Q3 2022 MPS Earnings Webinar

Monolithic Power Systems, Inc. (NASDAQ:MPWR)
Q3 2022 Earnings Call Transcript
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Company Participants:

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Bernie Blegen – *Vice President & Chief Financial Officer*

Analysts:

Quinn Bolton - *Needham & Company, LLC*

Melissa Fairbanks – *Raymond James*

Jeremy Kwan - *Stifel, Nicolaus & Company, Incorporated*

Matthew Ramsay - *Cowen and Company, LLC, Research Division*

Rick Schafer – *Oppenheimer & Co, Inc.*

Ross Seymore - *Deutsche Bank AG*

William Stein - *Truist Securities, Inc.*

Alex Vecchi - *William Blair*

John Vihn – *Key Banc*

Genevieve Cunningham

Welcome, everyone, to the MPS Third Quarter 2022 Earnings Webinar. Please note that this webinar is being recorded and will be archived for one year on our investor relations page at www.monolithicpower.com. My name is Genevieve Cunningham and I will be the moderator for this webinar. Joining me today are Michael Hsing, CEO and founder of MPS, and Bernie Blegen, VP and CFO.

In the course of today's webinar, we will make forward-looking statements and projections that involve risk and uncertainty, which could cause results to differ materially from management's current views and expectations. Please refer to the Safe Harbor Statement contained in the earnings release published today. Risks, uncertainties, and other factors that could cause actual results to differ are identified in the Safe Harbor Statements contained in the Q3 2022 Earnings Release and in our latest 10-K and 10-Q filings that can be found on our website.

MPS assumes no obligation to update the information provided on today's call. We will be discussing gross margin, operating expense, R&D and SG&A expense, operating income, other income, income before income taxes, net income, and earnings on both a GAAP and a non-GAAP basis. These non-GAAP financial measures are not prepared in accordance with GAAP and should not be considered as a substitute for, or superior to, measures of financial performance prepared in accordance with GAAP.
A table that outlines the reconciliation between the non-GAAP financial measures to GAAP financial measures is included in our Q3 2022 Earnings Release, which we have furnished to the SEC and is currently available on our website. Now I'd like to turn the call over to Bernie Blegen

Bernie Blegen
Thanks, Gen. First of all, today, I'm greeting you from Europe. We held our third quarter board of directors meeting in our Barcelona office. We had our board members tour of the facility and oversee the operations here. Now to the financial results.

MPS achieved record third-quarter revenue of $495.4 million, 7.5% higher than revenue in the second quarter of 2022 and 53.1% higher than revenue in the third quarter of 2021. This broad-based year-over-year revenue growth was a result of consistent execution against our strategies.

Looking at our third quarter 2022 revenue by market,

Third quarter Automotive revenue of $87.1 million increased 42.7% from the second quarter of 2022 due primarily to new platform launches. Third quarter 2022 Automotive revenue was up 60.0% year over year. Automotive revenue represented 17.6% of MPS's third quarter 2022 revenue compared with 16.8% in the third quarter of 2021.

Third quarter 2022 Communications revenue of $72.3 million was up 21.9% from the second quarter of 2022. Most of this sequential revenue increase was related to the continued Communications infrastructure ramp. Third quarter 2022 Communications revenue was up 61.8% year over year.

Communication sales represented 14.6% of our total third quarter 2022 revenue compared with 13.8% in the third quarter of 2021.

In our Enterprise data market, third quarter 2022 revenue of $75.3 million increased 15.5% from the second quarter of 2022 primarily due to continued strength in our data center and workstation computing sales. Third quarter 2022 revenue represented 15.2% of MPS's third quarter 2022 revenue compared with 9.2% in the third quarter of 2021.

Third quarter 2022 Industrial revenue of $58.7 million increased 5.1% from the second quarter of 2022. Third quarter 2022 Industrial revenue was up 12.5% year over year. Industrial revenue represented 11.8% of our third quarter 2022 revenue compared with 16.1% in the third quarter of 2021.

Storage and Computing revenue of $112.9 million decreased 7.7% from the second quarter of 2022. The sequential revenue decline was primarily due to softening of customer demand for notebooks. Third quarter 2022 Storage and Computing revenue was up 63.9% year over year. Storage and Computing revenue represented 22.8% of MPS's third quarter 2022 revenue compared with 21.3% in the third quarter of 2021.

Third quarter Consumer revenue of $89.2 million decreased 8.4% from the second quarter of 2022. The sequential quarterly revenue decline was primarily due to softening of overall demand. Third quarter 2022 consumer revenue was up 21.1% year over year. Consumer revenue represented 18.0% of MPS's third quarter 2022 revenue compared with 22.8% in the third quarter of 2021.

Let's talk about the general business conditions. For the prior six quarters, we have faced product shortages, especially in Consumer, Storage and Computing. Now we have started to see our customers reduce their orders and push out shipments. We've experienced similar patterns in the past. We anticipate order patterns might oscillate in the near future. This is not a surprise to us.

As a result of this change in ordering patterns, our inventory levels will catch up to our target of 180 to 200 days and possibly be higher in the near term. In addition, we have over 4,000 different products which are required to support thousands of our customers' applications. On average, our product life cycles exceed six to eight years, so we are not concerned with carrying an inventory level above target. MPS's business is in a better position today. Rather than managing product shortage problems, we can now focus on long-term business development.

For a longer cycle business like automotive, enterprise data, comms infrastructure, and industrial, both our customers and MPS have extended significant effort and made joint investments in the development of multiple leading-edge products and applications. As a result, we have secured business, which we believe will ramp over the next several years, driving revenue growth.

For shorter-cycle, consumer-related business, we will continue to proactively support our customers' needs. We have established MPS as a reliable supplier with excellent customer support during this extended period of product shortages. Accordingly, we believe those longer and shorter cycle customers value MSP as a strategic partner.

We are cautious about the overall business conditions and believe we can swiftly adapt to market changes as we have done successfully during similar macroeconomic changes in the past. There have been recent changes to export control rules and additional companies have been added to the entities list. As of today, we see immaterial revenue impact, directly or indirectly, from those new trade restrictions. Our products utilize process nodes in excess of 40 nanometer, which falls well outside the current restrictions.

Moving now to a few comments on gross margin and operating income. Third quarter 2022, GAAP gross margin was 58.7%, which was 10 basis points lower than the second quarter of 2022 and 110 basis points higher than the third quarter of 2021. Our GAAP operating income was $151.9 million compared to $141.9 million reported in the second quarter of 2022.

Non-GAAP gross margin for the third quarter of 2022 was 59.0%, essentially flat from the gross margin percentage reported in the second quarter of 2022 and 120 basis points higher than third quarter from a year ago. Our non-GAAP operating income was $193.7 million compared to $179.4 million reported in the second quarter of 2022.

Let's review our operating expenses. Our GAAP operating expenses were $139.0 million in the third quarter of 2022 compared with $129.1 million in the second quarter of 2022 and $109.2 million in the third quarter of 2021. Our non-GAAP third quarter 2022 operating expenses were $98.4 million, up from $92.7 million in the second quarter of 2022 and up from the $78.7 million recorded in the third quarter of 2021. The differences between non-GAAP operating expenses and GAAP operating expenses for the quarters discussed here are primarily stock compensation expense and income or expense from an unfunded deferred compensation plan.

For the third quarter of 2022, total stock compensation expense, including approximately $1.2 million charged to cost of goods sold, was $43.0 million compared with $42.9 million recorded in the second quarter of 2022.

Switching to the bottom line, third quarter 2022, GAAP net income was $124.3 million or $2.57 per fully diluted share compared with $114.7 million or $2.37 per share in the second quarter of 2022 and $68.8 million or $1.44 per share in the third quarter of 2021.

Q3 2022 non-GAAP net income was $170.7 million or $3.53 per fully diluted share compared with $157 million or $3.25 per share in the second quarter of 2022 and $98.6 million or $2.06 per share in the third quarter of 2021.

Fully diluted shares outstanding at the end of Q3 2022 were 48.3 million.

Now let's look at the balance sheet. Cash equivalents and investments were $738.1 million at the end of the third quarter of 2022 compared to $814.1 million at the end of the second quarter of 2022. For the quarter, MPS generated operating cash flow of about $18.2 million compared with Q2 2022 operating cash flow of $105.2 million. The decline in operating cash flow and increase in other long-term assets reflected a $170 million prepaid payment made during the quarter to secure a long-term purchasing commitment.

Accounts receivable ended the third quarter of 2022 at $153.4 million, representing 28 days of sales outstanding, which was three days higher than the 25 days reported at the end of the second quarter of 2022 and 6 days higher than the 22 days at the end of the third quarter of 2021.

Our internal inventories at the end of the third quarter of 2022 were $397.4 million, up $37.8 million from the $359.6 million reported at the end of the second quarter of 2022. Inventory at the end of the third quarter of 2022 represented 167 days, which were five days lower than at the end of the second quarter of 2022.

Historically, we have calculated days of inventory on hand as a function of the current quarter revenue. We believe comparing current inventory levels with the following quarter's revenue provides a better economic match on this basis. You can see inventory at the end of the third quarter of 2022 represented 189 days, 29 days higher than 160 days at the end of the second quarter of 2022 and 56 days higher than the 133 days at the end of the third quarter of 2021.

I would now like to turn to our outlook for the fourth quarter of 2022. We are forecasting Q4 revenue in the range of $450 to $470 million. We also expect the following,

- GAAP gross margin to be in the range of 58.1% to 58.7%.
- Non-GAAP gross margin in the range of 58.3% to 58.9%.
- Total stock based compensation expense of $37.7 million to $39.7 million, including approximately $1.1 million that would be charged to cost of goods sold.
- GAAP, R&D, and SG&A expenses should be between $131 million and $135 million.
- Non-GAAP R&D and SG&A expenses are expected to be in the range of $94.4 million to $96.4 million.
- Litigation expense is expected to be in the range of $1.3 million to $1.7 million.
- Interest income is expected to be in the range from $1.1 million to $1.5 million.
- Fully diluted shares are expected to be in the range of 48.2 to 49.2 million shares.

In conclusion, even though business conditions are softening, our market share gains continue to expand, reflecting high customer engagement and our ability to secure design wins. We can now focus on growing our long-term business. I will now open the webinar up for questions.

Genevieve Cunningham

Thank you, Bernie. Analysts, I would now like to begin our Q&A session. As a reminder, if you would like to ask a question, please click on the participants icon on the menu bar and then click the Raise Hand button. Our first question comes from Matt Ramsay of Cowen. Matt, your line is now open.

Matt Ramsay

Thank you very much. I guess good evening, guys, if you're in Europe. So Michael, Bernie, can you hear me OK?

Bernie Blegen

Oh, yes. Buenos Noches.

Matthew Ramsay

Thanks, guys. So two different questions from me, one related to the model and the near term and the other one on a different topic. So the first question, Bernie, if you could help us a little bit. I mean, the guidance was a bit light and you talked about some of the macro conditions. But it seemed like weakness was concentrated in the storage and computing segment. So if you could maybe talk about things by segment and what your guidance implies on a quarterly basis by segment, I think that would be helpful. And then I have a follow up. Thank you.

Bernie Blegen

Sure, just to clarify that the softness that we're seeing is both in the Storage and Computing, as well as Consumer. The other segments are still positioned to show growth between Q3 and Q4. The only sort of qualifier that we're still trying to learn about the strength in the run rate of the Communications segment. So I think what we've done is we feel very, very comfortable with both how we've been communicating our expected results, but we've added a little conservatism to the outlook.

Matthew Ramsay

Got it, great. Thank you for that. Michael, my second question is on the topic of China. And over the last, I would say, three or four weeks since some of the new commerce and BIS restrictions have come into place, I've been getting a ton of investor questions about this topic with relation to your company on two fronts, I guess the first being, MPS has a significant employee base in China. If you could maybe quantify what percentage of your employees and in what functions are actually in China and if you've heard from any of these restrictions that there could be any restrictions on those employees, need to relocate anybody, those kind of things.

And then the second part of the question is on your manufacturing footprint. I know it's spread across China, Taiwan, increasingly in Korea. We've heard some stories from semi-cap companies needing to pull employees out of SMIC for example, and other places because of these new restrictions. So anything in your manufacturing operations that might be disrupted at all because of some of the China restrictions, and how far are you guys along or maybe the mix of your capacity that's now outside of China?
You get the nature of the questions. But they've been pretty frequent and acute over the last three or four weeks. So it'd be great if you could just address some of those topics. Thank you.

Michael Hsing

Yeah, very nice questions. I'm glad you asked. What all your concern is, I think is that most of the people totally misconstrued whatever the regulation is. And we do have presence. We have large presence within China. This is a US company and we're not subject to sanctions at all. We don't have to have people leave-- Americans have to leave an MPS office within China. And that's not in the sanction entity list. And we are not in a sanction entity list. And other one is manufacturing. In the last couple of quarters, we already talked about it. We diversified out of China's way. And we've started five, six years ago. And also, I should have mentioned it, we talk about engineering manpower. MPS started it in 2017. And we are in Barcelona now. And we grew a very large team here and with local government support. And we are outside of China. And that's not because of sanctions. Because we were diversified geometrically, we will grow into a different region and in the same time zones where we give our customers better support.

Bernie Blegen

And just to finish up on Michael's comment there, to be perfectly clear, our technology and our products are not subject to restrictions.

Matthew Ramsay

Thank you very much. Just really, really quick follow up, what would you say the percentage, Michael, of the products or the revenue that is actually sourced from manufacturing footprints inside of China today versus outside. And thank you very much for indulging my questions, guys. I appreciate it.

Michael Hsing

It is very convoluted. And it is very convoluted in packagings and also the process, wafer manufacturings. And it's very convoluted. We don't have clear figures now. But going back to Bernie's answers, our technologies, we're using 40 nanometer above. And the current sanctions is 14 nanometer below. As Bernie mentioned in the script, we are far from the sanctioned and we're using the trailing edge. We're really using the trailing edge of a fab equipment.

Bernie Blegen

And if I can just follow up on one quick point we made in our script here is that as the supply-demand imbalance has normalized, that frees us up from just being in pure production mode to actually be able to invest time in business relationships to be able to expand and diversify our capacity, which we talked about three quarters ago, where we're going to go from $2 billion capacity currently to 4 billion within the next two to three years.

Michael Hsing

These are mostly [INAUDIBLE]. These are outside of China.

Genevieve Cunningham

Our next question is from Quinn Bolton of Needham. Quinn, your line is now open.

Quinn Bolton

Thanks. Don't want to pile on that the export control questions that Matt was just asked. But had one other clarification. You're at 40 nanometer and above. And so you're not directly affected. But my understanding is that to the extent a facility, a manufacturing facility in China has multiple process nodes, some above 60 nanometer and some below 60 nanometer, that that mixed-use facility would be affected. And so I'm just wondering, for those Chinese manufacturing facilities, the fab by fab, are any of the fabs that you're running 40 nanometer and above, do they also produce 60 nanometer and below and might therefore be affected by equipment and/or support restrictions?

Michael Hsing
No. These are fab, usually they don't-- advanced fabs, these are 14 nanometer below. And they don't share with these outdated fabs like a 40 nanometer above. We're primarily using a 65 nanometer. So these are totally different fab.

Quinn Bolton
Thanks, Michael. Oh, that's right. I just wanted to clarify because I know that, as Matt said, there have been lots of questions on this topic. Maybe one for Bernie, I know you're not guiding beyond the December quarter. But obviously, the environment is pretty soft right now, especially on orders. And so I guess as you look out beyond December, can you give us any thoughts as to whether you would see less than normal seasonality in March as some of this weakness continues into next year? And I guess the offset would be, Monolithic Power has been pretty, I think, meaningful market share gains, both on the server CPU side as well as the data center GPU side. When would you think that those share gains start to kick in and might get you back to normal seasonal if not better than seasonal patterns?

Bernie Blegen
Sure, so and again, Quinn, thank you for focusing on more longer-term and strategic issues here. I think it's very easy to get caught in thinking about next quarter or just the quarter after that. And all the indicators that we're receiving as far as the share gains occurring in the data center are on track. Nothing has been changed there at all. And then as far as how we look at the next few quarters, again, when we apply cautiousness to Q4, I think we can expect that any growth opportunities are more likely to be weighted in the second half of 2023.

Michael Hsing
Yeah, that's our guess. And that's all we experience. And I might as well add, you mentioned the CPUs and CPU power data centers. MPS is a lot more than that. And you look at Bernie's the read our script and you have automotive and the enterprise data centers and other ones like---- other ones, the communications. These are still, all of them are growing except the consumer related, notebooks, gaming, those types of things. And as everybody is aware of this, they are softening. They swing from shortage to oversupply almost overnight. And these kind of things we cannot predict. And again, you guys probably predict it better than we know. So we just have to react fast. And overall, MPS business, all these Greenfield products we started to ramp in the last few years, they will continue to ramp.

Quinn Bolton

Sorry, Michael. Didn't want to shortchange you by only focusing on the data center opportunity. So thanks for that color. Thank you.

Genevieve Cunningham
Our next question is from William Stein of Truist. William, your line is now open.

William Stein
Great, thank you so much for taking my questions. I have one near-term one and then a longer term one. From a near-term perspective, I'm hoping you can talk about pricing trends and also how your backlog might be changing in terms of the duration of what you have on the books today versus where we've been recently. And then again, I have a longer-term follow up question, please.

Michael Hsing
For shorter terms, here's where we see it. And for the longer-cycle business is a continued because these are no questions related to a price because all the products, they will last four or five years or even longer. And these products are in the ramping cycles. In the shorter-cycle consumer-related, as I said earlier, is notebooks and gamings and the other personal electronics. These ones, they're oversupplied. There's no question. We don't have any questions about the pricing. And that probably won't come in later, another quarter later, what would be a new project design. That's when a pricing question will start to emerging.

Bernie Blegen
And Will, you also mentioned backlog-- the condition of the backlog overall. And relative to historical norms, we still remain very, we are much higher than we have been historically. And what this has given us an opportunity to do is address with our customers-- in fact, we've been engaged in these conversations for several quarters now on when they expect real demand to be. So I think that as far as our book of business looking ahead, it remains very healthy.

William Stein
Great, and then the longer-term question, I tend to ask each quarter about some of more differentiated products and services MPS has, modules, in particular, I wonder about the traction of those products and whether you you're seeing the uptake of that either expand or falter, given the current environment. And then same thing with e-commerce, but you've seen more or less of that, given the changing demand environment. Thank you.

Michael Hsing
Yeah, all the products, the modules and the e-commerce business, we don't see any changes. And they are just continued. And that's where the MPS and future business would be and even more diversified then MPS current business.

Bernie Blegen

And I think it's interesting, as far as market acceptance for the modules, it really is not concentrated in any one market. It's actually pretty evenly distributed against all of our markets. So that to me is a real clear indicator that it fits in well with our diversification strategy.

Michael Hsing
Yeah, frankly, if you ask me where these module goes, we don't have ideas. And that is the beauty of it.

William Stein
Thank you.

Genevieve Cunningham
Our next question comes from Jeremy Kwan of Stifel. Jeremy, your line is now open.

Jeremy Kwan
Yes, good evening. Can you hear me OK?

Bernie Blegen
Yes.

Jeremy Kwan
Great, just a couple questions. First, just looking at the lighting business, it looked like it had a nice increase sequentially this quarter. Is there anything that you can call out there? Just want to understand some of the dynamics in that business.

Bernie Blegen
Automotive.

Jeremy Kwan
Oh, I'm sorry, the lighting. Oh, it's automotive. OK. That's what's been driving it?

Bernie Blegen
Yes, as we said in the prepared comments that there were new platforms that were launched, most of them are tied to the 2023 model year. And there were probably three areas, lighting being one of them, that really contributed to the uplift of automotive in Q3.

Jeremy Kwan
So is this something that we can look at as a new baseline and like a steady ramp from here? Or should we expect more step function with each new model year?

Michael Hsing
Well, the lighting is an automotive lighting have a variety of assembly. You have a dome light. You have indicators that are all kind of indicator. You have a signal. Then you have a headlight. And so this is the

last couple of quarters and as you see stepping up. And that's a part of a Greenfield product in the automotive start to ramp. And the contents in the cars, we're growing the content. But the number of car we have came in just at the beginning. We still have a very small market share. So it will continue to grow.

Jeremy Kwan
Got it, great. And just turning to the long-term purchasing agreement that you talked about, Bernie. Can you give us a little bit more details on this, maybe the magnitude or the size of this deal? And how different is this from the way you have done business in the past? Just any more detail and help us to understand your strategic thinking behind this, that would be very helpful.

Bernie Blegen
Sure. So when you think about the period of the supply-demand imbalance that we came out of, we had actually a superior competitive position because we had invested in our supply chain earlier than our competition. And that allowed us to have partner availability when they didn't. And that allowed for incremental market share gains.

So as we continue to expand capacity, we're looking for new opportunities and with existing as well as with new fabs. And so in this instance, we wanted to secure a purchasing agreement that gave us dedicated capacity, regardless of what the economic environment was.

Jeremy Kwan
Got it. Thank you. And just one last question, just touching again on the modules. Can you give us any insight into-- are there differences in terms of the manufacturing supply chain that needs to be managed here? And in terms of whether it's sourcing or whether it's the geographic footprint, are there things that you can call out there as well?

Michael Hsing
Let me answer that way. Most of our modules assembly is outside is outside of China.

Jeremy Kwan
Great, thank you very much.

Genevieve Cunningham
Our next question is from Rick Shaffer of Oppenheimer.

Genevieve Cunningham
Rick, your line is now open.

Bernie Blegen
Rick, can you hear us?

Rick Shaffer

Yes, sorry. I was muted. Can you hear me now, Bernie?

Bernie Blegen
Yes.

Rick Shaffer
Oh, great. Well, hey, guys, thanks for letting me ask you a question. Maybe my first one just on supply, TSM, obviously your newest foundry partner, I was just curious if you could kind of level set us on where you guys are at in terms of the qualification process, eventual capacity ramp, maybe even get a sense of how much capacity they're going to have for you ultimately. And how much of that might be eight versus 12 inch. Just trying to get a better handle on them as a partner.

Michael Hsing
Mostly we use a 12 inch. And also the advanced process nodes, of course that in the TSMCs. We do use their advanced node. And these are for microcontrollers, that type of a product. And then we do use them. And that these are not being within China at all.

And a lot of these products at the very beginning of a rampings. So now we have all the capacities for these new product. Mostly, these are for automotive and the communications. And so now give us a lot more room to grow.

Rick Shaffer
So Michael, just to kind of get a sense, I mean, could TSM be a 10% contributor to capacity in say a year's time? Or is that too aggressive to think of how quickly they could ramp up?

Michael Hsing
10 is on the low side and as we see now.

Rick Shaffer
Thanks a lot. And then follow up, I'm just curious to get an update on silicon carbide progress, particularly, traction inverters. I mean, how many customers you're engaged with now and when we might expect to see initial revenues. And I know you've talked about it in the past, Michael, but just remind us what that dollar content for MPS looks like in xEV. And I'm assuming it would be sort of subsystem. But would anything be discrete or would that be sort of module slash subsystem.

Michael Hsing
Yeah, thank you very much to ask that question. Yeah, that kind of things, silicon carbide, high power modules, that's what get me excited. And we do have our first product and goes through the qualification now. It's working. And MPS does not intend to sell a power device only, like power FETs only. We will sell within combined with our silicon technology produce the small modules. And we do have many customers engaged all in automotive sections and also the large energy storage and as well as BMS, the car-

charging stations, and those kind of things. We don't have any revenue yet, but it will be in the next few years.

Rick Shaffer
And, Michael, just a reminder, just what it does to content for you guys or potential content in a car or a vehicle?

Michael Hsing
I think these contents would be enormous. I don't even have an-- that would be in the billions. And I don't have an-- and a couple of billion dollars opportunity that is a smaller side. It's is a very conservative estimate. Just thinking about it, all the power trains, all the driver chains, all the charging stations. MPS is not going to be making a sell chip only. We're selling the entire systems.

Rick Shaffer
Great. Thanks a lot for all the color.

Genevieve Cunningham
Our next question is from Alex Vecchi of William Blair. Alex, your line is now open.

Alex Vecchi
Hey, everyone. Thanks for taking my questions. Um, Bernie, maybe one for you just on a housekeeping question around gross margins. Can you elaborate a little bit on the down sequential? The only reason I'm asking is given the end market weakness in notebooks and consumer, I would have thought is lower in gross margin mix. So anything you can do to help on that and how to think of it going from here.

Bernie Blegen
Sure, Alex. So there's a lot of ingredients that play into the gross margin outlook. And certainly, the direct margin by end market is a significant part of it. Another is the amount of, I don't want to call it necessarily unused capacity, but the fixed cost that isn't necessarily absorbed by the same volume. So it's really the fixed cost issue as opposed to the sales mix that's putting a little bit of downward pressure on the gross margin.

Alex Vecchi
OK, and then similarly, to that extent, just expand on Rick's questions regarding the new fab partner or TSMC. Do you view that relationship eventually being gross margin accretive or dilutive versus your Chinese partners?

Michael Hsing
Well, these are the advanced node. And we're moving that towards in the territories. And these are more microcontrollers and more highly digital content and products. I mean, and it's a different product. And there is a no gross margin issues. Ok, We don't go down compete with a price. All the products that we add, these are values more in the software side.

Bernie Blegen
And I think that, when you look at TSMC, these are new and advanced products that we're developing with them. Whereas, we're at the same time doing an expansion and diversification away from China. And that would include other fabs, both in South Korea as well as in Taiwan.

Alex Vecchi
OK, that's really helpful. With that, I'll go back into queue. Thank you.

Genevieve Cunningham
Our next question is from Melissa Fairbanks of Raymond James. Melissa, your line is now open.

Melissa Fairbanks
Hi, guys. Thanks very much. We saw CapEx-- maybe a little longer-term question for you. We saw CapEx dip a little in the third quarter. Maybe could you give us an update on your longer-term capacity planning, not just with TSMC, but more broadly? Does the near-term demand weakness impact those longer-term plans? And then when we're looking at getting to $4 billion in revenue, what's the path to that ramp and the cadence of the investment needed to get there?

Michael Hsing
If you look at our past and if you look at how we expand our capacity, what's our investment? If you look at a past eight, nine, 12 years, it's the same pattern as the next four or five years. And we're not going to overinvest. We're not going to less invested. So the trend, if you're plotting our OpEx and also the growth rate, it should remain pretty constant. In the past four years and in the past eight years, in 12 years and in over the last two or three years, the growth pattern is really different from a previous four years. And whatever the growth rate we have and in the next four years, you can use a plugin that you can use the same kind of percentage range.

Bernie Blegen
And Melissa, keep in mind that when we do the fab expansion, the capital expenditures are borne by our partners, not directly by us. So when you look at our run rates that Michael is referring to, that's more heavily concentrated in test equipment, which can fluctuate from anywhere between 8 million per quarter to 14 million per quarter. It just so happens that we made a lot of those investments earlier in the year. And that's why we're lower.

The other thing that we invest in is that we do buy or we develop our own facilities. And those can be layered on. And currently, there are no investments of any material nature.

Michael Hsing
Yeah, let me clarify this a little more rather than I give you a model. MPS, we don't own the fab equipment. And the cost of associating with a capacity expansion one is we have to qualify the process.

And the large portion of it is to qualify our products. We have a well over 4,000 products. And each product goes through a qualifications.

That takes about eight to nine months. That's a very costly. And so if we slow down and the demand slow down, so that we don't have to qualify as fast. And so the cost will be spread out. And those costs are borne in our R&D expenditure line.

Melissa Fairbanks
OK, great. That's very clear. Thanks very much, guys.

Genevieve Cunningham
If there are any follow-up questions, please click the Raise Hand button. As there are no further questions, I would now like to turn the webinar back over to Bernie.

Bernie Blegen
Thanks, Gen. I'd like to thank you all for joining us for this conference call and look forward to talking to you again during the fourth quarter conference call, which is likely to be held in early February. Thank you, and have a nice day.