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ADI - Analog Devices Inc at Raymond James Technology Investors Conference

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PRESENTATION

Steve Smigie - Raymond James - Analyst

Good afternoon. My name is Steve Smigie. I am the semiconductor analyst here at Raymond James, and it's exciting to have everybody here. Appreciate you stopping by. This will be our first session that is to kick off the conference here. And kicking off with a great story of Analog Devices here. Analog Devices has been a real powerhouse in analog-to-digital conversion throughout its history, and presenting today for Analog Devices is Rick Hess, who is Executive Vice President. Rick was also formerly CEO of Hittite, which was a really successful communications company, and is a great addition. And these guys are going to be very -- acquiring linear tech here, so putting a lot of great pieces of technology. Also, up here with Rick, we've got Mike Lucarelli who is the Senior Manager of Investor Relations.

So we're going to do some fireside chat questions here. A little bit later on, we will leave it open for any follow-up questions.

So we will start with some obligatory questions, and then we will get into the meat of it. But just first question, just -- Rick, if you just give us your quick thoughts on the short-term, how things been going since you guys closed the quarter and gave your last earnings call?

Rick Hess - Analog Devices, Inc. - EVP

Yes, the good news is it's only been two weeks since we closed the quarter, so we just put out guidance. So nothing has changed obviously in the last few weeks. But we had a very strong Q4 and again guided for seasonally a very strong Q1 as well.

So the business is doing good really across all of our markets. We have a very diverse business, but all of our markets do extremely well in Q4, and we expect that to continue going into the year.

Steve Smigie - Raymond James - Analyst

Great. And we will just get the other one out of the way. Just comments on the consumer business. You have a pretty big customer there. What are the plans you -- how much do you plan to diversify away from that big customer there, and what do you see in terms of your opportunity for adding dollar content versus the parts you have on so far? Thanks.

Rick Hess - Analog Devices, Inc. - EVP

Well, in the consumer space, we really play to the high value-added segment of that space and the high diversity and technology side. And the good news is that in that marketplace -- in the consumer marketplace, there's a lot of people trying to add different sensors and different capability into devices, and that leverages what ADI does. So we will continue to innovate and develop new technologies, especially in the sensor area, and our plan is to diversify certainly across all of the consumer customers.

We do have one very large customer there, but they are one of the largest in the world. So it's natural that we would be that way, but we also are diversifying to a lot of the other customers in the market.



Steve Smigie - Raymond James - Analyst

Great. Thanks a lot. Turning to the core of what has been the traditional ADI, ADI has typically had 40% to 50% market share in analog-to-digital converters depending on whose data you look at. Very strong position. Can you talk a little bit about how you plan to maintain your gain share from here, and is that even something that's important versus growing other parts of the business?

Rick Hess - Analog Devices, Inc. - EVP

We clearly -- as you stated, we are number one in analog and digital converters. We have been that way for close to 50 years, and we expect to maintain that position and grow that position where we can.

The real thing we're doing is leveraging that strength in A to D converters and combining that with all of our other technologies to integrate those in some cases and in some cases just put them into a modular format to add that capability.

So we have leveraged that strength we have in A to D converters, putting it with on one side our DSP technology, on the other side of our high-frequency technology. And with the acquisition of Hittite, we add in the millimeter wave capability that Hittite had, and leverage all those together to really take them to all of our markets.

So it is a very critical piece of ADI. It's where ADI began. So we maintain that strength, but we also leverage it with a lot of other capability into new markets and new capability and, again, much more integrated solutions.

Steve Smigie - Raymond James - Analyst

Great. And just a follow-up with the millimeter wave piece just because that's certainly where you are one of the leading experts out there. Can you talk about how that is going to evolve as we turn to 5G? Are you going to see that be a key part of 5G and talk about your position there?

Rick Hess - Analog Devices, Inc. - EVP

Yes, certainly millimeter wave will be a significant piece of 5G, but there will also be a significant below 6 gigahertz content to 5G in our belief and what we seem from the market. But clearly, ADI is in a very strong position in 5G because of the millimeter wave criteria and the millimeter wave design between the strength of Hittite who is always a leader in that marketplace. Combining that with ADI lower frequency technology, we think we have already established a good position with the people who are deploying the technology today. Most of it is ADI from the whole signal chain standpoint, and we think we will continue to leverage that as the market grows.

The real question out there is how is 5G going to evolve and how much will be millimeter wave versus sub gigahertz. And again, we feel it's going to be a mix depending on application. 5G will be different than kind of all the other generations in wireless technology we have seen today where there is one solution, and that's the solution that gets deployed. It's the next generation solution.

5G, there's going to be all kinds of different applications that use different technologies. So some will be sub 6 gigahertz. If you're just trying to utilize more frequency and maybe go to mass minor and cover large areas. If you want a lot of data, you're going to go to high frequencies, you're going to go to millimeter wave, and again, there's many different millimeter wave bands that we will deploy in 5G, and it's going to be much more I think application of purpose-driven technology that gets deployed depending on the specific application and what the operator is trying to -- what problem they are trying to solve.

So it is going to be different in that way and will deploy differently, and it's going to be very hard to predict how much will be which kind of solution. So it is going to be challenging from that aspect. Again, the good news from ADI's point of view is we don't really care what frequency deploys. We have the capability to do all of the solutions, and we will participate in all the solutions utilizing our technology. So we should benefit no matter how it rolls out. But it will be a different rollout than traditionally has happened with different generations of wireless technology.



Steve Smigie - Raymond James - Analyst

Great. Thanks. And just if I look at the exposure of ADI, maybe 20% of revenue comes from comms and market, same for linear. So it seems like you will be -- continue to be a key part of the story there. Can you talk about how you view growth opportunity there? Is the industry going to see some Renaissance in growth here. So we saw I think China Mobile -- Chinese guys ramped down 2G, 3G, and even 4G took a hit a little bit. But, as you look out, does wireless have a nice growth path over the next several years, and would you expect to grow faster than that given increasing dollar content?

Rick Hess - Analog Devices, Inc. - EVP

Well, let's -- first, let me address that comms to us and certainly with Linear Tech as well has two segments. One is wireless and one is wired. So let's talk about wireless first.

The wireless market -- we still think there is growth -- pockets of growth. It is a little lumpy right now depending on which region. Some regions are growing. Some regions are in a down phase. But we do believe there's still a lot of great growth in the wireless market and great opportunity. We also believe we are taking share there because we have very integrated transceiver solutions that really are doing very well in the market today.

And the other thing that's changing is the radio count is going up. So even though spending is not -- capital spending is not going up dramatically in the wireless market growing by a few percentage points, the radio count is going up. And, as they move to MIMO, sell multiple radio channels per antenna, and then eventually move to massive MIMO and 5G where there could be as many as 64 by 64 element arrays, the radio count goes up dramatically and again that's where we play is in the radio side. So we do think there's a lot of growth opportunity for us in the wireless market. Taking share from generic growth is going to happen in the market, but more importantly from the radio count going up and, again, our strength in the radio side with our transceiver product.

If you then look at the wired side where it's about 30% of ADI's communications business today, that market is growing very strongly. We grew 8% last year on the wired side of the market. So there is good growth there. Linear Tech has -- is more balanced to the wired side than the wireless side. So, again, they are seeing very strong growth in the wired side of the business.

So we think by bringing Linear Tech with ADI, we will have a good balance between wired and wireless and, again, very strong technical positions in both markets that we can continue to grow that market.

Steve Smigie - Raymond James - Analyst

Great. Thanks a lot. And then -- and we focus a lot here on comm, but just generally, you've got a pretty diversified business model. Can you give us some color on -- as we look forward, what markets -- end markets you think are your greatest opportunity over the next couple of years?

Rick Hess - Analog Devices, Inc. - EVP

We really feel pretty good about all of our markets. So, in the industrial side, clearly aerospace and defense has been a great opportunity for us as we brought the portfolio from Hittite together with ADI's portfolio. We have really been able to leverage putting those two products sets together and customer relationships and driving the aerospace and defense business. So we see that as a continued good growth opportunity for us, and we think that market will grow nicely.

I think in the industrial automation space we are seeing — in the last couple of quarters, we have seen a nice pickup there as industry 4.0 and manufacturing automation continues to evolve. And IOT in that business, we think there's some great market opportunity. We have very strong capability in sensors, as well as the communications and processing side of IOT in the industrial space. So we see good opportunity in the automation



side as well as energy. We are seeing some great opportunities in energy now as it's starting to pick up again, and we think in the little space we will continue to see growth.

Healthcare business, we had a record quarter in healthcare last quarter. So we see continued growth there both on the mainframe side where we have traditionally played, but on the vital signs monitoring side of the healthcare business where we are doing very well and continuing to develop our technology and innovate with new sensor technologies that will be very applicable both in more the consumer side of vital signs monitoring, and eventually we see that moving to clinical. And, again, we think with the high-performance aspect of our business and our technology that we will be a key player in the clinical side of vital signs monitoring.

And if you move to the automotive market, again we've had good growth there, we've got good strength of our technology there, and combined with Linear Tech, who has got a great position in the automotive market, we think we can continue to grow that business.

Obviously the content -- electronic content is growing dramatically in cars, especially when you go to electric vehicles. So we think there is great opportunity for us there to continue to grow that market.

And we have talked about comms. So I think, again, in general and consumer.

In general, we feel good about our balanced portfolio, and we think we've got opportunity in all of our markets.

Steve Smigie - Raymond James - Analyst

Great. Thanks a lot. And you mentioned the auto there. That's obviously getting a lot of interest right now. You guys mentioned the recent acquisition of LIDAR company. You gave some color on your last call. Seems like a pretty sizable opportunity for you guys. There's got to be a certain amount of, I think, sensor fusion going on on the cars. I was just hoping you could talk about from a comms prospective, maybe from picking up LIDAR, where you see yourselves on the car and how important is that to you versus other markets?

Rick Hess - Analog Devices, Inc. - EVP

Yes, the automotive market is clearly -- again, it's a great growth opportunity for us, and we play in many different areas. The ADAS area and radar is one of them. Again, we have very strong growth last year in that we see the rollout of 77 gigahertz in the next two or three years coming out. We expect to be very strongly positioned there as well.

So we see great growth in that piece of the market, and again, there will be many pieces to autonomous driving we believe. So we think radar is one of them. We believe LIDAR is a key technology, so we acquired a small company called the Vescent that has electronically scanned LIDARs. So it electronically scans the being instead of all the solutions today, which are mechanical scanning. Either rotating mirrors or some mechanism that mechanically rotates.

So we think in order for LIDAR to be affected, it's going to have to be electronically scanned because of the vibration requirements and the cost requirements. So we think it's a good solution, and we expect to participate in that market.

Obviously the other piece around the car and autonomous driving is how it communicates and whether that communication is car to car, whether it's card infrastructure, card cloud. Again, we think our communications and transceiver technology will play a big part of that market. We have very broadband transceivers, and the solution we are looking at is it will be one transceiver to a car instead of several solutions that have to go into the car to receive all these different communications. So we think it will be much simpler, it will be much more straightforward and lower cost to operate with a wideband transceiver.

So we see all those opportunities as important as well. Again, we introduced an A to B technology, which is a bus technology for audio in cars. So those cars that move from one or two speakers in the car to 12 to 14 speakers in a car, the ability to connect all those speakers together in a low-cost



manner with lightweight -- our A to B technology was invented several years ago and is now widely being adopted to satisfy that solution. So we see that as a tremendous opportunity for us.

Steve Smigie - Raymond James - Analyst

Great. Thanks a lot. And just to look at sort of a topic right now, as you mentioned, you guys are exposed to lots of markets and you ship globally. Any thoughts at this point of change in administration? Have you seen any impact to what you guys might possibly be able to do in China or other markets out there, or is it too early to tell?

Rick Hess - Analog Devices, Inc. - EVP

I think it's awful early to tell. As we we all see, things are changing pretty rapidly. So it's really hard to know exactly what the impact will be. I think the only one that I would mention specifically is maybe the defense market. Again, we feel it has already been a good growth market for us. We certainly see that that market probably won't hurt in this administration, and it probably will get stronger. So I think that's an opportunity. Beyond that, it's really hard to judge what is going to happen in other regions or other markets.

Steve Smigie - Raymond James - Analyst

Okay. Great. And I have to use that word AI in a question since it's required now. Just out of curiosity, you guys aren't necessarily into hard-core processing, but to the extent auto or other markets where there's talk of delivering AI, say, into the car, as it acquires more sensors, input, does any of that create any specific opportunity to you, or is that far enough away from where you guys are that it doesn't really matter?

Rick Hess - Analog Devices, Inc. - EVP

No, I think it clearly -- you know, even things like the Amazon Echo and things like that -- technology like that, we clearly participate in those markets. And, again, I think AI is going to touch all of us. Where there is a car certainly in IoT and we've done a lot of work in IoT and continue to develop that technology, but anything in IOT eventually for the most part is going to go to the cloud and have some kind of master processing and big analytics done to it. So I think it's going to affect all of our markets and play out.

Whether we are providing processing at the sensor node or just sensors or communication, it's going to affect us all. And, again, a lot of the work we are doing is working with our customers to decide how much of the processing they want to do locally in the sensor versus how much they want to do in the cloud and where decisions are getting made and how the data is getting processed. So it is a big factor in what we do and I think will continue to be a big factor as we move forward. So we are doing a lot to really understand the market and understand our customers in how they are using Al and how it might evolve in the future.

Steve Smigie - Raymond James - Analyst

Okay. Great. And just -- I think one comment as (inaudible) made in the past (inaudible) is that you guys have a pretty decent leverage to GDP. So, we saw in the most recent quarter and the US GDP jumped to 3%. In an environment where GDP were to pick up, is that going to be a pretty meaningful benefit, do you think, to ADI, or is it just more about dollar content gains at this point?

Rick Hess - Analog Devices, Inc. - EVP

Yes, I think certainly, our target is to grow at 2 to 3 times GDP. So, obviously, if GDP grows more, then that should drive our growth. Almost half our business is in the industrial segment, which does tend to grow reasonably in track with GDP. So I think that certainly will have an effect.



The automotive and the comms market probably aren't as well tracking to the GDP. They tracked other metrics, but again, as GDP picks up, the automotive market probably will go with that.

Steve Smigie - Raymond James - Analyst

Okay. Great. I just want to touch a little bit -- you guys had tremendous cash flow over the years, and it has continued to increase. Just curious if you can talk a little bit about the uses of cash. Obviously you raise some financing here to do the linear deal, but what would be the plan on that going forward? And then again, turning back to changes in administration, let's say there was a reduction in tax rate to bring cash back in, does that make sense for you guys to do that type of action -- bring cash back in?

Rick Hess - Analog Devices, Inc. - EVP

Well, as you pointed out, we are a great cash generator as well. Linear Tech is also very strong and generating cash. So, when we put the two companies together, we will generate a fair amount of cash.

Our immediate goal over the next couple years is to pay down the debt to get to a 2X leverage that we've taken on to do the Linear Tech acquisition. So that will be our primary goal, as well as continuing to support our dividend and dividend growth.

Beyond that, once we get down below 2X leverage, it will be a question of now going back to do we go back to share buyback, which we've done in the last couple of years, or how do we deploy our cash moving forward? So I think we're going to have to wait and see until we get to that point in a couple of years and we pay down our debt and then what will we do with our cash generation.

Steve Smigie - Raymond James - Analyst

Great. And just a little bit more on M&A in the sense that, for example, we see QUALCOMM buying NXT. Does that change anything for you in the auto market? I don't think there's a ton of overlap there, but I just wanted to check your thoughts there.

Rick Hess - Analog Devices, Inc. - EVP

No. There's not a lot of overlap there, so we don't really see that acquisition, although we find it fascinating and interesting. I don't think it's going to affect our business that much or how we view the competitive environment.

Steve Smigie - Raymond James - Analyst

And then just in general, there has been so much M&A in the space. Companies that I've covered are just -- numbers are getting cut in half, and just curious, does that change your view of the semiconductor world at all with so much consolidation. Does that make it easier or harder for you with the way the consolidations happened?

Rick Hess - Analog Devices, Inc. - EVP

Obviously there has been a lot of consolidation. ADI has participated in consolidation. But I think in a different way than a lot of other people, so we have really been very strategic about the acquisitions we've done with Hittite, as well as the acquisition with Linear Tech. We are only doing acquisitions where it is strategically important.

We think it's good to get bigger, and we think that's an advantage. But our priority is really around making sure we do that with companies really built on what we're doing strategically are important to us. Not just acquiring companies to get bigger. So we -- that's our approach, and with that



again, we are also doing smaller acquisitions to expand on our technology. In the last three months after the Linear announcement, we still got three acquisitions of more smaller technology-based acquisitions that we think are critical to the Company. One of them was a security company because we see security as a key element to our future. I think really all companies are going to see it that way, but we think we've got a great leverage on the security side, making sure as we move to IOT, automotive, a lot of the industries we are in, security is going to be a key element all the way down to the silicon. So we think it's a key piece of technology that we need to add to our portfolio.

Steve Smigie - Raymond James - Analyst

Okay. Great. I'd like to throw it out to the audience, see if there's any questions out there from folks at this point. Okay. Great. I'll just -- alright.

QUESTIONS AND ANSWERS

Unidentified Audience Member

(inaudible - microphone inaccessible)

Steve Smigie - Raymond James - Analyst

I'm just going to repeat the question. So the question is just rollout dates for 5G.

Rick Hess - Analog Devices, Inc. - EVP

Yes, I think probably the earliest we've seen people talk about rolling out is 2018. So Korea is pushing to get at least some level of 5G in 2018 for the Olympics. It appears that all things that drive technology are based around some entertainment venue somewhere. So I think Korea is driving for 2018. Japan is striving for 2020 for their Olympics there. So those are two key dates of people pushing forward to rollouts and technology.

I think that technology in 5G is going to continue to evolve though. I think it will roll out pieces at a time, and it will roll out differently. Again, the US, AT&T, and Verizon seem to be really pushing for this fixed wireless millimeter wafer 5G to do the last mile approach, and I think that has kind of been the push in the US. Again, I think Korea and Japan are going to be different twists that they roll out.

So, again, I think 5G is going to be a lot of different things, and it's going to be very hard. You can't -- even though we say it's 5G, again, there's all these different pieces, and I think there's going to be very different applications that require different technology to make them work.

So I think it is going to be different and now you've got 4.5G. I heard one of our customers the other day talking about 4.9G. So there's all kinds of different Gs now that are happening. And, again, they are all different twists on the technology. A lot of them and extensions of the LTE 4G technology just making -- doing different kind of antennas and approaches in different ways to go about it. So I think we're going to see all kinds of different pieces, and it's going to be very fragmented I think going forward as the communications market continues to expand.

Steve Smigie - Raymond James - Analyst

Other questions?

Unidentified Audience Member

(inaudible - microphone inaccessible)



Steve Smigie - Raymond James - Analyst

So, just a real quick question, was Nokia seeing low single-digit growth? Why do you think -- excuse me, decline. So why do you think you probably see something different?

Rick Hess - Analog Devices, Inc. - EVP

Again, I think part of it is radio content. As you know, the whole market may decline. I think that the radio content is going up and our content is going up. So that's why we see there is growth there.

I think there's a lot of market share shift going on in the markets -- in the wireless market as well. So, if you look at the reports, there's winners and losers in the market, and there's a lot of shifts going on in market share between the entrants. And again, a lot of that -- some of that is based on where the business is, whether it's in South America or Africa or India or China or the US or Europe. There's different players without different strengths, and it pends on which one of those markets are growing. It depends on what the market share between the competitors are looking like.

Steve Smigie - Raymond James - Analyst

Okay. I had a follow-up question on M&A actually in the sense that we saw Broadcom go out and buy Brocade, something of a vertical integration. I'm just curious to your thoughts on that. Do you see a role for ADI to try to do something more vertical than sort of a -- what I would say more horizontal acquisitions you've done so far.

Rick Hess - Analog Devices, Inc. - EVP

We are internally and organically growing vertically. I think to date, as you said, our acquisitions have been more technology based than capability based across our product breadth. But we do have a lot of effort and some very successful efforts in growing out the stack and adding more processing capability, adding more algorithms and software to our solutions, and we expect to continue doing that. That is one of the ways that we do expect to grow is by going up the stack and offering more to our customers at a solution level. And we have built up a pretty strong systems capability and systems analysis capability over the last five years and are really leveraging that with our customers. Having different discussions with our customers today. More about architecture and what they are trying to accomplish and I think we will see that continue. Whether that ends up with us doing M&A in that space, it's hard for me to project at this point, but it definitely is an area where we expect to grow.

Steve Smigie - Raymond James - Analyst

Okay. Just get in one final question here. Just want to talk a little bit about the industrial market. It's kind of a catchall bucket, but it is the largest bucket for you guys. You have sort of done a decent job breaking it down into four smaller pieces. Do you see any new bucket there potentially emerging as a sort of unexpected high-growth area or anywhere you see the world changing where you guys have an opportunity to differentiate?

Rick Hess - Analog Devices, Inc. - EVP

We are always looking for new markets, but as you said, we are pretty diverse. We touch most markets today. Again, I think one of the big unknowns in the industrial space is IOT and how does that roll out? Again, in one sense, IOT is -- we are really in IOT today. We just didn't call it that until today.

So I think that market will continue to evolve. I think sensors are going to be put on more and more devices, and again we have a very strong sense of portfolio and we are adding to that everyday in developing new sensor technologies. So I think that's going to be the biggest change in the



industrial market, but again we will span some consumer businesses, the core industrial business, healthcare, all of those markets as the sensor capability and technology expands and the need for data expands.

But, again, we are very strong believers. That will be limited by security unless you deliver security with those solutions. So that's why we're putting so much effort on the security solution.

Steve Smigie - Raymond James - Analyst

And one very short one left. I forgot to ask on the margins: with the changes in mix, any meaningful changes that you see in gross or operating margin going forward?

Rick Hess - Analog Devices, Inc. - EVP

No, we expect to maintain our financial margin profile and our financial profile as we always have and obviously bringing Linear Tech in helps us, strengthens that position. So, no, we expect to be able to play in the markets with innovative differentiated technology as we always have.

Steve Smigie - Raymond James - Analyst

Great. Thanks a lot, Rick. Thanks a lot, Mike. Appreciate it. Thank you.

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