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<<Matt Ramsay, Analyst, Canaccord Genuity Inc>>

All right, good afternoon. Good afternoon, everybody, my name is Matt Ramsay; I'm the semiconductors analyst at Canaccord Genuity. Thank you very much for coming to our conference. I'm very pleased to have Jason Rhode with us from Cirrus Logic. He's the CEO. And we are going to talk about lots of stuff audio today.

I, first off, just want to say that it's an amazing company that does the full audio food chain from mobile devices and a bunch of other devices that we would get into when we have our discussion. But I would be remiss if I didn't mention your disclosures that are in your conference materials that we have to reference you guys to. But I'll just let Jason open with some opening remarks and introduce the company a little bit to folks that might not be familiar, and then we will dive in.

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

Sure, yeah. Thanks for the intro. So Cirrus has been around since 1984. The company has been a lot of different things over many years. Today you can think about us as an audio and voice supplier. We are the largest supplier of audio and voice solutions, highest volume supplier of Codecs, so what we refer to as smart Codecs, which is an audio device Codec with additional DSP. As Matt referred to, we supply everything from the microphones which is not a big business for us today but it's something we are just getting started in, through the smart Codec into amplifiers which is also a big and growing business for us, as well as algorithms and software and tools that can stitch all those things together and make them work better together. So, it's an exciting time to be in that business because there are so many of the things that we all grew up watching in Star Trek and the Jetsons and stuff, the voice wake and voice biometrics and things like that that are actually becoming a reality in mobile devices and other things around the house.

<<Matt Ramsay, Analyst, Canaccord Genuity Inc>>

Thank you for the introduction. And I'll just say to the audience that if you folks in the audience want to ask any questions just get our attention and wave your hands or whatever. And we can keep this pretty informal. We will have to repeat the question, but feel free to participate. So there's a lot going on with your company. Obviously, amazing set of results a few weeks ago. I think even us that are more positive on the stock, have surprised us a little bit. But well done

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

Yes, we like to say we like to underpromise and overdeliver. And we like to have news -- if there's going to be bad news we want that to travel fast. We can keep good news to ourselves for a while.

<<Matt Ramsay, Analyst, Canaccord Genuity Inc>>

I think investors would agree with that. But maybe you could talk a little bit about the dynamics and some of the content gains that you had and maybe the expanding footprint that some of your key customers that have driven the strong results and particularly replicating some of that success with your top customer into the Android market, as some of that stuff that seems to be opening up from my perspective. Your main competitor, QUALCOMM, has had a lock on a lot of the Android market for a long time, for various reasons that have nothing to do with audio. But there's some market share changes there that I think would be pretty interesting to investors to learn about.

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

Sure. So it's a pretty simple strategy. Once we, get any one of the products into somebody's product line whether it's a mobile phone or a handset or you name it. It's a lot easier to grow your business with existing customers than it is to go get new ones. So if we can get a beachhead in anyone's product with any of our devices, the next step is look around that, learn what we've learned and get in the process of getting designed in and think about what else we can do from there and try to learn from our customers and come out with more and more compelling products over time.

We've had a great track record of doing that in the handset space, starting with fairly inexpensive devices a number of years ago and on average, over time, finding new and different ways to add to that – not always up, straight up into the right every single year, but generally speaking we have done a great job of growing content over time, that migrated first from – in the handset space first from the basic Codec, then adding to that functions like noise cancellation that turned it into more of a smart Codec, again on the handset side. In the 2012 timeframe, we moved into augment our solution with external, what we refer to as a boosted amplifier versus the device versus an amplifier that might be integrated into a Codec, a boosted amp uses a much higher voltage to drive more power, make a louder speakerphone, for example, that brings with it a lot of signal processing requirements such as protecting the speaker from melting it, which is popular.

<<Matt Ramsay, Analyst, Canaccord Genuity Inc>>

And so one of the things that has been very topical lately and you guys have put some very good demonstrations and presentations about it in front of investors is noise-canceling headphones. And maybe you could talk about the different types of noise cancellation in headphones from the dumb passive stuff the guys at the airport where with the earmuffs out by the luggage to some very advanced stuff that's going on with active and adaptive noise cancellation and what those progressions could mean for content for your company with the different OEMs.

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

Well, we don't do much on the earmuff side.

<<Matt Ramsay, Analyst, Canaccord Genuity Inc>>

Good to hear.

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

On the AMC side, the AMC has been around for a long time. Most people have some level of experience with that. It's obviously a pretty compelling thing to have in a noisy environment. So the solution that we've developed and that we think has the potential to grow pretty meaningfully is a fraction of the headphone market is what we refer to as a fully adaptive feed forward and feedback architecture, which probably doesn't mean a lot to everybody. But as a user, what it means is that you can have a headphone that doesn't have to sit over your ear with a bunch of material or seal up your canal, with kind of this Silicone little grommet type that you might have experienced, which – those are good solutions, but that stuff costs money. And additionally, there can be comfort and fit issues.

So, the adaptive signal processing that we throw at the solution enables an earbud – and we have a demo of this –that can sit in your ear and not seal off your canal, just resting there, and all of the noise cancellation is done electronically. Demos being demos, they are not always all that amazing. This one is kind of a jaw dropper. It's sort of feels like you're being punked to me, especially if you are going to, it's a one thing if we are playing a speaker at you and you get the demo in kind of an artificial environment. But when you have it in a real situation like an airplane or a loud cafe or something where there's especially really high frequencies – that's an area that we think our performance is significantly distinguished from what else is on the market. So, I don't know why you – what the premium people would pay for noise cancellation in general is. But baby crying canceling? That's a pretty premium feature.

<<Matt Ramsay, Analyst, Canaccord Genuity Inc>>

Yeah as the parent of a six-week- old daughter I can very much appreciate the baby crying cancellation. I got to get one of those! So one in the things that I've notice is – we talked a little bit at the beginning about QUALCOMM having a dominant share in the premium tier market. In addition to that, couple of years back you guys might not have had the strongest mid-tier portfolio to go after some of the more elastic growth markets in the mobile space. And that portfolio has improved a ton, maybe if you could talk about that and what kind of opportunities that opens up, over the next 12 to 18 months?

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

Sure, yes. It's been one of the real benefits of the Wolfson acquisition that we did a number of years ago. It's not often you have the opportunity to acquire your closest direct competitor. As well as it looks like it goes on paper, it has gone significantly better than that, which isn't normally the case in tech M&A. What it enabled us to do though, is really rationalize the two roadmaps, and instead of duplicating each other's work, we were able to broaden out the roadmap much more rapidly than either company would have been able to do on their own.

And essentially, at the time what makes sense relative to where each of us were with various customers – it just ended up making more sense in the general market sense to back their roadmap that they had developed. So at the time they had one or two kind of flagship-great performance devices out. But since that time we have been taping out more devices, 55 nanometer, over time, and now, just in the last year, really got a everything from the \$1.50 type of smart Codec that's applicable in the mid tier all the way up to \$2.50 and \$3 type smart Codecs.

These were all based on the same DSP core. They can use the same suite of tools. The same algorithms that will run on one will typically run on the rest with limitations of, obviously, the flagship device has got six or seven cores, the mid tier device might have two or three, the flagship device would have a lot more memory. So customers have to make a trade-off of things like the currency, in a flagship maybe one around echo cancellation and wind noise reduction and speaker protection and a couple other things all at the same time, whereas on a mid tier device they might be willing to just have always on voice and speaker protection.

It's really cool that for our customers, a smart Codec is a big investment. You don't typically make it for one phone. You make it because you see the value of the platform and the fact that you can design it into one phone that's in the mid tier and all that R&D that you put in into getting that up and running is pretty directly applicable to your flagship device as well, except for then you add a couple things more to it.

So, we've some success stories there. We are now shipping in the mid-tier with literally it's like a slide out of the IR deck. It's microphones and a smart Codec and a boosted amplifier. That's one of the first wins we had in the Android space for the amps. Really, we've done very well with our largest customer with amps because, as I said, we're pretty new to the market. So seeing the amps start to get traction in the Android space definitely is a good step in the right direction.

To get back to your other point about the competitive dynamic, now we've got multiple handsets on the market where it's our smart Codec sitting right next to the QUALCOMM AP. That's a really good proof point. A lot of our customers feel like, oh, they've told us that that can't happen or that won't work or they will make it not work. And now you can say, well, then, I guess you are not as important as these guys. Maybe you should work on that.

<<Matt Ramsay, Analyst, Canaccord Genuity Inc>>

You talked a little bit about – well, we talked about the mobile market so far. And that brings with it, customer concentration, which is always a topic for your company.

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

Yeah.

<<Matt Ramsay, Analyst, Canaccord Genuity Inc>>

And with customer concentration comes, even if you expand into Android, right, it's not like there's hundreds of OEMs. There's a small number that control the majority of volume. So maybe you could talk a little bit about the pricing dynamics that you are seeing in the market. Obviously, you've gained a lot of content and you have the potential to gain a lot in Android space over the upcoming quarters. But anything crazy going on in pricing? I mean you mentioned you bought your primary competitor. And QUALCOMM is obviously still there, but anything unusually different?

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

No, I wouldn't say I mean, I always enjoy when there's one of these rumor mill going around about suddenly some customer is going to start paying attention to costs now, like that didn't happen before. Our customers all employ a fleet of very good purchasing people that our folks get to spend quality time with, all the time.

They know what they are doing. I'm sure the customers would like everything to be cheaper and we would like it to hold being more expensive. But I don't see anything meaningful going on there. The dynamic you referred to is, as we get more successful in aggregating a large number of smaller wins that tends to be better. Obviously, big customers get, generally, pretty favorable pricing. But as we are able to aggregate a lot of smaller wins in the Android space and also as we aggregate up wins and headphone space, both as basic digital headsets or also AMC, that also should be positive as well.

<<Matt Ramsay, Analyst, Canaccord Genuity Inc>>

One of the things that you mentioned that is a small business today and doesn't get discuss a ton but I think will, over time, is the microphone business. I think doing a lot of the work that we're doing around the company, I think even in the long-term, it will be at a little bit lower margin than the core business.

But to me, that's – to enter that business you guys have to have some pretty decent visibility into real revenue to take the margin hit. So maybe you can talk about what kind of visibility you have there, what content could look like from the microphone perspective in premium and mid tier smart phones as we go forward?

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

Sure. I mean, we have – Cirrus had started looking at microphones, I mean, just in the sense of we are a broad audio supplier that's audio and voice. We think there's a lot of things that drive audio and voice and microphone content, frankly, over the couple over the next handful of years.

So, we have started looking at it on our own. As part of the Wolfson acquisition, they already had a microphone development. I would say, for a company the size and profitability that they were, it was probably a little bit too big of an investment. And now, having kind of seen how things all got put together, it's frankly, they did an amazing job of getting it to work at all. But there was still, when we kind of inherited it, a list of challenges to work through, to turn that into a stable, reliable business.

If I look at that list this year versus where we were last year, the team has done an amazing job of ticking off a lot of the challenges in there. And that's really where the heart of it lies because, if I ask our customers, why would you be interested in having us be a microphone supplier, they say, because if you guys commit to doing it you will do it as well as you do chips. We are known as one of the higher – if we say we are going to turn up with something on such and such a date and it's going to work all the way we say it is, we generally are very good at doing that.

So, we are going at microphones from the perspective of we have business today, we ship tens of millions of microphones. That's sufficient for today. We are learning what goes bump in the night and making sure that when we commit to doing a new one we can turn up with it exactly on schedule and when we go through your drop tests and reliability tests and all of that other kind of stuff, that we won't deliver you a bunch of surprises. In fairness to the folks that are the big suppliers of microphones today, microphones are hard. There is an incredible intersection of very hard disciplines that all come together in one place between mechanical engineering, electrical engineering, acoustics and all sorts of crazy photolithography.

It's a fascinating thing to work on. And it's hard to get it all just exactly right you just to take one example, the drop tests that people do on a handset microphone is that it's astounding that anyone would think it would work after you do that. And you've got to do it over and over and over again really pretty remarkable.

So it's not something that we are trying to characterize as being a huge driver of growth for us in the near term. It's kind of more a couple years out on the horizon is where we think about that. And really, the strategy is to do such a good job of it and develop enough data when we are in this phase of tens of millions of units that we can prove to somebody that they can go ahead and single-source a microphone with us.

Generally today, if you follow microphone vendors, it's typically in any one year one of them is in the newspaper for blowing up somebody's production. And we don't want to be that guy. So if we can prove to people that, hey, we've got this dialed in with our own integrated process – we don't own the foundry, of course; we run it in somebody else's fab but with our own process that integrates the microphone element on top of a piece of CMOS, simplifies the packaging up a lot – if we can prove that that can be single sourceable, then we can embed parts of the IP into the microphone from the smart Codec of some sort.

So if you think about, just as an example, an AMC, a noise cancellation chip for headsets, you can conceivably design that and the microphones to work better together different interfaces better EMI, all sorts of things you could think about, and then deliver it as a chipset to the customer that increases our sales as well as their total bill of materials better power, better -- that's kind what we do in the grand scheme of things.

<<Matt Ramsay, Analyst, Canaccord Genuity Inc>>

Is the, I guess the ramp or potential ramp of AMC headsets with integrated microphone is that a path of least resistance for you guys to come into the market in volume and be...

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

Yes, it's definite – we are shipping in handsets today and they are premium handsets

<<Matt Ramsay, Analyst, Canaccord Genuity Inc>>

Yeah.

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

In premium microphones. But I do think AMC has the potential to drive a huge increase in microphone volume. I think today AMC is a pretty small percentage of the total headphone market. But with our device that I talked about earlier the form factor stuff; that takes a fair amount of cost out of the earpieces themselves and then with the advent of USBC and other digital interfaces, that provides access to power in the headset. So you have eliminated the battery.

So, whereas the basic analog headset you get for free with the phone today – we are not certain because we don't make this stuff. But it's on the order of \$1.00 or \$2.00, kind of a manufacturing cost. We think a basic digital headset, USBC type basic digital analog replacement headset is probably five or six sellers to make where and then a full-on USBC AMC headset you could probably make for on the order of \$13.

<<Matt Ramsay, Analyst, Canaccord Genuity Inc>>

And then I guess we spent so much time here talking about mobile, there is a lot of areas where audio is emerging outside of the mobile market connected home, auto, things like the Amazon Echo. If you could just walk us through the market as you see it and what maybe are the bigger growth engines, potentially for your company and some of the one – in my interactions with you guys, some of the ones that you were more excited about surprised me and maybe some of the ones you were a little bit less excited about surprised me. So it would be interesting to.

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

Well, if I don't hit it, you can talk about the exciting one, whichever one that was. Yes, it's neat. This whole connected home, smart home, the Internet of Things and all that it would be a challenge to invest in whatever that is for its own sake because who knows which one is going to emerge and be big, because they won't all. But for us the neat part of it is that it's a repurposing of the same signal processing technologies that we are deploying in handsets. So, for example, just to pick one, if your handset is in a mode where you are planning music through it and you want to be able to still use your voice to control it - that's a feature we call Barge In, or you can barge in on and say, turn the music off, and have the voice recognition still understand you and hear you over the noise that its own device was playing. That's a feature that's going to be perfectly applicable in that connected home kind of an environment or presumably somewhere along the road the automotive folks will start adding voice interaction. Just one good example headsets, frankly, are another case where we developed noise cancellation for handsets and spent a couple years refining that and retargeting it at headsets. Similarly, we are making a pretty meaningful investment now in voice biometrics that's something that has the potential to be transformative for the company. We are targeting that at handsets first, but I think it's got an incredible array of applications outside of handsets.

Biometrics itself has the kind of unique property sorry voice itself has a kind of unique property as it comes to biometrics, in that it's the only one you don't have to touch or orient yourself at all, it's just speak. So it stems from some technology we acquired last summer. This technology actually exists and runs in things like call centers. When you call in, they are usually checking your voice to validate that they actually think you are you, regardless of what you actually say. So we acquired some technology that kind of has that at its core, and we are working on migrating that down to an embedded very low-power form factor.

And that plays very nicely with some of the other things we do about far field beam forming or having things like voice recognition work in a noisy environment as well. It dovetails nicely with what we do. But we think, as a second factor for handset or as a biometric security for the voice assistant, whichever flavor of that you prefer, we think as a primary biometric for things that you are not going to put your hands on or fingerprint or go orient towards your face or whatnot – I think all those things have their place in the world, too, but I think voice is kind of unique. So we've got data today that says – that strongly supports our position that we can get to the same sort of level of false accept versus false reject kind of performance that you see in a typical thumbprint today but can do that with your voice. So that's one of the things that I'm most excited about. It really is just kind of this sci-fi type thing that's really neat.

<<Matt Ramsay, Analyst, Canaccord Genuity Inc>>

Have you weighed – IoT or connected home and auto or fragmented spaces and lots of different standards flying around. And you said winners and losers are going to happen. How do you weigh the I guess the size of those markets as they materialize versus the investment that is going to take to go after them? Because some of the applications are very different than a handset application.

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

Yeah. Definitely, I mean, when we approach any new market, we want to try to work with customers that we know, which frankly in audio and voice is most of them. But I think in a market you want to try to align yourself with whoever the leader or who you think might become the leader in a market as it emerges.

Usually semiconductor companies we've got all sorts of smart people, when we are doing something really new, they usually have about 10 times as many good ideas as we actually need for the very first device and it's really helpful to have a lead customer that is some level of opinion leader out there that can just say okay stop worrying about that, save that for next time, don't need that right now just focus on this one little bit right here. Tough customers make you a better supplier, over and over and over again.

<<Matt Ramsay, Analyst, Canaccord Genuity Inc>>

And I guess again if there's anything from the audience feel free. But since we're here in front of the investors and Thurman is not with you but I'll have to ask you at least a financial question or two. But one that I've been getting quite a bit is, since the Wolfson acquisition, maybe you could remind us what percentages of your folks are in the UK obviously, the pound has depreciated quite a lot and folks are trying to understand that impact to your financials and what it could be to slow OpEx growth potentially where you guys are investing a ton in this stuff.

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

Yes. It's interesting, we get that a lot it's not a huge driver of our growth. I mean, we are somewhere approaching 14,000 people. We've got a little over 400 of them in the UK. So that's really our only exposure to the pound is the employment costs in the UK, so if whatever that is, if that number moves around by 10%, 15% no it's not 0% but it's not huge either. Of late that has been going right way.

So it's not a huge driver. You should probably think about on a long-term average basis, our goal, our expectation is we need to keep R&D somewhere in that 17% 18% of revenue range. We are not running short of opportunity anytime soon, so we are not looking for leverage on the R&D line. SG&A, on the other hand we are a big mature company we've got sales people and SAP and all the other bells and whistles that you might somewhere add along the way, but we've tackled all of that a long time ago.

So we should have some leverage on the SG&A lines so that should contribute to earnings growing faster than revenue which is obviously nice to see, and then on top of that whereas historically, we had quite a lot of NOLs, I think people anticipated us becoming a cash taxpayer next years as being a bit of a headwind, At this point we were a cash taxpayer last year to the tune of about 30% on as we – as our UK based operating structure takes all of that , really we have kind of guided that that should be declining by 1% to 2% a year sort of as you move out through the years an approach 20. So at the revenue rate we are running at, a 1% to 2% tax improvement a year is a pretty nice tailwind on EPS.

<<Matt Ramsay, Analyst, Canaccord Genuity Inc>>

And then just lastly I mean any – I love interacting with executives like yourself. I'm a technologist myself. So I mean, any if you had to pick one opportunity that you are really excited about that investors might not be thinking about that's a little bit and there's always fun stories and things that are exciting to dive into. So I just look to pick your brain for a second and sure what you are excited about.

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

Well, so just the engineer in me wants to say that biometric stuff just because it's so cool. The capitalists would probably say, I can't even think of parallel of then from market \$1.4 billion units out there that for the most part have no silicon content in them at all. And we have already seen people migrating on USBC where they have ditched the headphone jack that download the USBC only. And if that market actually continues to move in that direction that's just a really remarkable opportunity. And we are very well-positioned to serve that.

<<Matt Ramsay, Analyst, Canaccord Genuity Inc>>

Got it. Well, I think we are out of time and getting the signal. So thank you very much for coming.

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

Sure. Thank you.

<<Matt Ramsay, Analyst, Canaccord Genuity Inc>>

And please thank the speaker. And I hope you guys got something out of that. Thanks again.

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

Thank you.