adoption. So strategically, it's all very good. But all the telecom-related stuff in China, including the OTN framers and mappers, the wireless and fiber backhaul stuff, all shaping up for a soft September quarter. And it's cyclical. It is not share-related. And all the reports you see start talking about recovery in China getting back to more normal conditions as early as the December quarter, I think, it's just way too early for us because there's that whiplash effect with inventory, inventory burnout, that until we get visibility of orders coming in, we can't call it.

Vivek Arya - *BofA Merrill Lynch, Research Division - Director*

Got it. And as my follow-up on gross margins, when I look at June results, I understand you mentioned some trends started to weaken, but sales were roughly in line with the broad guidance you had provided, but gross margins were 100 basis points weaker, but then, importantly, when I look at your September guidance, you were expecting gross margins to go up 100 basis points even though sales are expected to come down to 13%. And I'm just trying to understand why the miss in June and why would they grow in September?

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

So our gross margins are an issue of blend of the business. Our Metro/Long-haul business and PON, believe it or not, in PON, are among the highest gross margin businesses we have in the company. That's where the pain is the most acute. The answer to your question about the sequential growth expansion in gross margin in the September quarter has, frankly, a lot to do with data center. Data center is yielding the same or better gross margins than those. So it's just a mix on a quarter-to-quarter basis.

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

And we already said that the PowerPC business is not a growth business in the fourth quarter. And that's been dragging down margins.

Vivek Arya - *BofA Merrill Lynch, Research Division - Director*

Got it. So just lastly, if you were in our seat, you would be modeling December up sequentially?

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

We are not making comment on Q4, calendar Q4, our fiscal Q1. We have no evidence to say that seasonality will not be any different this year than we've seen in the past at this point in time. We don't -- we guide one quarter at a time.

Operator

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

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

I think, I'll just ask one question, I think, as the China topic has been largely delved into here. But let me ask one quick one on PAM. John, you mentioned you have 21 engagements including, I think, the wording I got was 5 programs and some level of detail there. I wonder if you could help us understand the breadth of the customer list there? Would you describe them as Tier 1s? And how fast do you think those programs, which, I assume, you're describing as past your lead customer here are expected to ramp into revenues?

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

Yes, here's the way to think about PAM-4, no one refutes the fact that the IEEE standard, single lambda-based standard, is unequivocally the approach for 400-gig, right? And a lot -- every single one of these customers we're talking about is locked on to 400-gig as we roll it out over the coming months and quarters. A subset of those people are active in 100-gig programs for multiple reasons, one of which is to be a pipe cleaner so that they're ready to deploy the 400-gig as a logical follow-on because 400-gig you can think of is the quad version of 100-gig in those IEEE standards. In terms of the quality of customers, it's a who's-who list. Frankly, we don't waste our time supporting -- this is heavy handholding, high-maintenance design wins, and we don't -- I shouldn't say waste our time, we focus our energy on the guys who can move the needle, put it that way. And literarily, it's almost -- there's no one that isn't serious about 400-gig. And 400-gig is unequivocal and we're unequivocally in the point position. So it's a very, very nice position to be in. And that's the reason why I keep harping on -- the success with that, like a lot of things we're doing, is purely an issue of execution, getting the product out, getting it ramped into volume and getting the customer programs likewise qualified and shipping.

We're good. So before closing out today's call, I want to mention that Bob and I will be attending a number of investor events over the coming months, including the Pacific Crest KeyBanc Tech Forum on August 7 in Vail; Oppenheimer's Technology Internet & Communications Conference in August 8 in Boston; Jefferies Semi Hardware and Communications Summit on August 29 in Chicago; Drexel Hamilton's TMT Conference on September 6 in New York; and Citi's Global Tech Conference also in New York on the 7th. If you'd like to request a meeting at one of these upcoming events, please email us at ir@macom.com or contact your sales representative directly. We look forward to providing an update and reporting on our continued progress during next quarter's call. That concludes today's remarks. Operator, you may now disconnect the call.

Operator

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

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