

Cirrus (CRUS)

**August 7, 2018
09:45 AM ET**

Rick Shaefer:

I think we'll go ahead and get started. Our next presenter is from Cirrus Logic. We're joined by John Forsyth, he's the Chief Strategy Officer for Cirrus Logic, and Thurman Case, the CFO. And Chelsea Heffernan is in the room as well for questions. So I'll go ahead and kick it off, John, if it's okay. Maybe a high level one, for those are that less familiar with your story, maybe you could walk us through some of the basics of who Cirrus is, where you compete, what you do, that type of thing.

John Forsyth:

Sure. Thank you. So Cirrus Logic has been around quite a long time now. It was founded in '84. We're principally in the business of supplying components across the audio signal chain, hardware and software, which do all the audio processing, mostly focused on portable devices. So when I talk about the audio signal chain, I mean what's coming in through the microphones, getting converted from analog to digital, then having signal processing done to that and then being converted back into analog and amplified and played out through a speaker. We provide hardware and software solutions across the entire signal chain.

Traditionally, audio has meant recording sounds and playback. Increasingly over the past few years, that has grown to encompass a lot of voice processing. So whether that's voice, noise cancellation for voice calls, that was a key area for a while, but that's grown to embrace the entire voice interface. So waking up a device when somebody speaks to it, recognizing who it is that's speaking, and authenticating that and providing information to the rest of the system about the nature of the speaker.

So we provide solutions across that space, as I said, primarily for mobile devices. Our key customers are the largest spenders in the smartphone market and the advantages that they see in our technology that lead them to choose us over our competitors are typically a combination of very high performance and very low power consumption. So we make very substantial R&D investment continuing to push the boundaries of providing outstanding audio performance, outstanding signal, very, very low power consumption levels.

Increasingly over recent quarters and the past few years, we've seen a growth of our technology adoption in adjacent areas besides audio. So a good example of this would be haptics. So some of our bestselling devices in the amplifier space are not being used to drive a loudspeaker, they're being used to drive an LRA, a linear resonant array, which provides a very sophisticated and rich haptic experience to simulate button clicks and so on. And we see more opportunities for that kind of, those kinds of products and that kind of adjacent market growth for us as we go forward, because those things fall into this

category of requiring very rapid, low latency signal processing, very low power consumption, and typically things that need to happen without waking up the AP, the applications processor.

So that's I guess the general overview of where we operate in the market. We have a vast catalog of audio products which serve a variety of other audio markets with a predominant focus for us and where we see most of the continued growth over the coming years, is in the portable space.

Rick Shaefer: So you've talked about adjacencies in that space, but if you look at the kind of holistically at the overall smartphone market, units are flattening. So it sounds like content growth is key probably to your guys' growth. But I would also think share gains, and you guys have talked about that I think even on your most recent earnings call, some of the share gains you've seen in the android space, particularly the non-Samsung android space, so the Chinese, kind of the big OEMs there. Maybe you could provide some color on what are the bigger legs of --

John Forsyth: Absolutely. When it comes to the growth strategy, even within the smartphone market or the context of the smartphone market where units are flattening out, we have 3 Cs I guess of potential growth. Customers, category and content. So customers, we are very successful with the number one mobile OEM. We have a great track record and a lot of success with the number 2 and we're very proud now to be serving the number 3 in the smartphone market. But we have a lot of opportunity beyond that. We've been relatively concentrated in 1 and 2, we see a lot of opportunity and growth to grow in other customers and take them our technology and products.

By category, I mean predominantly tier, so our volumes and revenues have been really concentrated in high tier devices, so flagship devices. That is to be expected when features like stereo playback or voice activation, always-on voice activation typically enter the market at the flagship level. But these are features which are already penetrating the mid-tier and we see a lot of opportunity for us to serve those markets as well. Using products which are based on fundamentally the same IP, but typically lower cost, derivative products from our IP designed to meet the needs of mid-tier specification devices. For example, I mentioned stereo. There's really a fairly universal desire across all categories in the smartphone market to have devices that play music back better and louder. That's not uniquely located in the flagship segment. So from our perspective, we don't see why every mid-tier phone shouldn't have stereo playback, in which case that creates a huge amount of opportunity for boosted amplifiers.

The third C I mentioned was content. Traditionally we have served the mobile market with smart Codecs and amplifiers, boosted amplifiers. But the boosted amplifiers being historically very concentrated in our largest customer. We have a very rich portfolio now which we've been developing over the past few years of Codecs, Smart Codec and boosted amplifier products that are applicable to many other customers who have slightly different requirements from our largest customer. But also, devices which create content growth opportunities beyond those categories. So in the headset and digital accessory space we have Codecs and ANC noise cancellation devices which are designed to unlock the opportunity around digital and wireless accessories. We've talked about our investment in Voice Biometrics, so we're big believers in the voice interface. And the voice interface, for it to truly fulfill its potential, devices need to know for sure who it is that's speaking to the assistant. So again, we see Voice Biometrics products as representing a possibility for us to grow our content further.

And to date, we have shipped MEMS microphones in relatively small quantities, but

again, that's an area where we made very significant progress. That's a market which is extraordinarily large in unit terms clearly, yet not one that is a market where if you speak to our customers you'll find that nobody is super happy with their existing supply chain around microphones. Again we see an opportunity there for us to serve our customers, serve more customers, but serve them with a broader range of content.

Rick Shaefer: There's a couple of those I want to circle back to in a second. I just want to -- on China, I guess I'm trying to figure out, where is the lowest hanging fruit for you guys? It seems like there's, and correct me if I'm wrong, but a lot of the stuff there, maybe mid-tier and low-end China handset, is still kind of integrated solutions. Which are basically free, but again, correct me if I'm wrong in any of this stuff, and it's always kind of tough to displace free. So what is changing or your go to market in there, your ability to go in and displace something that's very low cost. Is it just --

John Forsyth: Yeah, so given how competitive that market is, I hesitate to use the term low hanging fruit, but I would still say that for example around boosted amplifiers, if you want to have playback from a compact mobile device that is loud and potentially stereo, but even if we just stick with loud for now, you're going to need -- you need to move a lot of air, you need to drive a lot of power through the transducer. That means you need very specialized, high voltage IP that's very small, that consumes very little power. That's not something that an integrated audio solution can supply. So there is a place for the free integrated audio, but the more consumers rely on these devices to play back music for example, the more they need high voltage boosted amplifiers. And we see that in China, the market for amplifiers there is pretty significant. We're not talking about displacing free, we're talking about displacing products from existing suppliers where we believe we have a significant performance advantage.

Rick Shaefer: So the market is kind of in some ways coming to you, would that be fair?

John Forsyth: There's suddenly a really clearly established demand there. There's existing suppliers and we have put a lot of effort into developing solutions that serve the market better than from the products we see from our competitors there, yes.

Rick Shaefer: Is there any constraint from your guys' perspective in terms of your bandwidth, just having enough, whether it's FAE or whoever, like I guess in terms of targeting potential new customers. Are you kind of focused on the Vivo, Oppo, and the high volume guys? Because even with those guys you have to be careful to kind of get on the right high-volume platform.

John Forsyth: It's a great question. There's a myriad of new programs within every single potential customer there. And we have to do our best to be selective. You don't always get to pick and choose. So we follow the kind of playbook that has served us pretty well in the past which is we look at the people who are shipping the most and the best products and we invest in a concentrated way on them rather than spreading ourselves too thin. We generally think of ourselves in the market in the business of big game hunting. So as I said, we're proud to be shipping into the number 3 in the smartphone market now. We'll continue to invest a lot of resources in serving that customer and the other ones who we see as real needle movers. It's certainly true that you could fall afoul of chasing too many rabbits in that market.

Rick Shaefer: Fair. Speaking of the biggest rabbit, your guys' content I think a couple of years ago roughly doubled in their flagship phone. I guess when I think about the opportunities, and you mentioned several of them already, but one that's near and dear I know to you is voice biometrics. And you didn't mention it, but maybe an update there. To me, that

seems like that could be a significant content driver for you guys at that flagship customer. Or elsewhere. And I'm just curious sort of where we stand. It's something you've worked on for couple of years, sort of where we stand on sort of voice bio kind of catching and starting to ramp for you guys.

John Forsyth: I guess with regard to the flagship customer, we have a lot of content there. I think what we see right now as being the biggest near term growth opportunity is to drive that content into additional devices and device categories that that customer has that we're not yet in. So that's our primary focus there. Amongst the broader smartphone market, voice biometrics represents I think a really meaningful opportunity for us. It's a complex technology to develop and a complex one to design in because it tends to touch a lot of different parts of the system and therefore many, many different teams. So it's a user experience feature, it's an audio feature, it's a voice feature and it's a security feature. But I can't recall working on anything in my career where the demand and interest level had been so tangible and so marked. It's generally not something where you need to pitch the reason for doing it. Everybody has already arrived at that conclusion. The challenge really is an execution one. It's delivering the kind of performance which will allow people to confidently authorize transactions or unlock their car, whatever, using their voice and know that that isn't creating some kind of risk that they don't want to deal with. But yeah, we've talked about the potential that that represents. I think we're very focused on getting that into and through evaluation with one or two key target customers to prove the technology out and then expand from there. But I think we see interest in that technology across the android space as well and it does represent a potential for meaningful content upside for us.

Rick Shaefer: Have you framed like what that dollar content could be potentially? For full solution -- and I assume it's the algorithm, is that kind of what's the last --

John Forsyth: It's a combination of algorithm and custom silicon to run that on. Because solving the problem of robustly identifying who it is that's speaking and making sure A, that works, B, that that works in really noisy environments, and C, that it can tell the difference between that and a recording being played back and so on. Those are big computing problems. Historically you'd throw a lot of big iron computing infrastructure at solving them. We're trying to do that on something smaller than your fingernail that's runs on tiny rations of power. So that requires custom silicon as well. We've talked about an expectation that we could sell that for a couple of dollars at healthy margin. So it remains to be seen how exactly we first get to market with that. But that's kind of the ballpark expectation that we have around it.

Rick Shaefer: Okay, and you hit on haptic, again you touched on several of these, but on haptic you announced a major win there I think earlier. Maybe if you could frame out sort of the competitive environment there. Again, rough idea of what sort of the content would look like for (inaudible) and that kind of thing?

John Forsyth: Sure. So haptics is an area where I would draw distinction between -- I noticed the question I think referred to market size. There's haptics as it was historically, especially in the android space which is a system event causes the vibration motor to do something. Which is very unsophisticated and doesn't really provide any simulation of like a button press. It's just like the whole device vibrates. The haptics that we are focused on, and so that's widely penetrated. The haptics we're focused on is advanced haptics where you can really simulate the button feel, so along the lines of the kind of 4D touch and 3D touch things that have come to market in the past few years. Right now, the only products really at any scale which incorporate that kind of experience are those shipped by our largest customer, which are for the most part using our technology to deliver that

experience. From our expectation there is such a big gulf between the products from our largest customer and those in the android space around haptics, we think that -- and it makes such a difference in the user experience, we think that this is something that really has a lot of relevance certainly to the whole of the flagship smartphone category from all vendors. For a couple of reasons. One is, it's a meaningfully more satisfying user experience to have something which actually feels organic and like you're clicking an object rather than just the whole device vibrating. But secondly, it unlocks possibilities from an industrial design perspective as well.

The ability to actually remove a mechanical button which creates opportunities for moisture, dust ingress, mechanical failure, drop test failing and so on. Replace that with synthetic button which feels exactly like a real button or indeed can change the way it feels, so sometimes it could feel like a 2-stage shutter release, sometimes like a regular button. So that creates a lot of possibilities for industrial designers who obviously are on a path to devices with fewer openings, more glass, less hardware around them in which to put the mechanical buttons and so on. And so we see an opportunity there certainly across android flagship devices to deliver advanced haptics based on our amplify technology. What we said content wise is that around the 50% mark for a haptics device would be a reasonable expectation.

Rick Shaefer: So similar to an amplifier.

John Forsyth: Exactly. Yes. The initial products and initial deployments of haptics were based on our amplifiers with no differences at all from the amplifiers that were being used to drive the speaker for audio playback. Those amplifiers are based on our advanced 55-nanometer IP which gives us an advantage when it comes to incorporating DSB in the amplifier. The reason that matters is it allows you to do things very, very rapidly without requiring other parts of the system to wake up. So the signal processing that's involved in responding to a pressure on an area of the device can all be encapsulated within that closed loop between the sensor, our amplifier device, and the linear resonant array. So we started out with our vanilla boosted amplifiers. We've evolved that to develop and deliver haptic specific products based on that technology. And as we've said, we've seen the first win with that and would anticipate seeing more in the coming quarters.

Rick Shaefer: Great. Talking about noise canceling headsets and ANC, I know that's an opportunity you guys have talked about for a couple of years and certainly seen the benefit of that. I'd argue that it's probably taken off a little slower. We've probably seen that conversion from analog to digital headsets just in general take off a little slower. I mean what would you chalk that up to? Is it inertia? Is it the lack of -- USB-C has been slower to take off, so that would seem like that could all be tied together?

John Forsyth: I think it's definitely right to tie those things together because one of the limiting factors to ANC adoption generally is being the fact that if you have an ANC device, ANC headset, plugged in over a 3.5 mm jack, you need to have a separate kind of soap on a rope battery thing that requires its own charging. And that's super expensive to create as a product, it's also just clunky from a user experience perspective. It will, by default, it will generally be out of battery, so it's not that useful. So USB-C, or a digital interface, is required for power delivery to do ANC. Well the slow transition to USB-C has been a gating factor. I think initially, there were some issues within android itself and some of the core AP suppliers around audio support for USB-C. That's all out of the way now. So I think we're beginning to see momentum actually finally go. But it has taken longer than we maybe anticipated.

So I think on the back of that, ANC will be one of the things growing for us in digital

accessories. We have now I think a very rich portfolio of products across the digital accessory space. So from the kind of premium ANC experience, which is our fully adaptive ANC, the reason why it matters to be fully adaptive is if you want to create an ANC product that works for everybody, it's going to quite likely be, certainly one that's in box, is going to be what's called a leaky earbud design. And they fit slightly differently. Every time you put them in your ear, it's slightly different. That hugely affects the noise cancellation processing. That means a fixed filter noise cancellation approach of the kind that's used by virtually every ANC product that's out in the market today, will not work very well. So you need to have something that understands what's going on in the ear canal and adapts.

So we have that kind of premium technology which is aimed at unlocking our best in class ANC for any device including in box style, leaky earbud designs. We have fixed filter ANC designs which are kind of more akin to what's in the market today. Very high-performance ANC, but require a little more around the industrial design, simpler and faster to design in. And then digital Codecs for the straightforward non-ANC accessories.

So I think as we see USBC momentum finally build and the kind of -- there's a bit of a chicken and egg element with those 2-sided markets because you need an accessories ecosystem to make people feel good about the switch and losing the 3.5 mm connector. That's gradually starting to happen. I think you'll see headset revenue growth from us beginning to accelerate as well.

Rick Shaefer: Correct me if I'm wrong, but I think sort of the rainbow of content you've talked about is sort of in that dollar range or so for a basic digital headset sort of in the box or whatever, a wired obviously, kind of lower end headset. Sort of north of \$3 if we're talking about a fully featured ANC opportunity. Is that kind of in the ballpark of --

John Forsyth: I think that's reasonable. There's a lot of stuff we can potentially over time provide into a digital headset from the ANC experience including MEMS microphones as well. So yeah, we see multiple dollars of content opportunity there in the coming years, yeah.

Rick Shaefer: And then last one on that is just I know you've talked in the past about it sort of being \$1 billion plus unit TAM. Would you hazard to guess how much of that has already converted to digital? Or maybe a simpler, or maybe not a simpler question, would you hazard to guess like what that market, if you can answer it that way, if it's \$1 billion plus unit TAM, over time how much of that is ANC? Does it eventually all go ANC if we look far enough down the road?

John Forsyth: That's a really excellent question. I don't think all, no. But I think once you eliminate the need for a soap on a rope, the advantages of incorporating ANC will be very tangible without the downside of separate charging. So I think what we expect is initially there's going to be more on the straightforward digital headset side. But I would anticipate that a really significant proportion of that TAM over time in the digital accessory space will incorporate ANC.

We're also, partly because we're also talking about things which stay in the ear more of the day. If you're using these devices to talk to the smart assistant, you're going to have them in your ear more of the time and you probably want some smarts there about when you attenuate background noise, when you don't and so on. All of which is kind of squarely in the camp of our ANC Codecs.

Rick Shaefer: You guys are known for pretty high-performance solution and a lot of times high

performance means maybe a little higher power need. You've talked, for like today, a fully featured, correct me again if I'm wrong, really high-end ANC solution is going to be wired probably today. But over time, I think the environment you're talking about where people are spending more time with these buds in their ears, I think wireless kind of comes in. I'm just curious how you guys are positioned or what needs to happen in terms of your tradeoff between -- or maybe there is no tradeoff between power and performance, power use and performance.

John Forsyth:

I think there's kind of a third point to that triangle. Because it's not super -- it's difficult to deliver high performance, but if you give yourself a pass on power consumption, it's a lot less difficult. The key thing about our business is we don't get that pass and we invest a lot of effort to ensure that we can deliver high performance at low power. So the third point on the triangle is R&D investment for us. Like we put a huge amount of effort and resource into pushing the boundaries, being at the leading edge in terms of mixed signal and DSP processing. Which allows us to do things which deliver ANC Codecs which are very, very low power consumption and see a path towards getting to something which can sit in the ear for multiple hours at a time delivering that kind of capability on the kind of minuscule batteries that are going to have to be the norm in wireless accessories.

So I think we've been, as we've said, we're shipping in multiple wireless ANC products today, so we've got a really good base established with some great customers. The form factor challenges around that, like the longer you're going to have one of these things in or around your ear during the day, the smaller and lighter and more discreet it's going to need to be. That's going to compress the battery size. That's for us, we see that, okay, that creates a super hard problem, but that's very attractive and that plays to our strengths.

Rick Shaefer:

Just a quick one on mics, because that's not one I wanted to hit, but that seems to be a big opportunity for you guys as well. Maybe just briefly on why your solution is better. I know you've got an integrated transducer, things that maybe architecturally you've done differently than others. So maybe describe that briefly. And then sort of again, I know it's impossible, but rough timeline on sort of when we can kind of see the volumes that you've talked about to address some of the higher volume flagship customers.

John Forsyth:

Yeah, okay. Well we have some unique aspects to our MEMS technology. Yes, the integrated transducer and some proprietary technology materials around that. But I would say that certainly is one strand of our strategy in that we're able to deliver, again, high performance mics that use very little power and which are very compact. It's pretty clear why all of that would serve the mobile portable accessory voice interface driven devices market very well. But I think the other key thing for us, and if anything, it's more important, is to be a really good, really robust, really reliable supplier of MEMS microphones. As I said, every one of our customers has heartburn on every smartphone program over their microphone chip. And it's pretty clear that if we showed up and leveraged the degree to which Cirrus is known for being a very, very quality focused, ultra-reliable supplier, if we leverage that and just deliver people a frankly boring but drama free microphone, that would delight our customers.

From that point of view, so we're very, very focused on that, but that does mean that the worst thing we could possibly do is overpromise. So we're taking small baby steps along the road to what we see as being a great opportunity to be a major mic supplier for our customers. What that looks like in terms of timing, well we're in the business today of shipping tens of millions of mics. To get to the next level or couple of levels, I think we expect to see some growth in FY'21 and then real traction after that in '22 and beyond.

Rick Shaefer:

Thurman, a quick question for you on your China business. Obviously, you talked about

it being strong headed into the calendar third quarter, in the September quarter. A lot of other guys in the wireless food chain there talked about that kind of growth, they're seeing the other side of it and maybe talking about some weakness in China. I guess one, is it just as simple as all the content gains and share gains you've got there, is that what's driving that? You guys are zigging when a lot of guys are zagging. And then part of that answer, I'm curious, are you seeing any impact from any of the -- I know you've gotten this question, the sort of tariff and trade war talk and all that? So has that created any bubbles in that supply chain for you or your customer chain?

Thurman Case: Well your assumption is right. I mean the reason we can grow in China regardless of what others may be seeing, is content growth. And we've talked pretty openly that we are continuing to expand that and be able to penetrate. We do expect our overall android business to grow this year year-over-year. So that's also an indication of some growth there.

Looking at the tariff stuff at this point in time, it's not really affecting us. We'll keep a close eye on it, it's a fluid situation and we'll try to understand what's happening at any given time and we'll ascertain if it is going to affect us going forward.

Rick Shaefer: Maybe just my last question is you guys obviously generate a lot of free cash, you've got a great balance sheet. I know our bought back I believe about a million shares last quarter for roughly \$40 million and I think that leaves around 160 million you highlighted on your call left on that buyback. So I'm curious sort of what your plans are, as much as our can talk about that, and what your plans are for continuing to buy back or kind of where your head is on returning the cash.

Thurman Case: Well M&A is still a focus of ours in terms of we would like to continue to look at small tuck-in acquisitions which helps boost our product roadmap or accelerate things. Something more transformative on that side. It's a difficult situation. If we were to look at something of \$1 billion, \$1.5 billion type of market cap, there's not a whole lot of those left today, at least those that fit our kind of view of what we would want to do on an acquisition. We're not really interested in going out and buying scale that we have to replace that growth every 2 years. Companies do that really well, but for our culture, we feel that isn't the way we would go. But we'll continue to look. And valuations are high, premiums are high on the valuation, so it's not the easiest market for M&A for a company our size, but we'll continue to focus on those opportunities. That said, we do have 160 million left. We still look at share repurchases on an opportunistic basis, so we really don't have 10b5-1s or institutionalize that. We like to be able to have flexibility and utilize our cash based on the circumstances at the time. But certainly, share repurchase is a way for us to continue to return cash to shareholders and that will be high on the list.

Rick Shaefer: Okay, I think that's our time. John and Thurman, thanks for joining us. And Chelsea, thanks for coming.

John Forsyth: Thanks a lot, Rick.