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Cirrus Logic (@ Nasdaq 39th Investor London)

December 4, 2018

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Jeff Thomas^ All right. Well, we'll look to keep on schedule here. So, up next, we've got Jason Rhode, Chief Executive Officer at Cirrus Logic. I'm Jeff Thomas from Nasdaq and we're moderating a fireside chat. And we hope we can get time for a couple of questions at the end.

So, Jason, for those of you -- for those of us in the room that don't follow Cirrus, can you give a high level overview of the business?

Jason Rhode^ Sure. So, Cirrus has been around since 1984. We were one of the very first fabless companies -- that's fabless also fabulous, but -- one of the very first fabless companies out there, in fact before there was such a thing as a foundry model. We're one of the first companies to make that model successful as well.

We've been a lot of things over those many years. What people think about us today primarily as a company in voice and audio. Although, actually the vision for the company is first choice and signal processing not necessarily related to audio and voice and increasing later finding more and more opportunities outside of voice and audio that are sort of adjacent to some of the things we do that we're better known for to expand our technology into.

Jeff Thomas^ Great. And you guys are obviously big in smartphones. There's been a lot of volatility with smartphones supplier. So, I just wonder if we could get the big question out of the way first and if you guys could provide a little bit of color on some of the changes that you've seen in that market since you last reported earnings.

Jason Rhode^ Sure. We had put out new guidance last night, lowered the numbers down a little bit relatively similar to what some of our -- when you take into account customer concentration and so forth, similar to what some of our peers have done.

That said, we live in -- are currently living in fairly dynamic times with all sorts of things going on. I don't think there's been a question this week or in investor session this last week or so that hasn't had questions about tariffs and trade wars and all of that. And obviously, that's outside of our ability to model. So, refer you to all of our risk factors and the other usual good stuff in that context. But yes -- and there's a fair amount of a quarter of left to go as well.

I'd say our approach to these sort of things, we generally want to be as conservative as possible. Our style as much as possible underpromise and overdeliver and get bad news out of the way as

early as possible. So, in that context, I think it's probably more upside than downside, but wanted to go ahead and get that out of the way.

Jeff Thomas^ Yes. Great. And then, you guys obviously have one very large customer. I know you're limited in what you can speak about on that front. But can you speak a little bit about what you see in terms of future growth opportunities on that front?

Jason Rhode^ Well just for growth overall, we've got quite a number of growth factors with existing customers. Our strategy is always land and expand any time that we've got content in some of these products that gives us the benefit of incumbency to look around and see what problems some of you might have had in a particular generation. A lot of times our growth is driven by big picture kind of new features or functions such as stereo amplifiers instead of mono amplifiers or the inclusion of a haptic device that an end consumer could actually experience. But a lot of yours too, it might be as much about lowering the power of a product or decreasing the die size by moving to a more advanced node, which in our case actually tends to make the device more expensive.

A lot of years, we've driven improvements for our customers by reducing passive component count or passive component cost. Inductors and capacitors for example are particularly expensive and cumbersome on a really tight amount of board space. And so, that's a way we can make our devices more valuable in a way that you as a consumer might not directly experience. But I mean overall the device gets smaller and lighter and you just don't know why.

So, that's one category of improvements for us in the long term business that we can drive as well broadening out our business into other areas within Android both flagship, mid-tier, amplifiers, haptic, headsets. We've got quite a number of different layers on the growth strategy at this point.

Jeff Thomas^ And so on that topic in Android as you look at the competitive landscape for audio amps, haptic drivers, what does that look like? And how do you guys differentiate?

Jason Rhode^ Sure. So, our primary competitors for audio amplifiers are NXP and Maxem, different strengths and weaknesses. In our case, we're the only ones that are 100% focused or heavily, heavily focused on these audio and voice areas. We bring a lot of expertise to bear -- is directly relevant. It's a little bit more of a side line for some of our competitors.

NXP has done traditionally quite well in China headset market. They came out with a number of years ago in part with integrated DSP. It seems like they might have had a thing or two to be distracted by over the last year at a time when we came out with our new devices, similar architecture but much more advanced geometry product line. We are able to bring a lot more signal processing to bear, smaller die, smaller power budget. So, it's really a tough product to compete with right now. We can't just rest on that. There's no such thing as a single product line that successfully you have to keep innovating and driving value for the customers, but that's a great product.

And then too so that benefits from the migration from amplifiers that might have been integrated into a power management unit previously to what we refer to as an external boosted amplifier where we take the voltage from the battery boost that up to say 8 or 10 or 12 volts. We can have a lot more power into the speaker and make them louder.

Additionally, that's not enough for some customers. They want stereo. It's easier to get more sound out of two speakers than it is out of one especially with these incredibly tightly constrained form factors that headsets are increasingly becoming.

Jeff Thomas^ Great. And let's shift gears a little bit. Can you provide an update on the digital headset business? Sorry, headset business.

Jason Rhode^ Sure. Yes, it's an area we still are very excited about. I think a number of years ago, we would have thought there would be more of a homerun aspect to that. We haven't seen a lot of customers move to copy what our largest customer have done in terms of shipping an advanced digital headset with the handset. But nevertheless, every quarter goes by seems like we're in another model or two. And so that's becoming kind of more of an accessory business than what we had originally thought would maybe be an [inbox] opportunity but that's okay.

Jeff Thomas^ Yes. And so, how do you think about that business over the next few years? Where does that kind of go?

Jason Rhode^ Well, it should -- I mean, we should see -- we should see some good opportunities for growth there. But again probably a little more kind of stately passive things rather than some of the explosive growth we can get out of a new opportunity that's inbox.

Jeff Thomas^ Great. And then in terms of other longer term opportunities, can you talk a little bit out the work you guys are doing around voice biometrics? And what are some of the milestones that you've achieved? And what do you kind of think about those?

Jason Rhode^ Yes. So, voice biometrics is probably one of the most kind of fantastic complex things we've ever taken. We're not aspiring to be yet another -- yet another opportunity to figure out what the user is saying rather just validating whether the user is in fact the enrolled user of the device similar to what a fingerprint sensor would do traditionally. We're not trying to replace the fingerprint sensor or other voice -- or other forms of biometric. But we are aiming to provide a security-grade biometric for the hands-free interface, so whether it's the hands-free interface to a phone.

So for example, you're driving alone in your car and you hear the ding. You don't really want to like grabbing the phone to unlock it and aim it at your face or orient it with your hand. Kind of defeats the whole point of being hands free. So, you'd love to be able to say, hey phone, read my e-mail. But obviously, we don't want it to read our e-mail unless we're really, really sure the enrolled user is us.

So, we already have a device [back] that does this -- does it with pretty similar kind of false accept and false reject rates to a fingerprint sensor today. It can do that in an actually

surprisingly large amount of ambient noise and -- which is something that no matter how well you perform in noise, you'd like it to perform in more and more noise.

The other area of innovation that is kind of pops into people's mind to me at least is any sort of spoofing. So, any form of biometric is subject to some level of spoofing. For example, you probably remember the first handsets that came out with fingerprint. I think it was somebody in Germany had a rubber thumb with a fingerprint on it like a week later, which okay, yes, that's not Fort Knox. But at the same time, it's probably better than me being able to look over your shoulder in a bar and read your pin code.

So, similar to that, you could record somebody's voice. And if you have a high enough grade recording of them saying the right thing, you could use that. But at the same time, how likely is that that they're going to have a recording of you saying the right thing. And further, we're able to detect for example, currently, if you record somebody using a handset and play that back, we can detect that. We're working on driving that detection ability up to as high level as possible.

Jeff Thomas^ And so, how do you think about that technology from a product commercialization standpoint? Do you think it's near term?

Jason Rhode^ It's not a short-term opportunity for us. It is a -- it's a quite complex device. It's -- and it's a complex sales process. So, if you think about maybe an audio amplifier -- I don't know how far up the org chart that a customer that decision goes. But it's not a company defining moment that you picked a different audio amp. But if you incorporate a voice biometric and haven't done your homework and it gets hacked, that's probably something you get fired over I would guess. And certainly, it has far reaching implications. It's end customer touching, you have to make all sorts of decisions about what are we going to give it access to and how.

I think too when we bring up this voice biometric ID and people have kind of a paradigm in mind that you're using it like you use fingerprint or face ID in that it's like okay, hey phone, unlock. And then, you go about your business of using the phone. And it's really not about that. It's about using it in a completely hands-free way. It might remain in your pocket even in some applications. But you are able to say hey phone, read my e-mail. Or, hey, call me or Rideshare or whatever you might -- whatever you might command it to do. But it is kind of a completely different interface at that point.

So, we're targeting hands-free -- we're targeting handsets first because it's the biggest obviously. But it's obviously got applicability and connected home, smart speakers and even things like automotive in the long term, anywhere where the voice interface would benefit from knowing that you're the enrolled user which in our mind is pretty much anywhere there's a voice interface.

Without that, it's kind of a novelty and a toy one that's becoming increasingly fun to play with. But as far as a real tool, it's limited until it really knows that you're you.

Jeff Thomas^ Yes. Well, let's talk a little bit more about Smart Home be on kind of voice biometrics. What are other opportunities for Cirrus', Smart Home is kind of continuing to grow as a market?

Jason Rhode^ Yes. In the long run, we expect it to contain quite a lot of opportunity for us. It is as much as it generates today, it isn't really the highest volume application. So, we still got to weighted appropriately relative to some of the other things we're doing. But the great news is there's a lot of what we're doing for handsets is directly applicable anyway. So, far-field noise suppression, echo cancellation, being able to use this in a loud room or maybe you're X many meters away from the device. Or in a lot of cases when you're speaking, the device it's already making some noise. We call that [barge-in]. So, if it's playing music and you tell it to turn down, it needs to be able to hear you over the noise it's making versus other competing noise versus that might be in the room as well.

So, there's just really a lot of what we do for speech and voice in the handset is relevant there. It may be a different emphasis on things, for example, far field versus some of the other. But it's natural home for a lot of what we do in the long run.

Jeff Thomas^ Very cool. And then, any updates on MEMS microphones?

Jason Rhode^ Sure. MEMS are hard it turns out. MEMS contain all the stuff that makes our silicon tricky. But in addition, then we put a hole or another die in there with stuff on it that wiggles and mill out a bunch of silicon nitride and make a little -- a circular sort of diaphragm that moves around with air pressure and creates a varying capacitance that we then measure with the [ADD] converter. Then, we leave it just for fun, a hole in the package for air, and air obviously to get in and out of but dust and gunk and moisture and other things.

Then, the first thing customers do when we give it to them is mount a whole bunch of them in a phone-shaped puck and slam it on a chunk of granite so loud that we have one of these machines in our lab that sounds roughly like a shotgun went off. And the very first thing that comes to your mind when you see this process in action is the screen would be in a thousand pieces. Why is it? What happens to the microphone? But apparently it does because our customers are okay on passing that sort of test.

So, we -- this is not a -- it's a business where we sold say tens of millions of units today which is high enough volume for us to really learn what it will take to be a sole source microphone supplier in the long run but not so high that when we have a yield issue or something we can't throw some wafers at it and survive.

Our goal though -- when I ask our customers, why do they want us in this space? It's because they know us for our quality and reliability. They know when we commit to do on something we're going to do it well; and again underpromise and overcommit.

Yes. Underpromise and overdeliver. Thank you. Had to get that right. Under promise, overdeliver thing really churn up with the device. So if you follow microphone manufacturers, it is not uncommon to find them turning up in the news with some of production issue and

challenges and we don't want to be those -- we don't want to be those guys especially for committing to say hundreds of millions of units in a sole-source type of a socket. And that's really the goal for us to be able to be a viable and valuable supplier of microphones. We need to be able to do unique things and co-design the microphones with the chips they're connected to which we happen to be the highest volume supplier of.

So, we can do that. I think we can really deliver a ton of value for our customers. The existing microphone interfaces are really pretty clunky. They create a lot of EMI or they're susceptible to EMI one or the other depending on whether you've gone with an analog mic or digital mic. But nobody really wants you to change that interface if you're not the one on the other end of the -- on the other end of the wire. You don't want to be the kid with one walkie-talkie.

So, it's a long-term opportunity for us but one we've made a lot of progress on. It's not a straight line to the finish line. But over the last year, we migrated the whole supply chain to Taiwan, two on vendors that are right next door to one another. We've made great progress on drift both with temperature and time. We've made great progress on drop test. And we're just kind of turning the crank and doing our thing to get that engineering rung out and prove to our customers that we're -- that we'll be ready for primetime.

Jeff Thomas^ That's awesome. Before we move on to financials, can you talk about some of the drivers you see that will return you guys to revenue growth in fiscal year 2020?

Jason Rhode^ Sure. So, we -- some of you know probably more awareness of this in Europe than elsewhere, but we acquired our closest direct competitor back in 2014. And in a lot of cases in our historical business, I've always observed that it takes us on the order of five years to really have a new investment turn into -- turn into something real. So, we've certainly enjoyed the revenue that existed in Wolfson when we acquired them. But as far as the one plus one equals three proposition, that's still really in front of us. And in fact, a lot of the products that we see being viable parts of our growth path for next year are directly coming out of that -- coming out of that acquisition.

So, the amplifiers that we've done to target the Android ecosystem which again have this integrated DSP that make them a lot more applicable to the Android architecture. Those were developed largely by our Edinburgh team with fair amount of IP from elsewhere in the company. So, that's one opportunity that -- a similar device that we've done for the haptic. And again, both of these are applicable for mid-tier and flagships and we've already seen both of them shipped. Today, this is a device we got back mid to late last year. So, we've already seen some shipping, but we expect a significantly larger contribution from those as we pursue next year.

We've said in our last call or so that we expect to get back to having a second customer that's larger than 10%. We're a little bit dependent on product timing of launches. So, we expect it to be in our fiscal Q4, so kind of February/March timeframe which is kind of give some indication of where that stuff's headed. So, amps and haptic kind of the nearest term drivers of growth for us going forward. The voice biometrics and microphones being further out.

And then too, we're using haptic as a good example of our team's ability to identify good opportunities where we can take our existing technology and migrate that out to other applications. So like in the haptic case, we took the audio amp, turn that into a haptic device. We see other opportunities to do that. We're not broadcasting exactly what those are. But we expect those to be a very meaningful part of our growth in the long term as well.

Jeff Thomas^ Sounds good. And you guys generate a lot of cash. Can you talk about your priorities for cash going forward?

Jason Rhode^ Sure, yes. That's one of the benefits of our business model. We do generate a lot of cash. We like cash. One use of cash is to hoard it to some degree and keep some dry powder. I have been in this particular environment, been pointing out that one of the best things to happen to our company ever was the 2008-2009 economic recession, hardship, whatever it was judged in hindsight. We were in a great position similar to what we are now with no debt, a ton of cash, and a business model, and a strategy that we really believed in. And so, we're able to invest through the down turn.

We hired some great people. We doubled down on putting out some great products. I think we were able to acquire the land for our headquarters which is now half the cost per square foot on our P&L that at least would be. So, we like to be in that kind of a position when things get tough. I think that's when you really can tell whether the company is well put-together for the long run.

But probably the more relevant parts of the answer to your question are obviously we love acquisitions. If we can find ones that we -- that we are certain will work, we're fairly cautious on that front because I've certainly lived through a ton of acquisitions in the company's history back when I was a designer that really didn't work that were a little more fanciful kind of financial engineering or so forth. And that's been a little bit in vogue over the past few years. It's certainly I think the environment between the U.S. and China has cooled that off quite a lot. We haven't seen nearly so much of it in the past year.

But nevertheless, if we can find something actionable that really moves us forward on the course of our strategy, we're not likely to go out and acquire something just to diversify or just to -- for the revenue growth. But if we can see a one plus one equals three scenario like we saw with Wolfson, then that's the kind of thing that's appealing.

It's hard to imagine frankly what else is out there that would be big and transformative and also actionable. It's possible if there's some more economic shake up that might free some things up in larger companies maybe some carve outs or whatnot.

So, we keep an eye on for that sort of thing all the time. We've also done a number of small tuck-in acquisitions. For example, the voice biometrics, the core of that we acquired from a company that did that same application for servers. So, you may know that when you call in to the bank or whatever and you want to wire money, they ask you a couple of questions that seem kind of remarkably easy to know the answer to. And then, they let you wire money out. In that case, it's usually because they got some sort of software that's running and bouncing your voice

off of a database somewhere and trying to decide to add whether they've got confidence it's you or not. And I guess the questions get harder if it says no.

In any event, so that's one acquisition we did there. We did another one that was neural net company doing audio algorithms and neural nets that we saw some applicability for what they were doing in our voice biometrics efforts.

So, little tuck-in acquisitions, another good opportunity, but again nothing we really need to move forward, but it's the thing -- sort of thing that we look for if can accelerate the strategy that we've already got in place.

In lieu of all that, we like buybacks. We tend to tee up a large run and then execute them opportunistically from time to time when the market we think hits it wrong. It's a little bit of a subjective thing. But I think it's been highly effective over the past decade or so.

Since the time I got the CEO job, we've taken more than a third of the shares of the company off the table. And we've more than offset dilution in the past couple of years. So, it's a -- I think it - - given that we're in a fairly volatile sector and then our stop tends to be volatile as well, I think that's the most effective way to return the cash to shareholders.

Jeff Thomas^ In terms of gross margins, you guys have been performing a little bit better than your target model of 48% to 50%. So, how should we look at gross margins moving forward?

Jason Rhode^ I mean, I think the 48% to 50% is still good long-term guidance. Obviously, our goal is as high as possible just like our customers' goals are always zero. But realistically, I think that's a -- we kind of arrived at that range by looking around at our peers and imagining companies that could -- if tasked with it, could do something similar to what we do and would you imagine them doing it any less expensively than we do and that range felt pretty defensible.

We don't want to cost customers -- we don't want to make customers feel like they're being taken advantage of especially with a lot of business. We don't want to motivate them to go look for other ways to get their silicon. And we think that range again is pretty defensible in that context. So, it can move around a little bit quarter-on-quarter, new product cycles, older products. There's some variability in mix. But by and large, the product lines are more consistent, marginalized than people would imagine. And two, we're pretty disciplined about making sure we don't go after new things that wouldn't support our -- the margin targets (inaudible). It's kind of where we need it to be for the overall operating model to work.

Jeff Thomas^ And given the reduction revenue in fiscal 2019, you guys have done a good job managing expenses. So, have you prioritize R&D and how do you think about operating expenses going forward?

Jason Rhode^ Well, thanks. The team did a great job of really looking at -- of kind of organically to not -- this wasn't the CFO or myself pounding the table. But you got to reduce cost or whatever. But it's just more explaining to the team, hey, it's a bit of a down here for reasons out of our control. So, by all means, we need to invest in R&D and make ourselves



successful in the long run. But at the same time, if you can defer an expense or higher a little bit here or there then by all means do that, maybe a little bit more emphasis on performance management and so forth. And that message really took hold. And our folks have done a good job of driving the expenses down.

As far as prioritizing R&D, it's the same process we've always used which is kind of an annual cycle but with pretty frequent updates where we just look at our opportunities. And we try to have operating units within the company that are able to have some discretion to manage within their budget. But at the same time, you need to process running at the overall company level to make sure we're not -- for example, investing in the best headset chip when it's not as good as the worst amplifier chip for example and make those tradeoffs accordingly.

So, it seems to be pretty successful. It's always the case that in our business. The most important thing is having the ability to say no to good investments because you employ -- we employ 1,500 people, 1,100 really smart engineers. There's always going to be 10 times as many ideas to invest in as we could possibly do and you can really get yourself in trouble by investing in too much and spread too thin.

So, we try to be really diligent about knowing what full looks like when we're close to full making sure we got some reserve, making sure we've got really good plans for the individual programs that we're working on so that we know early if we're getting behind so we can kind of cannibalize something that's a lower priority to make the highest priority stuff happen.

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Jeff Thomas^ Okay. Love to pause now, take any questions from the audience.

Unidentified Audience Member^ Have you been involved with Alexa?

Jason Rhode^ We have -- yes, the question was have we been involved with Alexa.

Unidentified Audience Member^ And then, what are they doing in this area?

Jason Rhode^ Sure. So, we're in a couple of reference designs that are related to that and -- that enable third parties to go enable devices for that ecosystem. We're in a number of the other kind of speaker identification kind of the voice interface-type devices. They're not the hugest unit volume yet, but their applications that we definitely want to be in as they evolve and go forward.

Jeff asked the question earlier about what kinds of things do we do there, so that's far-field noise suppression, various different flavors and versions of it for lower cost, might be at two-microphone version, higher performance version, might be four or five microphones with all sorts of advanced features, direction of arrival, and other kinds of functions. So, it's still pretty early days in that market. I do think it will be a really compelling opportunity over time. But at the moment, it is still smaller for us.

Unidentified Audience Member^ Just a quick version on the beamforming (inaudible). Both have just launched a hearing aid, which is FDA approved. I'm just wondering if that was a technology that you had under your -- on your [rubric]? Thanks.

Jason Rhode^ Actually, a lot of the technology that we use in other markets came to us via acquisitions. We've done over the years of a couple of different companies who have roots in hearing aids. So, we've got a fair amount of exposure to the IP underlying those areas.

Hearing aids themselves have not been traditionally an amazing market. And that's because of the regulation largely in the U.S. around the audiologists being basically legislated as having to be [Adobe] trained. So, it's taken -- it's not the highest volume market because it's staggeringly expensive relative to the value. You get the consumer device for example. But the price is the people are willing to pay for silicon aren't quite the same as they are in the consumer side.

So, in our view, consumer-grade -- consumer-type companies could absolutely revolutionize that market if the medical regulation gets out of the way a little bit and it does seem like the cracks are starting to happen. So, I think that could be a really interesting opportunity over the long run. And I think we've got a lot of IP that's directly relevant. A lot of which has already helped us tremendously in headsets and other areas that we expect to matter as well.

Jeff Thomas^ Great. We've got time for maybe one more question. All right, then I'll ask it. So, wrapping up, the stock price has been quite volatile. What do you think is the biggest misunderstanding about Cirrus Logic?

Jason Rhode^ I think the biggest piece is just the long-term focus. I get the concern about customer concentration. But at the same time, we expect to make a pretty meaningful dent in that as we go forward. And then additionally within the customer concentration, we do have -- we've got quite a lot of product diversity.

So, we sell multiple audio amplifiers, haptic amp, a very highly differentiated noise cancelling codec and a headset device. That would take quite a lot to get all of that out of there in any sort of short order. And then two, it takes a very long time to do what we do. From the time we start talking about a new device to the time at shipping and production, it's often three years or so.

So, when we do custom devices that gives us quite a lot of visibility that we know. There are good things coming that we have chips inside. That customers can always make decisions on a shorter timeline than that to say include for example this headset adapter that was much talked about on the cell side this year whether to include that or not can be kind of the last minute decision and actually seems like to include it and to not were both fairly last -- late-term decisions.

But nonetheless, generally speaking, the product lines that we're engaged in today that we know we're working on next generation ones of those as well as other new opportunities as well. So, I think that bit is largely misunderstood. And then of course, there's always the hype cycle of it's going to be a super cycle to no one's ever going to buy a phone again, which we seem to oscillate between those two things. So, that's kind of it in the nutshell.

Jeff Thomas^ Perfect, Jason. Well, thanks so much for the time.

Jason Rhode^ Thanks, Jeff, appreciate it.