REFINITIV STREETEVENTS

EDITED TRANSCRIPT

ADI.OQ - Analog Devices Inc at JPMorgan Global Technology, Media and Communications Conference (Virtual)

EVENT DATE/TIME: MAY 26, 2021 / 1:40PM GMT

CORPORATE PARTICIPANTS

Michael C. Lucarelli *Analog Devices, Inc. - Senior Director of IR*

Prashanth Mahendra-Rajah *Analog Devices, Inc. - Senior VP of Finance & CFO*

CONFERENCE CALL PARTICIPANTS

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

PRESENTATION

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

Good morning, and thank you for attending JPMorgan's 49th Annual Technology Media and Communications Conference. My name is Harlan Sur. I'm the semiconductor and semiconductor capital equipment analyst here for the firm.

Very pleased to have Prashanth Mahendra-Rajah, Chief Financial Officer at Analog Devices; and Mike Lucarelli, Head of Investor Relations, here with us this morning. The team recently reported strong April quarter results and July quarter guidance. And so I've asked Prashanth to provide us with an overview of the earnings results and outlook, then we'll go ahead and kick off the Q&A.

So gentlemen, good morning. Let me go ahead and turn it over to you, Prashanth.

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Good morning, Harlan. Thank you for having us, and thank you for those of you who are joining the webcast.

As Harlan mentioned, we just finished our second quarter earnings call. It was last week. We reported pretty solid results. We beat the high end of our guide for revenue, recorded an all-time high for revenue for the company, all-time high in profitability and an all-time high in EPS. Our trailing 12-month cash flow for the period reported was also at an all-time high of 36%, $2.2 billion, and that puts us in the top 10% of the S&P 500.

When we look at the guide for the subsequent quarter, for the third quarter, we also raised the guide on a sequential basis. That's a reflection of some investments that we have made in capacity. And I'm sure during the Q&A, Harlan will talk about the supply and demand imbalance, but we've made some decisions at ADI towards the tail end of last calendar year to bring more capacity online, and we're seeing the benefits of that by allowing us to guide up sequentially.

Maybe I'll just set the stage by saying we are seeing very broad-based demand. So as we get into the supply and demand dynamics here, I would want to emphasize to everyone that from our perspective, this is very broad, all markets, all geographies. It's really a -- it's a full 360 of our universe that is experiencing growth here.

So Harlan, let me turn it back over to you. And I suppose we'll start...

QUESTIONS AND ANSWERS

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

Yes. Perfect. Thanks, Prashanth. So demand, as you mentioned, clearly broad-based, clearly ahead of supply. And you guys on the earnings call talked about this gap not closing this year. Investors though have been concerned around a peaking of demand fundamentals near the end of this year.

And so maybe to help alleviate some of that concern, given your visibility, backlog, customer forecast and you overlay that with your supply expansion plans, when do you see normalization of supply and demand trends, including customer and distributors replenishing their inventory? Is it first half of next year? Is it middle of next year? Is it second half of calendar '22? What's your best guess?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Yes. So I can -- I think I can say with confidence that we do not expect that supply and demand imbalance can be resolved in the balance of this calendar year. As to can that normalize in the first half of FY '22 versus the second half, we don't have enough visibility to see that far out.

I would say the demand is very strong. It's broad-based. We feel very good that it is really going right through our distribution partners on to the production line. We know from the conversations we're having with our customers, we know from the data that we get both from our distributors as well as from our customers who hold consignment inventory that we are feeding right on to the factory floor and no one is building inventory either at customer levels or certainly at the channel which we have visibility into.

So we will see supply and demand get back in balance at some point likely in calendar year '22. And when that does, we will be able to see it most specifically from inventory levels of our customers begin to normalize and then inventory levels in the channel begin to normalize. So I do think we'll have enough indicators to continue to communicate with investors as to how that's coming in and help us manage this situation to more of a softer landing.

Michael C. Lucarelli - *Analog Devices, Inc. - Senior Director of IR*

Harlan, I'll add one thing to what Prashanth said. We get a lot of questions too about peak year-over-year growth. I think if you take -- you're right. I mean if you look at the quarter, we grew a lot. Why? A year ago was the pandemic.

I'll just say zoom out, look at the past 3 years for industrial. You look at peak to peak, our CAGR is 6%. I will call that kind of in line to slightly below trend line of that business. So given that 6% growth, there's no reason why we can't continue to grow the industrial business, which is 60% of our revenue today, into it through next year. And that's kind of how we look at it over a longer period of time, not year-over-year.

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

Makes a lot of sense. Appreciate the insights there. And so given the strong book-to-bill that you had in April, strong backlog, did the demand and supply gap actually widen in the April quarter versus the January quarter? And do you expect the gap to widen again here in the July quarter?

And I know it's difficult to try to estimate this, but what's your view on how much higher demand is relative to your ability to supply? Is it -- is demand sitting 10% above your ability to supply, 15%, 20%? Any insights on that?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Yes. So let's take that in a few pieces here. So first, from a -- would we have reported an even stronger second quarter if we had more supply? There's no doubt we would have -- the quarter would have been significantly higher. Did we therefore increase our backlog ratios as we head into the third quarter -- sorry, as we ended the second quarter? We did. I feel that based on what we know today, that is not going to grow further in the third quarter, but I don't expect us to really make much of a dent in reducing that.

We did report in our second quarter that our inventory on the balance sheet actually grew meaningfully. That growth was primarily or almost exclusively in raw materials and work in process. So that's a reflection of us getting more in the pipe that will then translate to higher finished goods, and that is reflected in the stronger revenue guide. So as we are bringing up more capacity and more ability to serve our customers, then I think we'll be able to hold that backlog ratio in line in the third quarter.

The pinch point is we're -- in terms of where we're putting our capacity, it's really in test and on the back end. At some point, that pinch point is going to move to the front end. And that's where I think more of the industry challenge will be.

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

And to your point, so the team continues to increase its CapEx spending kind of near term, slightly above your long-term model, which is 4% CapEx to sales. So how should we think about the team's incremental capacity adds for the remainder of this year and maybe into calendar year 2022?

As you -- and thinking about it in totality, right, because like you said, you're aggressively adding back-end test capability. You are probably adding some incremental front-end wafer capacity as well. So when you sort of lump all of that together, should we think about maybe low single-digits, mid-single digits type of sequential improvements in capacity as the next few quarter unfolds? Or how should we think about that layering on?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Yes. So let's talk about the capital first. So you're right that our investment model is -- we target in the neighborhood of 4% of revenue to be spent on capital. We don't think about that as much as we do in terms of dollars. That's obviously how we run the company. We plan for capital dollars to be spent and kind of the revenue lands where it does. We're in a year where we are spending a meaningful more amount of dollars, but the consequence is we're also hitting record revenue levels. And that's why we're probably still sort of in that hunt of a 4%, maybe landing a little bit north of that.

Our investments are going into that back end, primarily in test, where we want to remove some of the bottlenecks that we have. But as you can imagine, for folks who are familiar with semiconductor supply chain, it is a long supply chain and a multistep supply chain. So investment we're making while meaningful and helping us grow our capacity sequentially, in the end, these are relatively marginal sequential improvements. So you're not going to see -- not just from ADI but I would say broadly from the industry, you're not going to see real large step-change improvements in capacity without some meaningful investments in foundry capacity.

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

As a result of the supply-demand imbalance that the industry is going through right now, I know some of your peers are starting to develop longer-term supply agreements with their large strategic customers. Analog Devices, for example, will get the benefit of better predictability on future supply requirements. Your customers get better assurance of supply over an extended period of time. Is this something that the Analog team has considered and trying to execute to?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

We have extended the commitment for our customers to now make a 90-day commitment, and that's up from 35 days, I think is what we had before. So we've extended where customers need to now give us 90 days.

We've had discussions about how long should we make that. Does it make sense to go 6 months, 9 months or longer? Some of that runs counter to our principle on the collaborative nature that we have with our customers. So forcing our customers into a take-or-pay situation doesn't -- it doesn't really fit with our -- the way that we partner with our customers.

And I would say the second complexity is remember that our $6 billion plus of revenue, that comes across 125,000 customers. It's a very, very long tail. So the -- where it would make a difference would perhaps be to focus on vertical customers in communications or in auto.

We understand their end markets. That's why they come to us, and they just don't have that type of predictability into their end markets. So it's a bit unfair on both sides for us to ask customers in those particular markets where they don't have the visibility to give us a -- that kind of definitive visibility in a take-or-pay structure, which is why we landed at 90 days, although we're constantly in heavy communication with them to understand what their demands look like outside that window.

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

Let's switch over to talk about more kind of mid- to longer-term things, end market products. Let's talk about the design win pipeline, right? That's the engine of growth for the company.

So as you think about driving your longer-term revenue growth targets of sort of mid-single-digits plus type top line growth, obviously, the design win pipeline is important. And the team has been growing the design win pipeline faster than revenues for the past few years, right? In fiscal '19, your design win pipeline grew 15% when revenues were down 2%. In a tough fiscal 2020, I believe the team still grew their design win pipeline. Maybe if you guys can help quantify there.

And then what's the design win momentum been like so far this year? And what segments are you seeing the most incremental success?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Yes, yes. So at a high level, let me say that the design win pipeline is at record levels. And we've been very pleased with how we continue to grow momentum in that design win pipeline even during the pandemic when we were working with customers purely in a virtual format.

If you ask me to focus on where am I particularly happy with kind of the progress we've made, I would say 2 areas, and they're a little bit related. The first would be our LTC portfolio, and that is across all end markets. Vince asked the sales organization, as they would review the pipeline portfolio with them for either on a geography or on an end market basis, to always call out LTC separately because he wanted to make sure that as an organization, we were putting enough emphasis on LTC products. So we may be talking about a particular geography, but as a subset of that, we'll talk about the LTC portfolio. And that focus has really been reflected in growth in that broad portfolio.

From an end market standpoint, the one that I think has been most exciting is this broad field of electrification, and that includes from our BMS products that are used in automotive but also the wins that we're getting in industrial, in battery charging and formation as well as in the ESS product or the energy storage systems which are being used for high-speed charges. I think -- what's our public comment on that, Mike? We have roughly 80% of the customers who are building out those high-speed charging stations. And as you see more and more of the OEs launching their electric vehicle fleet, the infrastructure is going to need to follow, and we're going to enjoy the growth not only in the vehicle but also in the infrastructure.

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

Yes. Specifically on the industrial part of your business, there is a big focus -- maybe accelerated by the COVID-19 pandemic, right? The acceleration to industrial -- what we call the Industrial 4.0/5.0 business model, which involves a lot more factory automation, robotics and so on. The team has a very broad portfolio of RF, sensors, edge processing, Ethernet connectivity. I mean where are you seeing the greatest demand pull for your products? And what end-use applications do you see driving the pace of adoption here as your industrial and manufacturing partners adopt this Industrial 4.0 type model?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Over the last several years, through the internal investments as well as through the acquisitions, we have put together a portfolio of products, and you've called out many of them right there, from RF applications to deterministic Ethernet, that are really a unique set of capabilities that we bring to factory automation, that helps factory automation in a number of areas. One, when you have things that are in a more automated format, safety becomes paramount. So being able to sense what's around you is key and we help that.

Being able to measure with precision so that as machine parts are moving around, you're able to control and know exactly where they need to be. We've got some great evidence on how our products, because they measure so precisely, they actually reduce the number of excess movement of robotic arms by a very meaningful percent. And then, of course, there's the whole communications infrastructure to keep all those things connected.

As a result of the pandemic, we're clearly seeing from our customers that their supply chains have been stretched. They've understood some of the risks they have to resiliency. And as a result, there is a clear movement to onshore and to build in redundant capabilities. The semiconductor industry is one example, but it really is relevant to many manufacturing industries.

As those industries bring more manufacturing onshore, whether it be to Europe or to the U.S., they need to resolve how will they fight the labor arbitrage that they were getting with Asia wage rates. And the way to do that is through more automation. We are in our third quarter now, Mike, of growth in that automation business. We believe this business has many years, not quarters, many years of growth behind it as it continues to speed kind of this rejiggering of global supply chains.

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

Another area of strength for the team historically and within industrial has been aerospace and defense. And I know that defense was strong last year, right? Defense budgets again this year are relatively strong. Commercial space programs, as we all know, are expanding.

How is the commercial aviation subsegment trending now that we're all starting to travel again? But in general, how is your overall A&D segment trending so far this year?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

The -- our aerospace and defense business is another great example of where smart acquisitions have really built up an incredible capability. Bringing the technologies from Hittite and the experience they had in that sector and then allowing us to leverage that across the broader ADI set of portfolios has allowed us to really take a significant lead in aerospace and defense. The -- I think the area that perhaps we're seeing quite a bit of activity that we've been public about is in space. I believe on the earnings call, Vince might have even referenced a couple of the wins that we had. And I can't remember which ones we've disclosed.

Mike, if you want to...

Michael C. Lucarelli - *Analog Devices, Inc. - Senior Director of IR*

Yes. On the earnings call, we talked about Telesat, the Telesat Lightspeed constellation, which is slated to launch second half of '23. And we do the beam-forming chip, which is Hittite and ADI combination, in all those satellites.

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

So the space segment in particular has been strong for us. And of course, defense has been very consistent, robust, and it helped -- that's a good example of the diversity that helped buoy us up during the pandemic. Where some of our other markets like auto were under more pressure, defense was stable. And I think that diversity is another good example of why ADI provides stability in these tumultuous times.

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

And talk about the diversity of the industrial business. I mean it is a very diversified business. And one of the other areas that the team has been doing quite well on is in sort of alternative energy applications, and you mentioned it at the beginning of our call.

But on charging EV infrastructure, right, with your portfolio of signal chain, power management, system management capabilities, you mentioned that the team has secured wins with 80% of the top customers in this segment. Help us understand the dollar content opportunity here in the EV charging market. Help us understand the market opportunity. And when do you expect this to become a more meaningful revenue contributor to the industrial business?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Great. I'm going to let Mike take that one because I always get in trouble when I provide too many details on dollar content opportunities.

Michael C. Lucarelli - *Analog Devices, Inc. - Senior Director of IR*

Yes, sure. You're right -- Harlan, you're right. We talked about the -- we call it energy storage systems here. Energy storage systems go across. They're needed in renewables and they're also needed in charge stations to basically stabilize the grid, right? Because you get a lot of pulls and pushes of energy, so you need these big storage systems to really stabilize the grid and make sure nothing goes wrong. And our portfolio there is BMS, is precision and is power.

The content varies a lot. There is traditional energy companies. There's traditional industrial companies we sell to. There's also kind of battery makers we sell to. And also, car guys are also getting in this market. And if you look at that spectrum, at the high end, we get $10,000 of content, not many units. At the low end commercial, you're talking hundreds of dollars of content; like in a residence, for example.

But what we're excited about is it's a new area. It's -- our expertise in BMS is helping a lot because you need precision and accuracy, and as you said, we have design wins at over 80% of the top guys. And that business is small today. It's single-digit percent of industrial. That could easily double every year for the next 5 years, right? As the proliferation of energy and EVs happen, you need storage systems, and we're just at the tipping point of that trend.

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

I think we even have another press release on some of the capabilities that are coming out. If not today, it'll be out tomorrow.

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

Yes. Perfect. Let's move over to your automotive business. This has been resilient, very strong in the first half of this year with your auto business tracking up, strong double digits year-over-year. Looks like it's going to grow strong double digits for the full year. As we look ahead -- and we've got some strong product cycles that you guys have talked about, A2B, BMS.

In addition to that, it doesn't feel like you guys have the passive safety legacy overhang anymore. So as your design win pipeline continues to unfold, how should we think about your growth rates or growth premium relative to auto production rates over the next few years?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Harlan, I think we are -- we're feeling better that we've got the auto business on a growth trajectory. Both A2B and BMS were up I think over 100% on a year-over-year basis for the second quarter. So we're seeing very, very strong growth from those 2 areas. And we're seeing that diversify in multiple areas, both from broadening out the customer side but also broadening out -- broadening them out as platforms.

So on the BMS side, we've talked about how we've broadened that out into wireless BMS. Again, I mentioned we'll have a press release about some new capability, functionality coming out shortly here. I think Vince in the earnings call mentioned a number of key wins that we've been public on.

I don't want to get myself in trouble here, but I can talk about Volvo, right, as one. We've got another large European supplier that we have not named that we have also secured wins at.

So that BMS portfolio is continuing to grow, and it will very much be -- in my view, the wireless BMS will very much be like the A2B portfolio. It will be the standard that is used in electric vehicles if we fast forward 5 years. The -- just the overwhelming benefits that customers receive by switching to that wireless BMS technology are so compelling both from a maintenance, from a cost, from a functionality standpoint. So that will -- that has many, many years to run.

And on BMS, we began talking -- sorry, on A2B, we began talking about A2B several years ago. And we are today -- I think we're still only shipping half, right?

Michael C. Lucarelli - *Analog Devices, Inc. - Senior Director of IR*

Yes.

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

We're only shipping about half of the wins that we have in place. The rest are still being designed in, and that has turned into a platform. So not is it just the framework that is being used to move audio around, we've now added the noise canceling capability, which some customers have now begun to incorporate. So imagine sort of the headphones you use when you travel on an airplane to cut out background noise. Auto manufacturers are building that same technology into cars so that they actively cancel noise to reduce the sound in a car. That becomes so critical in electric vehicle where there is no engine noise and you really hear your surrounding.

And the other area that we're making great progress in is we're pushing more and more power through that. So I think we're up to 50 watts now that we can drive through that A2B train track in the vehicle. And now you're able to really hang meaningful sized speakers around that configuration. So it is -- it's really -- it's re-architecting how automobile companies can design their vehicle, and the benefits are so compelling. So we see both of those continuing to take share.

And then I'll just finish up with a reminder that as we move to more and more electric vehicles, the ability to manage your electricity consumption at the most -- at the highest level of performance becomes so critical because you have to rely on your battery. So everything translates into range, and that's the strength of Linear. I mean Linear is the high-performance power company, and the ability for that design portfolio -- that portfolio of products to help auto companies squeeze more range out of their products is what Linear is really going to play a critical role on as you see more EV growth.

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

I think one of the key strengths of the ADI team, right, is leverage your technology, put out a set of products and then continue to build upon that, right? BMS, for example, leadership in wired BMS, enhancing the portfolio to include wireless. I think the announcement that you guys were talking about today is -- and I didn't realize this. I always thought it was continuous monitoring, but you announced an entire family of continuous monitoring of BMS products.

And then the same thing, like you said, on A2B, right? I mean it started off as a content distribution, and then you've layered on things like noise canceling technologies and so on. But on the announcement today on the continuous BMS monitoring capability, do you guys have any more details on that?

Michael C. Lucarelli - *Analog Devices, Inc. - Senior Director of IR*

Yes. I had a few on it. Basic -- what is in an electric vehicle or a storage system, when the car is off, you need to still monitor the battery because things -- bad things happen. I'm sure you've seen press releases from OEMs about fires in a car which is parked. So the trick is to monitor the battery in a power-efficient way. You don't want to drain the battery at the same time.

Same thing for a storage system. So what our new BMS portfolio does, it allows the OEM to do that super power efficiently without draining any battery life. And it's becoming critical -- a critical safety feature needed across the world. That's what's helping.

And then you said, people think, "Oh, you have one BMS product." We have a huge portfolio of BMS products now. We have one for high end, mid-end, low end and this new family we just announced today.

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

Perfect. I'm looking at our Q&A queue here. So we've got a question that goes back to our earlier discussion on maybe potential changes in customer behavior. But what are the team's views on just-in-time inventory and the viability of that going forward? Would a change to just-in-case inventory be a positive or negative and why?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

When we look at how we got to this situation we're in with the supply-demand imbalance, we had a really, hopefully, once-in-a-generation pandemic which caused global disruption. At the same time, we had very unprecedented weather in Texas that took down several fabs, and then we had an earthquake in Japan that ended up causing a fire. So we had significant disruptions to the global supply chain, which put us in the position that we're in now.

I would remind folks that much of the inventory that is kept by -- and if I talk particularly to the auto supply chain, it's kept in the Tier 1 and Tier 2 levels. So I think that is probably where the inquiries are best directed. Is -- Tier 1 and Tier 2s, do they have the balance sheet strength? And do they have the mechanism to be able to hold more inventory? The IT systems have improved to a dramatic extent where I think just-in-time management of information flows have never been better. When you really -- you can have excellent visibility to what you're going to get and when you're going to get it. This is really a supply crunch that is causing this balance.

So to the bottom line of the question, do I think inventories increase a little bit? They probably do to some point. But in the end, it -- once you get to long-term comfortable stability, then I think behaviors will revert to optimize cash flow.

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

Yes. Okay. Perfect. Maybe sticking with some of the product segments. On your communications business, the team noted that you believe that this segment did bottom in the April quarter. You're optimistic on growth in the second half, led by global 5G rollouts, continued strength in your wired business.

But on the 5G rollouts, second half looks like it's being driven primarily by the build-outs -- emerging build-outs in the U.S. China is still potentially muted, but maybe looking to accelerate towards the end of this year. So given your visibility on continued expansion on 5G deployments, it looks like the wired business continues to hold in quite strong. Does the team expect comm growing next fiscal year given your visibility?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

That's a tough one, given our visibility. Let's talk about what we're seeing today, and you highlighted it. The auctions are complete, so companies are moving to deployment.

We are seeing order activity for the U.S. So we couldn't say that in the first quarter earnings call. In the second quarter earnings call, I can tell you we have orders on the books for the U.S. So that's a change that's happened in the last 90 days.

We are being -- we are in active pilot in India. We couldn't have said that in the first quarter. We can say that now. So we have seen a number of notable changes that tell us that our comms growth will be good in the second half.

What Vince said on the earnings call was we have not presumed much China activity in the second half. So if that does -- if that activity does resume, then that's upside to us. But at this point, we have -- we've built our forecast, we've built our guide based really for communications on non-China activity.

Michael C. Lucarelli - *Analog Devices, Inc. - Senior Director of IR*

Yes. Harlan, I'll take one separate. For next year -- we should grow next year. You're coming -- I mean we'll be down, call it, mid-single digits this year. This year, a lot of that was also Huawei going to 0 from the government ban there. But as Prashanth said, as you look to next year, rest of world deployments and channel count will be much higher than it ever has been for 5G. We have better share and better content in those systems.

And we don't really need -- I mean if China is flat next year, I think we can still grow. China probably is a little better just because it's a bad year this year. But it really is about North America, Europe, India, Korea, you name it, other geographies other than China that's going to push our growth next year.

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

Well, I mean, on top of that, like I said, I mean, your wired business has been strong throughout all of this, right? And you expect the wired business to continue to grow on a year-over-year basis. And you seem pretty optimistic about the second half of this year.

Is this -- is the growth and the optimism around the much anticipated cloud spending cycle, which we see starting to pick back up? Or is it also -- the good news with wired is that there's a cloud spending cycle, but you also have the upgrade on the optical side to 200 and 400 gigabit per [second] speeds inside of the data center. I mean what is driving the strong fundamentals currently and on a go-forward basis for the wired business?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

I would add to what you said. It is also the conversion of our pipeline and the effort that has been spent to secure sockets over the -- and knowing the timing of when those wins begin to materialize. So again, we have a number of elements that we look at, including macro demand. As you mentioned, there is -- there's clearly cloud CapEx being spent that is going to be beneficial for us, but we also know where we are winning and when those wins start moving to production.

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

On the financials, you've talked about improving gross margins in the second half of the year on cost synergy benefits. How much of the synergy benefits are coming from the closure of the Silicon Valley fab?

And I know previously, you were going to keep the Singapore test facility open a bit longer given some of the test constraints. So when does the team start to maybe benefit from the potential wind down of this facility at a later point in time?

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Yes. So gross margins in our -- at the beginning of the year, we did say that our first quarter would be the trough, and we would see subsequent improvement every quarter in gross margins. And you saw that in the second quarter, and you saw that implied in the guide for the third quarter. So that's -- that story is playing out exactly as we expected. That include -- I think there's about $50 million left of cost savings from the Linear closures that will continue to feather in over the balance of this year.

The challenge on Singapore, frankly, has been getting breathing room to ship the equipment, right? It is -- this is a -- when everything is running full speed, you don't have the downtime to put the tools on boats and move them to their new location. So that's been our constraint, right?

Will the savings come? No doubt. They'll come because we -- we're making all the steps necessary to have that happen, but we just can't afford to have the tools in transit.

Michael C. Lucarelli - *Analog Devices, Inc. - Senior Director of IR*

And Harlan, that $50 million Prashanth laid out, that's for both facilities. So we'll get some of it this year -- majority of that, call it, 60% or so this year from the consolidation of the front-end fab. The back end will be the remainder. That won't be until 2022 at this point, given how strong demand is.

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

And then my last question. With the revenue scale that you will have as a combined Analog Devices and Maxim, you layer on top of that the fact that 50% of your wafers are outsourced, 70% to 75% of Maxim's wafers are outsourced, does it make sense for the Analog team to consider bringing in-house either organically or inorganically 300-millimeter wafer capacity? I mean you will get the same cost benefits as your large analog competitor and could represent actually an opportunity for quite a bit of margin expansion on a go-forward basis. Love to get your views on that.

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Yes. Harlan, I think it will always be kind of a make-versus-buy analysis that we'll continue to evaluate once we have the full portfolio of Maxim within one shop and we can evaluate where it may make sense. However, everyone knows there is significant investment being made in foundry capacity by a number of players. So I do think that we're going to have some great options if we choose to go the buy versus the make route.

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

Great. Well, we're just about out of time. Prashanth and Mike, thank you for joining us today. 2021 is shaping up to be a strong year for the Analog team. Keep up the great execution. Thank you.

Prashanth Mahendra-Rajah - *Analog Devices, Inc. - Senior VP of Finance & CFO*

Thank you, Harlan, for having us.

Michael C. Lucarelli - *Analog Devices, Inc. - Senior Director of IR*

Thanks, Harlan.
