

Cirrus Inc.

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Blayne Curtis: All right, we'll go ahead and get started. I'm Blayne Curtis, US Semiconductor Analyst here at Barclays. Very glad to have Cirrus Logic with us, Jason Rhode, CEO, is from the company. I appreciate you coming, and I think there's some interesting things going on with the company so I appreciate you coming and telling us about it. I think it's -- just went through a transformational acquisition, added some customers and capabilities outside of your largest. So actually, could be a more interesting discussion where we can talk about your leading one the whole time, but I thought maybe that would be a good way to start -- is just talk about how the acquisition has gone. There was a period when you couldn't talk about it. Now it's closed. Now that you've seen everything they're working on, is there anything that surprised you? And how did the road map meld together going forward?

Jason Rhode: Sure. You know really, it's -- I'm pretty cynical about acquisitions in general in the first place. You know, a lot of times it seems like you'd be better off just lighting the cash on fire and saving the work. But in this case, we found ourselves earlier this year looking at the opportunities in audio and voice and handsets, to just be so remarkable that we couldn't possibly figure how to staff everything we wanted to do. So, we largely had parked our energy investments, put those people to work on audio, still couldn't staff everything we wanted to do. Through a set of events I ended up talking to the Wilson folks, and really realized that they had largely the same vision we did, wanted to go to the exact same place we did, but we're coming at it with a pretty complementary set of skills.

So, we were able to get that deal done, that rationalized the two road maps, eliminated the duplication of effort, and really set about trying to bring our road map to market more rapidly and bring our product line down from just the high end of the market, and try to have offerings that are a suitable subset of that for the mid-end and the low end. So, it's gone very well. You know, I would say on the surprising side, the level of investment and sophistication that they had on the software side, especially in the Android space which was something we knew we needed to go forward in, but it's been a huge shot in the arm to take that leap forward on the flip side.

Cirrus's hardware capabilities and chip design and really the scale that we've had, has certainly helped the Wilson folks. You know, they were largely a subscale company at

this point. The difficult, tough-tough to be a profitable company at that revenue in 2014 where you're doing tape-outs and 55 nanometer. So, a big shot in the arm for them to be part of a much larger company, and so overall, it's done extremely well.

Blayne Curtis: If you look at, you're traditionally known for audio codecs, DSCs, move into amps. When you look at the new category of these smart codecs, what new areas are you adding to these chips? And as part of your 55 nanometer roadmap, and I think Wilson has already in the market. What functionality are you adding to these chips?

Jason Rhode: Sure, well actually, if you look at some of the more advanced versions of the Wilson parts that are on our website, 8280 for example, it's very indicative of the 65 nanometer part whereas a few years ago, we were selling a basic and fairly sophisticated advanced codec, but still more or less fixed-function device. And then you compare that to the 8280 for example, that's 600 MIPS, a ton of memory, a very high performance analog and a very low power process. And so, the content over the last couple years has significantly increased at the same time that it almost -- it feels like where we've gone from where we used to have to push to try to get customers interested in this sort of function, to where there's all of a sudden just a huge vacuum and a giant pull by almost everybody in the market, whether they're high-end or mid-tier or what. A lot of these features such as always-on-voice, you can wake the phone up without having to touch it, whether in kind of a hands-free kind of a car environment or any number of different things, as well as boosted speaker amps with speaker protection. That's a product line that Cirrus had that Wilson didn't, so it's a cross-sell opportunity to kit our boosted amplifiers along with their smart codecs in the short term. And obviously, Cirrus and Wilson both had a smart codec road map going forward, so we've been able to kind of rationalize those two.

Blayne Curtis: I think on your new slide deck you have some representative content o for the smart codec, to 53 dollars, obviously it's just representative. But when you look at the content that you could have with these new chips, how does that relate to in general terms your current content? And what types of phones or applications could this find itself in?

Jason Rhode: Sure. So, the migration to 55 nanometer is all about adding features and functions. You know, I think in a memory or DRAM world, you move from higher geometry device to a lower geometry device, you make the part cheaper. But if half the device is mixed-signal, that part's not going to shrink. You've simply made taking the same functionality and migrating it down a process curve, you just made it more expensive. So, the only reason to do that is to add a lot of functionality, add a lot of signal processing capability, add a lot of memory functions and features that customers are asking for.

So, you know, I think for the DSP codec roadmap, there's a wide variety of devices we can target in that genre that would have a pretty wide range of ASPs, but certainly that \$2.50 to \$3.00 is a great start over time, and then we can add more memory. Obviously that would get to be a more expensive device, and then additionally coupling it with boosted amps where we've gone from zero in the system to one, and now going forward potentially more than that as well as in the longer-term, co-designing our microphones that we got out of the Wilson acquisition with the smart codec, and trying to increase the attach rate there. There's a lot of the microphone market that we're not really going to be all that interested in, it's not going to support the kind of margins we want to see. But we're the only guy in that space that has the codec and that number of pretty high profile

sockets, so hopefully there'll be something where we can design the microphone and the codec together and do something that's -- that'd be a little difficult for other people to follow.

Blayne Curtis: And what are some good examples of that? In an application I know Google has some kind of always-on voice application, but where does this really take the application, which would then drive adoption of the chip?

Jason Rhode: Sure, well, the thing about always-on is everything in a phone has to be low power, but there's nowhere that that's more -- there's more pressure on the power than something that's going to be on all the time, whether the person is using the phone or not. As soon as the device is awake, and the OS is booted up or the screen is on, you're talking about power that's in the hundreds of milliwatts. Whereas, if you're going to have something that's on all day and truly always on, not just you know, on when it's plugged in, you really need to be down in the low single digit microwatts. Or milliwatts, rather. So, there are some interesting solutions out there today, a lot of them are using either the apps processor to do some of the processing -- which again is sort of always on with an asterisk -- but I'd say the comparison of what we're providing going forward, the goal is we want to enable people to make all sorts of devices where the microphone is always listening. It's a really remarkable intersection of things that we're good at, right up our alley of very low power analog, complicated signal processing, integrating that with a bunch of digital, achieve a mixed-signal device that provides that type of always-on functionality, and add a just ultra low power price point.

The transition that's happened is a couple years ago there was more forward-thinking customers that were looking at that kind of stuff, but today everybody you talk to in the smartphone space wants always-on. They want it to be lower power, whatever you throw out there it's not low enough, they want it to be half of that. So, it's just a really great opportunity for us.

Blayne Curtis: Clearly in the portable world, low power matters. How does this technology also work in an automobile?

Jason Rhode: Sure, well, so the neat thing about mobile phones is the volumes are so high we get to re-do the chips very frequently. We can really afford to put a bunch of R&D on improving these functions, and you know, so automotive -- it would be difficult to justify doing say a voice wake or voice control chip just for automotive, because of the time scales involved, but once we've done it for mobile that exact same set of technologies is applicable to automotive and wearables and even the home, as companies are finally starting to figure out how to de-fragment the home and provide the infrastructure we need.

So, automotive I think is a great example of where this kind of functionality can be really useful. You know, there's -- you know, everyone's focus is on reducing the interaction with the phone in the car, but I don't know why that should be any more distracting than messing around with the built in screen that's on the phone. In fact, usually when the phone rings and you feel like you've got to figure out how to pair it back up with whatever device you're using, that's probably a much bigger distraction than using the phone in the first place.

Blayne Curtis: Right, right. So, when you look at going back to the handset world, you had some traction outside of your largest customer? Wilson obviously the majority of their business is in the smartphone world. Where are your -- you know, they're shipping some 65 today. So, the ones that -- are there any that you can kind of talk about where you can see them in the real world? And then in terms of your pipeline, where do you see your biggest opportunity?

Jason Rhode: Sure. There's plenty of tear-downs, finding their 65 nanometer device in the variety of the Samsung devices. So, that scenario where hopefully there'll be a little more competition on the LTE chipsets going forward, that'll give the San Diego contingent a little less of a lock on those handsets and that should be a good opportunity for us to be -- the neat thing about the Wilson thing is, everything they said they were going to win when we were in the acquisition actually won, they're actually shipping in all those models. But their share within each model has been pretty low, because it really wasn't a very competitive LTE market this year.

Seems like there's a significant number of alternatives out there now, so there's plenty more opportunity for us to ship with different chip sets.

Blayne Curtis: So there's clearly some companies that don't have audio capability, at least not yet, like an Intel modem or Samsung modem and that's where Wilson has had some traction. They also had a deal with MediaTek who as a premium offering, and I guess I was curious, as this functionality proliferates if it does actually have a good use case. Is it really limited to only playing with say a Samsung or an Intel, or modem set, or could you see a little bit wider adoption of this?

Jason Rhode: No, we definitely think it could be very widely adopted just because of the demand that's out there from the customer. As you mentioned MediaTek, the Wilson team developed a great partnership with them. They are a very customer-focused company so probably the right way, and typically to approach them is to go get a customer excited about the kind of user experience we can provide. And then help their customers differentiate with audio and voice features.

Blayne Curtis: And in terms of baseband, baseband suppliers with portfolios like the San Diego company -- how quick are they to match this sort of functionality and software that you're doing?

Jason Rhode: Well, it's just -- it's a very capable company. It's a different chip partition than what we've approached it as, and we see historically if you're shipping a very fine line apps processor, you might have the mentality of, let's put as many transistors in that as possible because that's going to be the cheapest, lowest power option. But the thing that we've seen is, as we've moved to especially this always-on voice thing where the power is just an absolute minimum and you really can't power on the apps processor and be competitive with that type of solution, we've seen the significant swing towards what we think will be ultimately the chip partition we've arrived at, which is kind of a sidecar DSP/codec with that type of functionality just self-contained and fully implemented, and not have to wake up the apps processor.

This kind of solution really is a multi-stage thing, so it's a microphone, and then maybe some very basic circuitry to look and see, well is there a noise? And then wake up if

there is, and wake up a little bit more of the circuitry to decide, is that -- was that noise a voice? Okay, if it was a voice, was that voice -- was it saying the catch phrase? And then all the while buffering so that you don't have to have this awkward, hey smartphone, wake up, and then sit and pause and wait, okay what's the weather like in San Francisco. You should just be able to say, hey smartphone, what's the weather like in San Francisco without even a pause. But if you think about driving that power down in the way that I was talking about, where it's a multi-stage kind of a process, and at the same time buffering everything that's coming up in the memory, that's a really complicated set of things to get right. And to do that in an ultra-low-power way without waking up an OS, we see that as a really good example of where the chip partition that we are proposing has a big advantage.

Blayne Curtis: How should we think about the majority of chips are at 180, you're moving to 55 which is a massive strength down, which had the mixed signal portion isn't really going to shrink as much. Digital would hugely. You're adding functionality so there's a lot of moving pieces in that (inaudible) but how should we think of gross margin implications for the new part as well as content implication?

Jason Rhode: Sure. Well, content implication, the only reason we would go to 55 nanometers to add a lot of functionality and a lot of capability, more MIPS, more memory, more channels of conversion, more signal processing power, so the functionality that we would be providing our customers would increase, potentially significantly. And then you know, I wouldn't think about 55 nanometer versus 180 as a gross margin play per se. Generally when you introduce new products that's good, gives you an opportunity to add more value, and that's certainly better than selling the same part year after year to the same set of customers. Customers expect price breaks, and we're in a competitive industry, but the neat thing about 55 as compared to 180, it's a lot newer node. There's still a little bit of a pricing curve, so when we give somebody a price break, we can at least pass some of that along to our vendors.

Blayne Curtis: Right.

Jason Rhode: So, it's -- you know, we've come through a period of the last two years following just incredible growth in 2012 and previous. We've come through that period, we've refreshed our whole road map, with a lot of new product introductions next year. So, we've been able to grow this year a bit without a ton of new product introductions. Next year we've got a lot teed up and they're all -- well, not all -- but a large fraction of our portfolio is being migrated to nodes that let us do a lot more. So, it's a pretty significant opportunity to grow our content.

Blayne Curtis: On the amp side, you had a big win a couple years ago with a boosted amp, with some protection. I think others have similar products. You lost a little bit of share to a competitor. You mentioned amps as an opportunity but you've also talked about it as a commodity, and don't get too excited.

Jason Rhode: Well, that's a -- I guess that's not quite how I'd characterize it. I mean, I think it's actually one of the best success stories we've ever had, because a few years ago it was a business we weren't in at all, and so we've grown that to where it is today which is a significant fraction of our business. You know, we've got competitors in that space that have well-established product line that have been in the business for a long time. You know, we're

not going to start from scratch and have the perfect part for every socket every time, but we've continued to grow unit volume. We've broadened out our product line, we see that as a key component of our portfolio going forward. So I feel very good about our opportunities there.

You know, it is a more competitive part of the space than say a smart codec where it's an intertwining of you know, the OS along with some of our code, analog and mixed-signal right in the middle of it. You know, a smart codec is about as sticky a socket as you can get in our industry. A smart app, the more smarts that are in there, the more things like boost and speaker protection, the more that that is a big investment and it, too, starts to have a switching cost as well. But at the same time, there's sometimes when the goals for a particular product are such that somebody could meet it with a simple analog-in, analog-out amp, or a simpler amp than some of what we provide. And much like audio has always been for us, there's kind of a threshold below which it's probably not the business that we're as interested in.

So you know, I think it's been a huge success story for us. I think more noise is made of one socket or another than it sometimes is viewed as oh, this guy's (inaudible) here and it's really not. It's been a great, great success story for us the last couple years.

Blayne Curtis: If you think of the smart codec as something you know, the heart of that system, the low-power system, and then the amps and then maybe mics is more discrete, is there with some of this new functionality, is there some increased stickiness with those components and what actually would it be?

Jason Rhode: Yeah, well there's certainly the opportunity to provide that. We're the only supplier out there today that has everything from microphones to the speaker amplifier with the DSP codec in the middle of it. The goal is to wrap our own signal processing algorithms around all of that and make those devices all work better together. That's some stickiness that nobody else can provide. Microphones are a neat example of where going forward since we own both ends of the interface, and we can innovate in ways that other people might not be able to do. And partition some of that always-on-voice solution for example, into the microphone, have the mic and the codec communicate together. Those are pretty significant opportunity to help our customers achieve even lower power once we get into that form factor.

And you know, we've gone from a smartphone might have -- you know, well historically would have had one or two microphones in it, to two and three and four microphones in them. Surely over the long term, people aren't going to just wire all those microphones up from disparate parts of the phone with home run wiring all the way back to the smart codec. We think we can do some clever stuff around that interface and turn it from a -- I wouldn't say it's a commodity product today, but more of a commodity-ish product to something that's more proprietary and where we're adding a lot more value.

Blayne Curtis: If you look at all these products layering in, Wilson when you announced -- the day that you announced the deal they pre-announced lower revenue, and I think they've had some -- they got the wins, maybe the volume wasn't there. Looking forward you obviously have a large customer, it's still seasonality, but what's the right way to think about the 55 nanometer parts layering in? Do you see opportunities for amps and mics next year? What's the right timeline on all these products driving revenue?

Jason Rhode: Well, so starting from one end of the signal chain I guess, microphones is a business that today we're building our footprint there as a supplier, the types of products we're selling today, they're great microphones. We're trying to build the volume, get ourselves established as a credible supplier of those devices. And over the long -- it's really more -- but it's really more of a long-term play from a revenue growth, point of view. Relative to our size company.

Blayne Curtis: Mm-hmm.

Jason Rhode: The smart codecs, we're shipping them today. We see a great bunch of new product introductions coming in 2015, that'll kind of just layer in throughout the year, and we see that as a very good part of the story. Amplifiers, we've done well, we expect to continue to do well, and then as upside being able to upsell that into some of the pockets where Wilson historically had been successful. We've done things like in the LGG3 that we announced the design win on earlier this year, well we're running some of our code in the Qualcomm processor. I mean that's a good piece of guerilla warfare by our engineering folks. If we're selling that amp alongside our own DSP codec, that's a lot easier to get that device in there. So -- and that, that too has been a function that went from being only available in real flagship Tier 1 devices to being everybody that sells a phone would like the speakerphone to be louder, you know, like to have it be more intelligible and incorporate some of the kind of echo cancellation, wind noise reduction type features that we're able to provide. You know, and then I'll again kind of intertwine between the codec and the amp. It really is an example of where it's not just integration for integration's sake, or bundling for bundling's sake, but the devices you're selling actually really are additive to each other and make the solution more compelling as a whole, and stickier.

Blayne Curtis: I do want to ask as, when you had a big step up in content years ago, you had to -- you had similar outstake in your OpEx spending. Obviously you have a big, you had major ramps all at the same time, and when you look at next year, you've just -- you know, acquired Wilson. You've laid out some synergies, but you do see a step up in content. Would you see more fall to the bottom line this time, or do you continue to see opportunities you need to invest in from an R&D perspective?

Jason Rhode: Well, 2012 was pretty remarkable because we grew revenues 70-some percent . There's no way to possibly add engineering resources at that same pace. In a year, you'd absolutely collapse.

So, it took a while for our engineering resources to catch up, and that I think in some quarters was perceived as a lack of leverage. And you know, so we had the big content pop and then our percentage of R&D kept going up after that. Which is really just us getting back in line with the model we've always had, which is roughly on the order of 20% operating profit coupled with meaningful growth.

So you know, as we're able to deliver more content, hopefully deliver good growth again, we want to make sure that our R&D resources scale in a way that is such that we can grow from a new higher revenue base. So, we've done that successfully this last time, we expect to continue to do that. We certainly still expect to remain in line with our 20% operating goal on an annual basis. We're a cyclical, we're in a bit of a cyclical industry,

so we can't very well manage our OpEx on a quarter-by-quarter basis overly much.

Blayne Curtis: Something that also happened in that time frame was given the higher possibility you ran out of NOLs and had to pay taxes, eventually. Can you talk about now that trend reversing with Wilson, and being able to leverage their aspect ratio?

Jason Rhode: Well, yes, it's kind of a remarkable thing. Not only did we manage to actually spend the NOLs or we're almost -- we're getting close to having spend all the NOLs which was something I don't think anybody would have bet we would do five or seven years ago. So, not only have we done that, but now the acquisition actually that wasn't a prime consideration at all in considering doing the deal, but having done it, it does give us a substantial base of operations in the UK. So, whereas we would have been looking at an annualized tax rate of 35% in the US previously, on our last earnings call we said could probably model FY 2016 at say 30%, a little higher earlier in the year and lower later in the year. So, that actually should be very good news all the way around, and it should be kind of a gentle pale wind I guess I would say.

Blayne Curtis: As you go down to that 20% rate over time, is that the right way to --

Jason Rhode: Yeah, I don't know that we would get all the way there, and you know, it's not a game that we think it's our lot in life to play, especially aggressively. There's a lot of companies that get pretty far out there and you know, that's not our value add, but certainly there are things we can do with our operating structure that are perfectly natural given that we really do have a large base of operations. So certainly we should end up somewhere in the middle.

Blayne Curtis: I just want to ask you the theme of the conference is disruptive trends, and I think some of this does qualify so I was curious what you would say is the most disruptive either application or product and as you look into next year?

Jason Rhode: I just think it's the prevalence of voice processing, and just how ubiquitous and how strong the demand for exactly that type of functionality that we provide has become. You know, not only in just the flagships but in migrating at least subsets of that down to the mid and low tier, it's by far the most disruptive thing that we've been involved in a long time and the most right up our alley.

Blayne Curtis: Okay. There is one more minute, if someone wanted to ask a question we could take that. Otherwise we could wrap up and move to the breakout room in Marina. Anyone? All right, we'll leave it there. Thank you, Jason.

Jason Rhode: Sure, thanks, Blayne.