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ADI - Analog Devices Inc at JPMorgan Global Technology, Media and Telecom Conference

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### CORPORATE PARTICIPANTS

Dave Zinsner Analog Devices, Inc. - SVP Finance, CFO

### **CONFERENCE CALL PARTICIPANTS**

Harlan Sur JPMorgan - Analyst

### PRESENTATION

Editor

Audio in progress.

#### Harlan Sur - JPMorgan - Analyst

-- Mike Lucarelli, who represents the Investor Relations team at Analog Devices, here with us as well.

So since the team just reported last night, I have asked Dave to kick things off with an overview of the results and the guidance, and then we can dive into the Q&A. So Dave, thanks for joining us today. Great job on the quarterly execution. Let me turn it over to you.

### Dave Zinsner - Analog Devices, Inc. - SVP Finance, CFO

All right, thank you, Harlan. Good morning, everyone.

So, yes, this ends up being hot off the presses since we just reported earnings last night. Pretty good quarter. Revenue was up sequentially 6%. Earnings were up 16%, so we like that ratio.

I would say that in general the industrial business, the automotive business were pretty much as expected, sequentially up, although second quarter tends to be very strong quarter for those businesses, so they were in line with what we would have expected.

Consumer is ramping a little bit better than expected, and that's a pleasant surprise. I'll talk in a minute about what that means for the third quarter.

And then, not surprisingly, I think, given the announcements that occurred last month, but our communications business was definitely weaker than expected and that was specific to the wireless communications business, which has seen a bit of a pause in China and a little bit less capital spending in North America, which drove that business to be weaker than expected.

For the guidance for the third quarter, we guided to be basically up 0.5% to up about 5%, so \$825 million to \$865 million in revenue and earnings of \$0.71 to \$0.77. So at the midpoint, we would see certainly revenue growth, a bit of earnings leverage. Year over year, our earnings, I think, will be up 17%, if I'm not mistaken, so good leverage on the earnings side, I think, again.

The strength will generally be led by the consumer business again this quarter. We expect the rest of the markets to be relatively stable with where we saw them in the second quarter.

So I think from what I have heard in terms of discussions here with some of the other semiconductor companies, it seems like everybody is steady as she goes, and I think outside of the fact that consumer is finally a tailwind for us in terms of growth, I would say that characterizes the rest of the business broadly.



#### Harlan Sur - JPMorgan - Analyst

Great, that's a great overview. And so, maybe starting with the topline results, because obviously, as you mentioned, broad strength across most of your end markets, except for communications. Obviously, we know what's happening with weakness in wireless infrastructure. Your other three businesses grew double digits sequentially.

Maybe we can just start off with the industrial segment. It's your largest segment. It did extremely well, seasonal, but still extremely well, up 11% sequentially. There have been mixed signals in this market, if we take a look at some of your peers, but all of ADI's major application areas grew sequentially, strongest in A&D, instrumentation, industrial automation, particularly in A&D and I assume that -- aerospace and defense, I assume that this is a lot of the Hittite-related business.

Help us understand whether this was more defense related, whether this was more commercial aerospace. Was it satellite, radar? These programs do tend to be a bit lumpy, so how do you see the sustainability of the strength in the A&D subsegment on a go-forward basis?

### Dave Zinsner - Analog Devices, Inc. - SVP Finance, CFO

Well, I should point out it is a lumpy business. It was our fastest-growing subsegment within the industrial space, and a large portion of where we saw the improvement was in the Hittite business, although Hittite was in last quarter, so it was an apples-to-apples comparison.

I think that there will be a bit of perturbations in this market over time as programs roll off and programs roll on, but I think the growth is representative of a longer-term trend in the industrial space -- or in the defense space for us. As we're making more and more investments, we are providing more modules, more system-level designs in that space. They carry much higher ASPs than your one-off chip, and so that is helping drive the performance of that business.

And so, I would suspect, although it might have a little bit of volatility in it, it will be up and to the right, generally speaking, as we develop more and more, particularly as we bring the products outside of the microwave into the defense business in a bigger way now that we really have a beachhead into defense, which we never really had up until this point.

#### Harlan Sur - JPMorgan - Analyst

Tell us about the commercial aerospace side. I think that one of the nice things is that defense programs, as well as commercial aerospace programs, can be big and lumpy, but if you have enough in the project pipeline, they do tend to smooth things out, and we know that there is big satellite and programs going on, let's say, in China. There is some big radar programs going on in Latin America.

How does the commercial aerospace play into all of this and does it, in fact, potentially help to smooth out the lumpiness?

#### Dave Zinsner - Analog Devices, Inc. - SVP Finance, CFO

Yes, I think it does. Clearly, all of those applications need microwave technology. They also need high-bandwidth, high-speed signal processing as well.

And obviously, that's an area that we have a lot of strength in and that was an area that Hittite had a lot of position in, and so I think with the combination of our products and now adding Hittite products, I think that market will do quite well for us and probably will smooth out a little bit of lumpiness that you do find in the defense space.



### Harlan Sur - JPMorgan - Analyst

So from a -- and sticking with industrial and talking more about it on a geographical basis, US and Europe were the strongest in your segment. Some of your peers have talked about weakness in Asia, specifically in China, in industrial, slowing of just overall macro growth, muted demand trends post-Chinese New Year's. Help us understand the trends that you saw in the April quarter and here into the July quarter, specifically as it relates to the China part of your business.

### Dave Zinsner - Analog Devices, Inc. - SVP Finance, CFO

Yes, there is no question China -- we report in aggregate the revenue by geography and a big component of our Chinese revenue is industrial. China was down, I think, sequentially 3%, and so it definitely saw a weaker environment.

Fortunately, it was offset by good strength really in areas where we have probably a much bigger position, which is in Europe and North America.

I think we are likely to see similar results next quarter by geography, a stabilization, but an incremental decline relative to -- or drop relative to where it's been in China, so flattish quarter to quarter, but certainly weaker than it has been in the past.

I do think that what ends up happening is governments, when they don't like to see where -- or they don't like where things are, tend to try to do things to stimulate those markets, and so I suspect that will happen and that we will start to see growth resume in China.

#### Harlan Sur - JPMorgan - Analyst

Any -- and I know obviously you have got a huge customer base in China, and so it might be difficult to figure out whether it's weakness in factory automation or instrumentation or any color that you can provide in terms of what's sort of driving the sluggishness out of the China markets?

#### Dave Zinsner - Analog Devices, Inc. - SVP Finance, CFO

Yes, I think in general we are more exposed on the factory automation side in China, and so I think you could extrapolate that was where we saw our weakness, whether more broadly in China there is weakness across other industrial markets, I think that's probably true as well.

#### Harlan Sur - JPMorgan - Analyst

So as we think about your pipeline and the current trends that you are seeing in industrial, do you expect fundamentally that we see a seasonal profile for the remainder of the calendar year from your industrial business? I.e., it's -- I think the seasonal profile is a flattish type of profile for the remainder of the year.

#### Dave Zinsner - Analog Devices, Inc. - SVP Finance, CFO

We get very little visibility. I will caveat that by saying this. We have four weekly times, so in general we get about four weeks of visibility.

So it's difficult to, with a lot of accuracy, figure out what fourth quarter and first quarter are going to look like. But I think given where order levels are and how stable they are and assuming that there isn't any sort of macroeconomic hiccup in the next couple of quarters, I would suspect that it will behave largely seasonally.



### Harlan Sur - JPMorgan - Analyst

Good, good to hear. So let's just take, and we will move onto the other segments, but just the last question on industrial. Let's take a little bit of a higher-level view, which is that last year you guys talked about four subsegments within industrial that will drive a TAM opportunity of \$5 billion over the next five years -- instrumentation, automation, energy, and defense.

So first question, do you still view these as the big growth drivers? And which of the four subsegments do you see the most growth potential in terms of dollar content and unit growth potential looking out over the next two to three years here in industrial?

#### Dave Zinsner - Analog Devices, Inc. - SVP Finance, CFO

Well, one thing I would add to that, the list you gave, is we actually classify our healthcare business away from the consumer side of healthcare into products that go into hospitals and clinical care units and so forth. We classify that as an industrial market and our design pipeline is very strong in that space.

I think based on as we look at the opportunities and extrapolate what the revenue projection might look like over time, I suspect that the 2017, 2018, 2019 time frame is where you really start to see that accelerate. But when you do, I think you'll see some very significant acceleration in that business.

We've made investments really over the last five years really in earnest to build out more applications and address more of the market than we had in the past. We had been a little bit focused on certain niche areas of that market. Now we have broadened that, and the time frame between the time you will make an investment and the time you realize revenue tends to be pretty long in that space, but I think there is a sweet spot that comes in the later part of this decade. So I do think that will be a driver of our SAM.

The rest of those markets I think that you mentioned, well, maybe outside of the aerospace and defense space, are really -- I think there's a whole -- and of course, this is not new news and it's classified under this Internet of Things category, which we tend to hate internally, but there is this migration in industrial customers and it is real. There is no question it is real, that customers want to do more sensing, monitoring at the node, some analyticals at the node, and then some connectivity back to some more significant data warehouse, like a cloud-based system or what have you, do more analytics there, perhaps send information back.

All of that, absolutely, is happening. We are talking to a ton of customers about capability around that space, and so there is clearly going to be, I think, more of the bomb that goes into analog and signal conditioning and connectivity to enable those customers to be able to do that.

Just if you pick a customer like Honeywell, for example, I think there are seven different divisions that are talking to us, in some cases separately, about ways they can enhance their application and a way to do things for their customers that really changes the game for them.

So I think that's a big macro trend that address -- that hits in the instrumentation space, that hits in the factory automation space.

In the energy space, it is also similar in the fact that they want to make energy distribution more efficient, and because of that, they need to monitor things and connect back and communicate back to central grids and so forth, so that is, again, a similar kind of trend out there.

And then in the aerospace and defense, it's really -- I don't know if there is a -- there is certainly not this IoT macro trend, but I think for us it's just every engagement in that space, given the position that we acquired when we got Hittite, that allows us to bring the whole lot more products to market in that space, and so I think that will spend our opportunities in that space beyond where we've been in the past.

#### Harlan Sur - JPMorgan - Analyst

That's great. And I will talk a little bit more about some of the product strategies that you guys have to go after these markets, particularly some of your integrated system and package capabilities. But let's -- we will get to that.



Automotive was another solid growth driver in the quarter, up 13% sequentially, again seasonally stronger period for the team. Strong growth [infill] team in powertrain safety. Given all of these new technologies that are finding their way into cars, things like ADAS, things like fuel efficiency, help us understand within these subsegments what are ADI's product categories that are driving the strength there.

### Dave Zinsner - Analog Devices, Inc. - SVP Finance, CFO

I think one thing that we have that is unique relative to most of the semiconductor providers is we have MEMS, and we have automotive quality level MEMS, which is pretty unique in the market. Really, the only other competitor out there of any meaningful size is Bosch. It is not even a semiconductor company.

So, this is a great position to be in and a lot of the safety is solved through MEMS. And so, we are constantly reinventing what those MEMS products can do to enable more and more robust safety systems, and as -- I can't remember who said it, either Ali or Vince on the call last night, there is a whole bunch of mandates that are occurring right now and a lot of automotive customers are trying to get ahead of those mandates, so even -- regardless of when the mandate comes down hard, they want to be ahead of that, partly to differentiate their product and partly just to be ahead on the engineering side.

And so, we are engaged with all the Tier 1s and many of the automotive customers in developing next-generation safety systems that allow them to meet the requirements out there.

And then, the other thing, which is also a government mandate, in our powertrain system, we provide the battery sensing in start/stop technology, which improves the fuel efficiency of cars. And it's actually not that easy to solve that problem, and we have a very good, very high precision part that enables the battery sensing systems to work efficiently.

And so, that's been a tremendous opportunity for us. We have tremendous market share in that space. That will proliferate over time, and so I think that's going to be a great benefit to driving the growth in automotive.

And then, lastly, where -- we have had more exposure, I would say, in the more premium part of the market, which is largely in Europe and I guess, to some extent, a little bit in North America, and what's happening is a lot of this stuff is proliferating into the mainstream part of the market, and on top of that, some of the Asian suppliers want to bring up the quality of their products, and so we are seeing a lot of pull there.

And then, lastly, in Japan, which had been large a vertically integrated market, we are now seeing those guys move away from that model to look for best-of-breed technology that may or may not come from Japanese suppliers.

And so, there is an expanding SAM that's just happening in front -- unfolding in front of us that I think really helps drive the automotive business. So I think we have -- when you get up to a \$500 million, roughly \$500 million business, I think there is always this period of where the growth is so rapid and you're trying to stay ahead of all the -- stay ahead of the opportunities and maintain your position in the markets and products that you have today.

And so, not surprisingly, we had a pause. I think our growth will be decent this year, but not anywhere near what it's been in the past. But when you look at the opportunity pipeline for the automotive space going forward into 2016, into the 2017 model years, it looks like it is back on a trajectory much like the growth rates we have seen in the past. So, I think it will be a great driver of growth for the Company on a go-forward basis.

#### Harlan Sur - JPMorgan - Analyst

Any differences near term, any differences in automotive from a geographical perspective? European auto sales numbers were out yesterday for the month of April, 20th consecutive month of year-over-year growth, just strong trends there. Any geographies where you are seeing things being a little bit better, a little bit softer, or is automotive demand in general just fairly healthy out there?



### Dave Zinsner - Analog Devices, Inc. - SVP Finance, CFO

Well, I would caveat this by saying our visibility to end consumption is probably not the best.

We are selling to Tier 1s. Most of those Tier 1s are in Europe, quite honestly, and then they sell into automotive companies, and then the automotive companies sell all over the place. I am sure Mercedes has a meaningful share of even the Chinese market.

So I think that as we look at it, which is the design-in position, it was very strong in Europe and the US, and how that proliferated, I am probably not the best person to ask.

#### Harlan Sur - JPMorgan - Analyst

For the July quarter, you're looking for a flattish automotive segment profile. I think that this is typically better than normal seasonal trends, which is typically slightly down. So you talked about expanding SAM. You talked about a lot of these opportunities. Is that what is driving the slightly better seasonal trend here or is just some years it's flat, some years it is down plus or minus? How do we think about that?

### Dave Zinsner - Analog Devices, Inc. - SVP Finance, CFO

Yes, we tried -- the reason that automotive tends to be weaker in the July quarter is because of the month of July.

The month of July tends to be a month where automotive manufacturers take a little bit of time off, retool their factories, maybe add a few pieces of equipment and so forth. And so, they shut down lines and that usually affects their demand on us.

As it stands today and the way the order rates have gone, it doesn't look like it will be as significant as it has been in the past, although that's why we put a range on it, just in case, because July comes upon you and you find out how things are going to end up.

I think it's a very healthy business, regardless of whether they take a few days to retool factories in the month of July.

#### Harlan Sur - JPMorgan - Analyst

Okay. Consumer, I will get to -- just let me get to this last question. Consumer, big outperformer this quarter, revenues up 40% year over year, driven by some solid design wins in the portable space.

It looks like if we parse out your guidance for the July quarter here, consumer is going to be up another 40% to 50% this quarter as well. We all saw the teardowns of some of the high-volume consumer devices that you guys are designed into. Is it fair to say that -- and I know that strong consumer growth again that you guided to in the third quarter. I think as you guys had said on the call in answer to a question, there is a little bit of a margin impact there, just a bit.

Given the performance and the technology differentiation of some of these new products that you're getting into these portable applications, it seems like this business could continue to grow at a very, very strong growth rate.

And so my question is, if consumer continues to grow at 2X to 3X the rate of the overall business, does it impact the gross margin profile over the next 12 to 18 months or maybe it doesn't have that much impact? Help us understand the dynamics there.

#### Dave Zinsner - Analog Devices, Inc. - SVP Finance, CFO

Yes, well, I will let you make estimations on the growth rate of that business.



From a gross-margin perspective, Vince mentioned on the call, I think very eloquently, that what we try to do is focus on really hard technology, regardless of what market we are focused in on. And what we try to do is take -- really look at it on a platform basis and take technology that is applicable to multiple markets, and that's where we tend to make investments.

And so when you focus in that way, you get efficiency on the R&D side, in particular, and because you are focused in areas that are hard to do, you generally -- your customers generally value that and are willing to pay a premium for that because it makes a big difference in their application.

That's not to say -- we're not trying to gouge customers; we're just trying to get fair value for innovation that we provide.

And if you look at the backlog of products that are driving what we believe will be a ramp into the third quarter in consumer, and on a longer-term basis what we think is in the pipeline, I would say in general they check that box. And so, there is not a big disparity between any of those products and any products we sell in any other market in terms of gross margins.

And so, we are not really expecting to see a big issue affect us in terms of gross margins if consumer were to be a more meaningful part of our revenue in any one quarter. And you saw that in this quarter.

#### Harlan Sur - JPMorgan - Analyst

Absolutely.

#### Dave Zinsner - Analog Devices, Inc. - SVP Finance, CFO

And you certainly as we (multiple speakers)

#### Harlan Sur - JPMorgan - Analyst

Saw it in the guidance.

### Dave Zinsner - Analog Devices, Inc. - SVP Finance, CFO

Assuming we are accurate in our guidance, you see that in the guidance in that we are taking our utilization from mid-70 levels to low 70s. That probably had at least 250 -- or sorry, yes, 2.5 -- or 25 basis points', I guess, effect on our gross margins and the remainder is really mix. So it's like 20 to 30 basis-point kind of impact, which is in the noise, if you ask me.

#### Harlan Sur - JPMorgan - Analyst

Okay, got it. We had a question over here.

#### **Unidentified Audience Member**

(inaudible - microphone inaccessible)

#### Dave Zinsner - Analog Devices, Inc. - SVP Finance, CFO

So I am going to repeat your question, Rob, just so everybody understands. So the question was really around automotive and why automotive is a flatter growth-rate environment for us this year.



I guess the old expression you win some, you lose some. And I think we probably lost as much as we won to a first-order approximation this year. There were a few things that went away from us and a few things that we captured, and so, generally, we have been waiting a lot more than we have been losing in any one year.

I don't think it's systemic of that business. It was a one-off situation, for the most part.

We have a pretty good plan on how to get right back on track, which we will do through this year and next year, and so, like I said, I just don't see this being a big factor longer term for the automotive business.

#### **Unidentified Audience Member**

Thank you.

### Dave Zinsner - Analog Devices, Inc. - SVP Finance, CFO

You're welcome.

### Harlan Sur - JPMorgan - Analyst

Any other questions back there?

#### **Unidentified Audience Member**

Just a follow-up to Harlan's question. Historically (inaudible) that business faded away. I think last night you went out of your way to emphasize that design wins could be multigenerational. So maybe just elaborate a little bit, if you can, in terms of what gives you that confidence versus prior generations when you have had consumer business wins?

#### Dave Zinsner - Analog Devices, Inc. - SVP Finance, CFO

Good. Should I repeat that question, because it didn't sound like the microphone was working?

#### Harlan Sur - JPMorgan - Analyst

I think it only caught part of it, so why don't you repeat the question?

#### Dave Zinsner - Analog Devices, Inc. - SVP Finance, CFO

Okay, so the question was really around consumer and the sustainability of the consumer business over multiple generations, as opposed to winning one and then being gone.

I can never say with absolute confidence on these kind of things, but the engagement we are having with customers in the consumer space has generally been pretty solid and pretty clear as to how we will progress in terms of capturing the next generation of products in that space. So, I feel pretty confident that we are not going to be caught surprised with a sudden massive loss after seeing this ramp up in the consumer space.

Part of it does depend on the fact that we can -- the innovation that we've provided extends over multiple generations and that we can reinvent the technology and advance it in a way that makes it -- if somebody were to catch up, we would be ahead again.



And so, from our perspective, it does look like we have a roadmap from a product perspective that would suggest that, and based on discussions with the customers, it does seem like they agree with that roadmap and they agree with the needs to push the envelope in the application.

So, you never know, but I feel pretty good about our position and our ability to sustain it.

#### **Unidentified Audience Member**

In this space, having the ability to supply a large-scale [support], can you talk about your ability to do that in your fab strategy [with respect to] consumer?

Second question is, all the innovation [can be proved for] one space for a customer [that's briefly what you can do] for others?

#### Dave Zinsner - Analog Devices, Inc. - SVP Finance, CFO

Right, so the question is around our ability to meet the supply-chain requirements of the consumer business, which are a bit different than some of the other markets, and I will get to the second question in a minute.

So, yes, we are generally in the consumer space outsourcing the wafer manufacturing to a third party, and that third party is very good, I think, at ramping volume, and we have a very good relationship with that third-party foundry, and so I am very confident that we will have no issues in terms of meeting the supply requirements.

And then on the backend side, we use a combination of internal and external resources and that helps us balance our needs there, and as it stands today, we have plenty of headroom to be able to handle the backend part of this manufacturing process.

So, I think Vince even mentioned on the call, there is one place that I rarely worry much about and that's our supply chain. Those guys are world class. Their ability to react to sudden increases, big volume requirements, because we have done in the past, a surprise order, whatever, has been unbelievable. And I think we will be in very good shape there.

And what was the second question again?

#### **Unidentified Audience Member**

Your ability to proliferate this (multiple speakers)

#### Dave Zinsner - Analog Devices, Inc. - SVP Finance, CFO

Oh, yes, so the proliferation is the second one. Well, generally, like I said, we look -- we operate on a platform basis, and this is a platform, these products. So we will be able to leverage that in other -- in other end markets, industrial, automotive, in a way that will be helpful to them.

And in reality, I think it's safe to conclude that part of the capability we leverage the opposite way. We start it in a different place and it found its way to consumer. So I think that is why I think that our ability to maintain good ROI depends, I think, on our ability to leverage technology across platforms and across end markets, and this is a perfect example of that happening.

#### **Unidentified Audience Member**

(inaudible - microphone inaccessible)



#### Dave Zinsner - Analog Devices, Inc. - SVP Finance, CFO

The base capability can. Obviously, we tailor it in some cases to certain customers and there are certain aspects of it that probably can't, but in general, a good portion of the technology can.

#### **Unidentified Audience Member**

Within instrument (inaudible)

#### Dave Zinsner - Analog Devices, Inc. - SVP Finance, CFO

Factory automation and implementation are two different subsegments.

#### **Unidentified Audience Member**

Oh, they are two different? Which one (inaudible)

#### Dave Zinsner - Analog Devices, Inc. - SVP Finance, CFO

That would be automation, yes.

#### **Unidentified Audience Member**

Can you talk about that trend as far as (inaudible)

#### Dave Zinsner - Analog Devices, Inc. - SVP Finance, CFO

Right, yes, so that business within industrial, that's probably -- maybe about one-third of our industrial business is factory automation, and I would say, as you point out, it is hard to delineate between what's a real robot and what's just something else driving automation, but that market has been growing very well for us. Not surprisingly, I think it's a trend.

Certainly the factories tooling in China, they want to make very automated, and to be competitive, I think, in the manufacturing both in North America and Europe need to retool. I think we are actually in the relatively -- to use baseball analogy -- the early innings of this, and that, coupled with this IoT, which is automated in a way that mechanically does everything you want without a lot of labor, but then also identifies whether there might be a maintenance issue, looks at downtime. They are measuring downtime in milliseconds of downtime or where the system isn't completely aligned in milliseconds. And so, and the efficiencies that you get -- that get lost on that.

I think that's all pretty much on the come. And so, that's one of the reasons why I think we're in a great position because you have to have built out 100,000 customer -- I don't know, in the factory automation space it might be 10,000 customers or something like that that you would've had to have built out over time and it's hard to reach 10,000 customers in anything that represents a reasonable time, and we have built that up over decades. That, I think, really puts us in a great position to take advantage of what could be a really good trend out there.



#### Harlan Sur - JPMorgan - Analyst

So the team is driving 66%, 67% gross margin profile, 33%, 34% operating margin profile right now. You are running right in the middle of your target gross margin and operating margin target ranges. Help us understand how to bridge the gap from here in the middle of the range into the upper half of this range, because it really seems like the ADI team is within striking distance of the upper half of the range, which would be more like 68% gross margins and 36% operating margins.

Is it mainly the final tranche of synergies from the Hittite acquisition and higher levels of revenues and utilizations or is it mix? Help us understand the dynamics around that.

#### Dave Zinsner - Analog Devices, Inc. - SVP Finance, CFO

Yes, there is a ton -- certainly, the Hittite accretion in gross margins hasn't come yet. That will be beneficial.

I talked about our loadings. They reached about 75%. I think optimal would be mid-80%s, high 80%s, and that would be worth another 100 basis points.

We're also doing a lot both in terms of pricing and in terms of cost of manufacturing, all small little things, but they have been improving. In fact, Vince and I just reviewed -- we stepped back and looked at our ASPs over the last -- I think it was 16 quarters, and it has actually been steadily going up. And so, all that work actually is translating into improvements there.

And then, the rest is -- so that certainly would be the benefits to the gross-margin side, and then on the operating-margin side, it is really just about just judiciously managing OpEx. There are a lot of things in our OpEx that don't need to scale with revenue, and so as revenue goes up, those areas won't go up as much and that will help the fall-through as well.

So, I think we're in very good position as we sit today to get to the high end of those ranges, and then once we are there, we will think about what to do next.

#### Harlan Sur - JPMorgan - Analyst

Great execution by the team. Dave, thank you very much for joining us this morning.

#### Dave Zinsner - Analog Devices, Inc. - SVP Finance, CFO

Thank you, Harlan, appreciate it. Thank you.

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