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<<Tore Svanberg, Analyst, Stifel, Nicolaus & Co., Inc.>>

Welcome to the Cirrus Logic Session at the Stifel Technology, Media and Internet Conference. My name is Tore Svanberg. I'm a Senior Semiconductor Analyst and I cover the analog and IOT semiconductor space. It's my pleasure to introduce Cirrus Logic this afternoon. So with us from the Company we have Jason Rhode, who is the Company's President and Chief Executive Officer, and then also Chelsea Heffernan is with us in the front here and she is Director Investor Relations.

The format for this particular session is going to be fireside chat. So with that, I'll just sit down and we'll get started. All right, so there are probably a few people, Jason, that don't know Cirrus that well. So if you could just give us a two-minute introduction of what the Company does and we'll dig a little bit deeper after that.

<<Jason P. Rhode, President, Chief Executive Officer & Director>>

Sure. Well, we're a fabless semiconductor Company, one of the first of that model and the first to make it actually work. We've been around since 1984, now headquartered in Austin, Texas. We've been a lot, a lot of things over those years, most of which don't have a whole lot to do with the Company today. You can think of us primarily as an audio and voice Company today. We're at about 13-ish hundred people around the world.

Recently, a couple of years back, completed the acquisition of our closest direct competitor, Wolfson Microelectronics, and that really has been a transformative thing for the Company in a lot of different ways, given us a lot broader exposure into the Android market and has helped us really broaden the product line out much more rapidly and to sort of a wider array of customers.

This is the only job I've ever had, been with the Company for coming up on 21 years, so that's all been in audio and then necessarily voice and for a lot of those years it didn't necessarily feel like there were that many customers that wanted to differentiate on audio and voice wasn't such a big deal for us but with the advent of our noise cancelling devices that we ship in handsets that kind of moved us into much more of a voice kind of environment.

And then also with all the recent turns of events in handsets and other applications for voice, it's just really a remarkable time for the Company where this tremendous amount of demand for what we do and it's exciting times.

<<Tore Svanberg, Analyst, Stifel, Nicolaus & Co., Inc.>>

Very good, so maybe to follow-up on that so smartphone is clearly your largest market today. Could you just maybe talk about a few of the key trends happening in smartphones, not just this year but for the next couple years, that will increase the demand for your audio products but also your voice product.

<<Jason P. Rhode, President, Chief Executive Officer & Director>>

Sure, well, yeah, we do see a good year in front of ourselves this year. Demand for us in particular has driven the growth this year we expect to be driven by an increase in our audio amplifier business, which is still quite new, and then also headsets. So I'll talk a little bit about each of those as a broad trend. And one feature I think everybody could agree with you wish your phone would do better is just be a better speakerphone and it would be nice to lay it on the passenger seat of the rental car and just have it work and you can carry on a conversation and not have to monkey around with Bluetooth and getting it to work right.

And to do that it needs to be a lot louder. So beginning in 2012, people migrated from having a phone where you had an integrated amplifier with say an audio codec or PMIC or somewhere else in the system that was running off the battery voltage and they were really not very loud from a speakerphone point of view. So 2012, we started shipping what's called a boosted amplifier where we generate a much larger signal voltage – much larger supply voltage to drive the amplifier from which comes with a lot of obligations to protect the speaker and other things.

So we've seen this migration from no external amps to one external boosted amp and then there's a lot of discussion about with these constrained form factors that phones have we've seen multiple models of phones out now with stereo so either stereo or dual mono, two small speakers, sometimes easier to find space to implement them than one big speaker. So that's a great trend in amplifiers. We expect that's a multi-year trend. It's playing very well to our strengths because it becomes more difficult to coordinate. The multiple amplifiers becomes more difficult to protect the speakers and do a good job of maintaining, in a stereo application maintaining a stereo image.

And then headset wise today the analog headset market is well north of a billion units. We've already started to see speaking of the Android side of our business. We've already started to see multiple Android handsets that are launched without a headphone jack on them at all, just USB-C connector. So USB-C is interesting mostly because of the connector. It's not so much that we needed anything magical with the format change or whatnot within the USB, but the USB micro connector that you all probably love so much where you can't actually ever figure out which way it goes in the device before you try it three times, is not a great connector.

It's fairly flimsy. If you were to use it as a headphone connection and put your phone in your pocket and sit on it, you'd almost invariably bend it and then there would be returns and it's a problem. USB-C is a lot more robust from that perspective and it's bidirectional so that certainly makes it more attractive. But the reason that's significant for us is that it

enables somebody to connect a headphone over a USB and what that means is suddenly we've got access to both power and data and so where a headset didn't need any semiconductor content before, a headset that's connected over USB-C or the other popular digital connector suddenly needs an interface device and a codec and a headphone amplifier.

So it's a one plus billion unit market that already exists that will transition from having no silicon in it to having silicon in it. And so just by virtue of a number of events we happen to be in a pretty good position to serve those markets.

<<Tore Svanberg, Analyst, Stifel, Nicolaus & Co., Inc.>>

And maybe to follow-up on the headsets, my understanding at least the way the market looks like today is it could come in stages, at least the way it's going to impact Cirrus as a company, so could you maybe talk about those stages and what it means, especially from a dollar content increase perspective?

<<Jason P. Rhode, President, Chief Executive Officer & Director>>

Sure. Well, there is a couple of ways to look at it. The pieces that are not terribly fragmented are all in box. It's the headsets that come with a particular model handset. Outside that the retail headphone space is really pretty fragmented. Looked at a different way that one point whatever billion unit market is probably 1%, sub 1% noise cancelling. Now, we think by virtue of the battery going away due to the connector and also some of the costs going away due to the noise cancelling device that we provide, which enables the manufacturers to move – or remove rather all the material around the headphones; you know, you can take off the silicon sleeve or the big ear can that houses all the electronics.

All the noise cancelling that we do can be fit in an earbud that is similar to what would come with whatever the most recent phone you bought and do all of the cancellation electronically. It's what we call a leaky earbud because it doesn't form a seal in your ear canal. That's a solution that's unique to us. And it really lowers the cost pretty tremendously so we think AMC grows as a percentage of that very large market, but nonetheless that market will much like every market usually remains pretty heavily skewed towards lower end solutions.

The good news is that even in the lower end of that market as they transition to digital, that's still on the order of a dollar worth of content from us just for conversion circuitry and interface and whatnot.

<<Tore Svanberg, Analyst, Stifel, Nicolaus & Co., Inc.>>

Very good. So amplifiers and digital headsets have been highlighted as growth engines for this year. I know you're also doing quite a bit in the microphone space with the acquisition of Wolfson. I think there was sort of a development there to maybe become a

bigger player in mems microphones. So could you maybe update us on where you are there and when shall we think about mems microphone being a growth driver for the Company?

<<Jason P. Rhode, President, Chief Executive Officer & Director>>

Sure, it's an interesting space for us. MemS is – just first up, memS microphones are hard, exceptionally hard. It seems like you should get paid better for them than you do. So we don't have any real intention of building a standalone microphone business that's 30% margins. We are willing to participate in that business as we earn our stripes and really prove where we're going. We, as the largest provider of audio solutions out there, we see an opportunity to co-develop microphones with for example, a noise cancelling headphone chip and deliver a chipset that provides better value for the customer that make it achieve by picking each component separately.

To do that though we need to be able to comfortably and competently stay and prove that we can be a single source microphone vendor. Typically, today that's something that customers are very leery to do on a high end – or sorry, a high volume microphone market just because they are very, very difficult and there's frequently surprises as customers go to production and start their ramp. So it's typically the case that these are second source devices, which is not something that we really aspire to do.

So step one is kind of what we're doing today, which is shipping in the tens of million units volume, so it's high enough volume to really make ourselves comfortable that we know what we're doing and we're going to be able to sign up and ship these things in even higher volumes down the road and once we've really kind of gotten that data under our belt and proven to our customers that we can do that, then that opens the door for significantly more customized devices that I think will be a natural part of the chip set.

So as far as the impact of this stuff, again we have revenue from it today and they're premium microphones. We're certainly not targeting being a low end. These, our microphones by virtue of the way we build them, tend to be very, very small which makes them a great fit for things like headsets where you're trying to cram a couple microphones into an industrial design that hasn't had a microphone in it at all before. So but from a revenue impact perspective realistically that's a couple of years down the road from a meaningful contribution.

<<Tore Svanberg, Analyst, Stifel, Nicolaus & Co., Inc.>>

On the last call you talked a lot about selling the basic with the single chain of products that you have and you were doing that successfully with one customer today. Can you talk a little bit about what that means from a content perspective right? So you know where are you today primarily and if you were to sell the entire supply chain – single chain based on what you have in development today, how much content could that potentially be in this market?

<<Jason P. Rhode, President, Chief Executive Officer & Director>>

So within a handset it can take a number of different kind of I'll give you the menu and you can kind of add them all up in the different way or different permutations that you might come up with. So an amplifier you can think of is on the order of \$0.50. You could see one or two or potentially three of those depending on who is making it. A smart codec on the low end of our smart codec line, which is something we've really only had for just within the past year as the benefits of the Wolfson acquisition really started to bear fruit.

So the low end of that targeting the mid-tier handsets would be something on the order of \$1.50 whereas a typical flagship smart codec would be more like a \$3 device. Then on the microphone side if we can really get that under our belt and deliver that as a chipset with the rest of the solution, a modern handset can have four or five microphones in it and you think about microphones as a \$0.30 type device.

So it really adds up and, as you've said, we've got one kind of poster child phone out there that we won with all of those devices across the board and I think the customer really saw the benefit of having a cohesive audio solution with software and tools and all of that coming from one vendor that they can work closely with and not have a lot of finger pointing and whatnot.

<<Tore Svanberg, Analyst, Stifel, Nicolaus & Co., Inc.>>

Can you talk a little bit about Cirrus and Wolfson getting together, so obviously it's been a very successful transaction so far. I've heard you say in the past that it's kind of exceeding expectations as far as culturally and what types of products you guys have been able to co-develop. So if you could talk a little bit about what is it that sort of exceeded your expectations on buying Wolfson?

<<Jason P. Rhode, President, Chief Executive Officer & Director>>

Well, it is – I've lived through a lot of bad acquisitions over the years and so we have a pretty high bar. I think a lot of times you're just far better off lighting the cash on fire. In this case we knew Wolfson well as a competitor, which it's at least a pretty deep lens industry whoever you might be considering, kind of a peculiar one, but it is nonetheless a way to know that okay these products are real and they're clearly good engineers and there's other issues going on maybe.

And so we had pretty good visibility into what we were buying. And the bar for me when we're going to do an acquisition, something especially as needle moving as that is, can you – can the engineering teams be in the same room and we can explain here's why we're doing this and they get it that like okay we put our chocolate with their peanut butter. Then this is going to be a better thing than we could do on our own or bigger, or faster or whatever it is.

If it's about a bunch of sales synergies or whatever the engineers typically are like yeah, yeah whatever, but those guys got to do it our way. And design methodologies and things like that are more like a religion. It's not fun to try to change people. So in this case we were clearly staring at an environment where there were so many opportunities that we were having to pass on, no possible way to do everything that our existing customers were jumping up and down about and then also go invest in these new markets.

Wolfson, meanwhile, was struggling with profitability so they were even – they were seeing the same opportunities but they were even less well positioned to serve them. And by putting the two companies together the team did an amazing job of reconciling the roadmaps in a really organic fashion. If you think about it, it's so rare that you ever had the opportunity to sit down with somebody that you've been competing with for 15 years and then look under the covers and figure out what's really going on and it was really a pretty simple matter where the teams were like okay these customers here and they lead. This is what's going to drive the roadmap.

It's one of those things that could have been a hugely contentious and bitter kind of debate and really wasn't. It was just something that got worked through very organically and well. And with the benefit that that's let us accelerate the roadmap and accelerate our plans on having devices that are applicable at into the mid-tier moving a subset of our flagship type features down into the mid-tier. The Wolfson folks by virtue of their customer exposure were much more integrated into the Android community I would say, more software content, more ability to deal with just the Linuxy drivers type stuff that you deal with in that space.

And then Cirrus with the fact that we were profitable and the scale I think in a lot of ways scale gets thrown around a lot in a way that's over rated. In their case though if you're a sub-\$200 million Company that's struggling with profitability and you're trying to invest in tools to do a 65 nanometer or a 55 nanometer device, I mean that's real. It's really, really hard to make that work. And just by showing up we fixed that. We were able to fix like look you've got CAD licenses for all the tools you actually have to have to do your job, find out ailment simulation stuff for the microphones and it was – and then we got a little bit.

There was a lot of this that is psychology too and it was really helpful that if we were going to have a bit of a bluebird year last year where they got 100% of their largest customers' volume again that is a bit of psychology. We never planned on that. That's not the norm. That's not what we expected but having a huge win like that with a big smart codec kind of make everybody go wow, look at this! It works. So a little bit of coincidence and a little bit of us being able to help too because I don't know that they would have been able to execute on that ramp without a much bigger company behind them.

<<Tore Svanberg, Analyst, Stifel, Nicolaus & Co., Inc.>>

So, we look at the a competitive landscape now so obviously these were two main competitors getting together. At least from my perspective just like it's only the Qualcomm bundle – I mean there's few other players out there, but in any meaningful way I would say Qualcomm bundle, but what about in house developments? Are you worried about that at all with some of your larger customers that they are maybe thinking about development? Because audio and voice is becoming more important so if it's becoming more important you would also think that they themselves start to consider maybe some of their own IP and...

<<Jason P. Rhode, President, Chief Executive Officer & Director>>

Right. I wouldn't say we're worried about it in any way more than normal. There's an element of that if you're a mix signal provider that is just kind of life as usual. There's always some bit of what you do that gets pulled into the big SoC in the middle of the board and your job is to make sure there's things getting on the front end of the conveyer belt that compensate for that.

And so there's an ebb and a flow to it, but just due to that interest in audio and voice and all of the different things that we're plugged into today, it feels like we've got far more opportunity to gain rather than to lose. And then additionally, there's just such a – even with all the bogeymen out there in the flagship handset market, there's just so much of that that we've never sold into before. So in OEMs three through ten, we're getting really good traction where we maybe used to sell a D to A converter here or there or somebody would try out.

Well, let's try out high signal and noise performance and see if that sells phones. Okay take it out. Whereas now, we're talking all those same customers with smart codecs and that's much more of a systemic investment. You don't design that in for one model. It's too big of a deal. So you must have a plan. If you're going to design one of those then you're going in with a plan for how do you build a platform around it. And we're having much more meaningful engagements now with the three through ten guys in China and elsewhere. As I said, we've got the portfolio that takes down into the mid-tier with the subset. So that's a multi-year. Both of those are kind of multi-year growth trends for us. So it's definitely exciting to us.

<<Tore Svanberg, Analyst, Stifel, Nicolaus & Co., Inc.>>

So one topic that I don't hear come up much, or at least not lately, so you made an acquisition last year of a speaker protection company, a software company in Sweden. What exactly does that do for you as far as maybe maintaining a little bit of a higher share in the Androids because I assume there software is primarily for Android right?

<<Jason P. Rhode, President, Chief Executive Officer & Director>>

Yes there – that was why we acquired them, so Cirrus had its own speaker protection algorithm and these folks had come at it from a kind of a different direction. And so from

that perspective those two technologies were pretty complementary and you could take a bunch of smart engineers and figure out how to take the best of both, but maybe more importantly or equally importantly this is a company that was working with anybody's amplifiers to integrate with anyone's AP.

And so they got just a really unique and special set of skills about whether it's cooperatively or via gorilla warfare connecting up an amp and speaker, protecting it and running that algorithm on Qualcomm's AP or Media Tech's AP. They're just a very efficient outfit from that perspective. And so that's given us much more ability to support amps in an environment where maybe it's a mid-tier device and there's no opportunity for a smart codec for whatever reason, we can try to design an amp in there. So that's kind of a special set of skills they had. Plus just after meeting them it was pretty hard to not want to ensure that they were on our side instead of the other side of the table which was truly compelling people.

<<Tore Svanberg, Analyst, Stifel, Nicolaus & Co., Inc.>>

So, we've talked about some of main drivers, the next let's call it two to three years, arguably maybe even more than that, but I think the one area that's sort of still in its early R&D developments would be voice biometrics and you made another acquisition there. I mean how far are we away from that being a good business for you as far as generating revenues? And what are some of the bottlenecks that you as a company have to get through in order make that technology more commercial?

<<Jason P. Rhode, President, Chief Executive Officer & Director>>

Well, I am sure there will be some. We have a good chip. So the aim business is to development essentially a match on chip and voice equivalent of a thumbprint sensor, so without necessarily having to have a specifications phrase that you speak. So it can actually with free speech recognize okay that's Tore. He's an authorized to use his phone, go ahead and order him a pizza or whatever. I don't know what the use case is.

So we have now the technology to do that. This exists in call centers and servers by the way. You can imagine probably being used to protect you in some ways and probably in ways to fleece you for information about whatever it is you're doing. But our goal is to render that down into an embedded inexpensive chip level forma. So single chip, match on chip, FIDO compliant. It can discern with similar failure – similar false accept and false reject traits to thumbprint or a four-digit pin code.

So we expect to have a chip early next year on that and then we'll see how – I'm sure there will be any time you do something new, there's always twists and turns in things you learn as you get closer to the finish line, but these folks are or the folks that we acquired through the acquisition are very, very good people. They've been doing this for a long time, more on the server side, but also thinking about mobile. And then we've of course started beefing up the team and putting all the rest of it in place getting security experts and all that kind of thing.

But it's the more we think of it it's one of the most far reaching kind of sci-fi type things we've ever done. It's really a fun product to think about and work with and the more we play with it, the more ramifications. It's got about what else you could do with the technology. It's really pretty cool. So it's still a ways out there from a revenue perspective, but it's good to have multiple of these layers of the growth story that reach out a few years because we've got a really good story already in the short term.

<<Tore Svanberg, Analyst, Stifel, Nicolaus & Co., Inc.>>

So, I want to give the audience an opportunity to ask questions as well. So, do you have any questions?

Q&A

<Q>: [Question Inaudible]

<A – Jason P. Rhode>: Sure. Well, so as far as how the headset market will unfold, the different stages that we might see of growth, we think headsets are a big part of our growth story for this year. The opportunity, and I do think on the AMC side the noise cancelling headset side, if I had to bet today and this can always change, but if I had to bet today I think we will see noise cancelling headset on the market this year with our technology whether that will be in box or out accessory, I don't know, but if I had to bet we'll see that today.

But that accessory that accessory market, even if we do really, really well, it will take time to grow because it is pretty fragmented and there's a lot of accounts and a lot of models you've got to win to aggregate up into a bunch of units. But as the headset market in generally converts Android is a very diffuse and spread out market. We don't know of one customer that doesn't have plans to switch to USBC at some point, and as they do that then there's opportunities in box or accessory with that account and those can be kind of larger chunkier sized wins, if we were able to capture those sockets as well. And then longer-term if we can really get AMC to be much more of a mainstream part of the play, that's really good as well.

<Q – Tore Svanberg>: So I think there was – there were rumors that maybe that one big Android OEM would already move to USBC with their flagship but they didn't. Why do you think that is? Is it because the technology is not ready yet or they just from a marketing perspective maybe just decided to wait a little bit or...

<A – Jason P. Rhode>: Yes, I don't have any visibility into why that decision was made. I mean I personally I am – well, anyway I don't have a whole – as many devices as other people might have that use the micro USB, but if I did I would be really anxious to be down with that connector because it's just so obnoxious.

<Q – Tore Svanberg>: That's right, that's right, absolutely. So I know you get this question a lot, so you've guided for 15% or greater growth in your fiscal 2017 year. And I think you've said it's – it doesn't really assume a whole lot of unit growth. It's a lot of content growth driven. So is that mainly on the amplifier and the digital interface or is there something else we should think about?

<A – Jason P. Rhode>: Well, the amplifier and the headsets serve the biggest pieces of our growth this year as according to our current outlook. There are other things that we're doing well underneath that, but those are the two big needle movers for this year, which is actually fine because the other stuff I think is kind of starting to pick up some momentum underneath that and hopefully that will help continue to contribute to our growth over the next couple of years, but, yes, it feels like we actually have quite a few layers of growth going on, but the dominant ones this year are expected to be headsets and amps.

<Q – Tore Svanberg>: You mentioned the biometrics chip maybe being – standpoint potentially in Q1 of this year. Is that also 55 nanometer chip and...

<A – Jason P. Rhode>: No that would be more 28.

<Q – Tore Svanberg>: Really, okay.

<A – Jason P. Rhode>: Yes if we were – I mean we were relatively late moving to 55, I think we'll be much earlier to 28. There's not so much mixed signal intended to be on that device, but there will be. We've got good mixed signal technology to move down to 28. I think we will be – because of all this increased content and all this increased demand for noise and voice and all the signal processing stuff, there's a lot more opportunity to throw, a lot more digital at. What we do and that tilts the table a lot towards the more advanced nodes in. If you've got a device that's 50/50 analog and digital, then moving it down a node just makes it more expensive. It really needs to be a situation like when we went from 180 to 55 where we added a massive amount more digital and same is true for us to migrate to 28.

<Q – Tore Svanberg>: So one last question from me, so you have a lot of irons in the fire for a while here. So could you maybe tell us how you feel about the capacity and the supply chain and I mean you feel comfortable that things are very good. I mean we're talking about some big unit volume markets, right? I'm sure that's probably one of the Company's biggest challenges is to make sure you've got the supply chain in order.

<A – Jason P. Rhode>: Yes, we feel like we've got that well covered. We've been, like I said, fables from the inception. We've got an excellent team. We manage that stuff very carefully and obviously we're well positioned from a capital and et cetera point of view and that often gives you some good options. I will say that having made the transition for the bulk of our product from 180 to 55 was really spectacular from a supply chain perspective because it meant our spend with our fab goes up so we're more important, but our fraction of the relevant capacity went way, way down, so we were nowhere near as

difficult. Kind of when we were shipping the bulk of our stuff in the 180 node in say the 2012 time frame that was tight. That was a nice piece of work by our folks.

<<Tore Svanberg, Analyst, Stifel, Nicolaus & Co., Inc.>>

Okay, very good. So with that we're running out of time. I wanted to thank you all for coming to the Cirrus Logic Session, and Jason and Jason, thank you for coming to our conference.

<<Jason P. Rhode, President, Chief Executive Officer & Director>>

Thanks Tore.

<<Tore Svanberg, Analyst, Stifel, Nicolaus & Co., Inc.>>

Thank you.