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# **EDITED TRANSCRIPT**

CRUS - Q2 2018 Cirrus Logic Inc Earnings Call

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## **OVERVIEW:**

CRUS reported 2Q18 revenues of \$425.5m.



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#### **PRESENTATION**

#### Operator

Ladies and gentlemen, thank you for standing by. Welcome to the Cirrus Logic's Second Quarter Fiscal Year 2018 Financial Results Q&A Session. (Operator Instructions) As a reminder, this conference call is being recorded for replay purposes. I would now like to turn the conference call over to Mr. Thurman Case, Chief Financial Officer. Mr. Case, you may begin.

Thurman K. Case - Cirrus Logic, Inc. - CFO, Principal Accounting Officer & VP

Thank you, and good afternoon. Joining me on today's call is Jason Rhode, Cirrus Logic's President and Chief Executive Officer; and Chelsea Heffernan, our Director of Investor Relations.

Today, we announced our financial results for the second quarter fiscal year 2018 at approximately 4:00 p.m. Eastern. The Shareholder Letter discussing our financial results, the earnings press release, including a reconciliation of non-GAAP financial information to the most directly comparable GAAP information, along with the webcast of this Q&A session are all available at the company's Investor Relations website at investor.cirrus.com. This call will feature questions from the analysts covering our company as well as questions submitted to us via e-mail at investor.relations@cirrus.com.

Please note that during this session, we may make projections and other forward-looking statements that are subject to risks and uncertainties that may cause actual results to differ materially from projections. By providing this information, the company undertakes no obligation to update or revise any projections or forward-looking statements whether as a result of new developments or otherwise. Please refer to the press release issued today, which is available on the Cirrus Logic website, the latest Form 10-K and 10-Q, as well as other corporate filings made with the Securities and Exchange Commission for additional discussion of risk factors that could cause actual results to differ materially from current expectations.

Now I'd like to turn the call over to Jason.



#### Jason P. Rhode - Cirrus Logic, Inc. - CEO, President & Director

Thank you, Thurman. Before we begin taking questions, I'd like to make a few comments. For a detailed account of our financial results, please read the Shareholder Letter posted on our Investor Relations website.

Cirrus Logic reported outstanding results in the September quarter, delivering revenue of \$425.5 million, which was at the high end of guidance due to accelerating demand for certain portable audio products ahead of new product launches. Q2 was an exciting quarter for the company as we experienced strong demand for our sophisticated solutions and we began shipping boosted amplifiers, smart codecs and hi-fi DACs into a variety of flagship and mid-tier Android phones. In addition, several new wireless headsets were introduced that utilize Cirrus Logic technology, including our continuously adaptive ANC solution. We also delivered boosted amplifiers and a new smart codec into multiple smartphone models at another leading customer who values our continuous push to deliver lower power and higher performance mixed-signal capabilities. Design activity across our portfolio remains healthy, and we expect new devices with our innovative products to continue to be introduced throughout the year.

The company also achieved an important milestone on several strategic initiatives as we began demonstrating and sampling new products taped out last quarter to key customers, including our new 28-nanometer voice biometrics chip, a 55-nanometer boosted amplifier with integrated DSP and a digital headset hi-fi audio codec with integrated USB. We are pleased with our accomplishments in FY '18 and remain confident our extensive product portfolio and road map uniquely positions Cirrus Logic to take advantage of the demand for compelling audio and voice technology in the rapidly growing markets we serve.

Before we begin the Q&A, I'd also like to note that while we understand there is intense interest related to our largest customer, in accordance with our policy, we do not discuss specifics about our business relationship.

Operator, we're now ready to take questions.

#### **OUESTIONS AND ANSWERS**

#### Operator

(Operator Instructions) Your first question comes from the line of Charlie Anderson from Dougherty & Company.

#### Charles Lowell Anderson - Dougherty & Company LLC, Research Division - VP & Senior Research Analyst of Mobile Computing

I wanted to ask you, we have sort of different launch schedules maybe than in the past. So as it relates to seasonality, Jason, I'm just wondering if you have any comments on how we should be thinking about that going forward maybe into the March quarter, if you're willing to talk about that. And then also as it relates to that, you have a number of new products coming out. You're broadening your customer base. It sounds like just as we think about growth into the following year, if you have any general commentary on there, that would be helpful. And then I've got a follow-up.

#### Jason P. Rhode - Cirrus Logic, Inc. - CEO, President & Director

Okay. Sure. Yes, I mean, seasonality, obviously there's a number of moving parts. Demand has been great as we just reported, and certainly it's a robust guide for the current quarter. Beyond that, our ability to predict how many people are going to turn up and buy what is — it is what it is. We'll see what happens. We don't guide out the following quarter, and I think it kind of remains to be seen exactly how that shapes up. But we've certainly got a healthy expectation for that quarter. But as far as specifics, not something we want to get to be speculating about yet. As far as we go — where we're headed in the coming year and the coming years, we're plugged into more neat, new big things than we've ever been in the past. We've got multiple different growth factors that are large relative to the size of the company today. When exactly all of those follows is not always easy to predict, but we see great opportunity to both grow our existing — our business with existing customers as well as diversify our business over the coming years. And we're just excited about the opportunities there to continue to serve this challenging and exciting market.



#### Charles Lowell Anderson - Dougherty & Company LLC, Research Division - VP & Senior Research Analyst of Mobile Computing

Great. And then for the follow-up, I was curious, I have a question about voice biometrics. I think we've seen some of this sort of smart assistance the IoT devices now give the user the ability to sort of train multiple voices. I don't think anyone is actually calling it biometrics. It's more like voice recognition as sort of how it's being classified. But I wonder if you can maybe just compare that to your solution in terms of the quality and maybe where we'll see the sockets that make sense for your solution versus maybe sockets where it doesn't make sense where there's some of these types of ways to solve the problem.

#### Jason P. Rhode - Cirrus Logic, Inc. - CEO, President & Director

Sure. Yes, that's a great question. There's -- it's a different problem to solve and a different level of technology needed to solve it. The -- there's a couple of things that are different. So one, voice biometrics at a forensic kind of grade, so fingerprint level type authentication, can be done and has been done in the cloud. When you call into your bank and try to do transactions and whatnot, it's very frequently the case that they've got a server-based thing sitting there trying to validate you against the database of known voices for fraud protection. And that's actually the origin of this technology that we're working on. The difference is we're trying to render it down to an embeddable format to go into, initially at least, handsets because we see that as being the biggest opportunity for the technology in the short term. So in that context, if you're going to do biometric authentication, it's definitely important to have the entirety of the authentication be done in the device. The FIDO security alliance doesn't allow you to go off and store whatever you're authenticating against in the cloud, for example. Now it's really different than what you would do for voice assistance where, say, a couple and -- a couple of kids in the house have all got different permissions, or you want to know when I say play my favorite song, it plays mine, not my wife's. But at the end of the day, if you get that wrong, it's not that big of a deal. And I think most of the stuff that we've seen thus far in a lot of the voice assistance have been kind of that great. You wouldn't -- well, some people would allow it to read their e-mail. I personally would not. And I don't know that you would get to a 1 in 10,000 or 1 in 50,000, or whatever your metric is, false except rate for somebody trying to crack into your financial transactions, for example, or other sensitive information. So it's pretty different. Now that said, we've had interest from people in the smart home. That's a secondary target for us after handsets. Handsets, clearly, there's a ton of interest obviously right now in biometrics of all sort. Voice is kind of unique in that it is clearly the best one to use for things that are voices and interface-type products. And additionally, it's the only biometric that you don't have to touch or aim at your face or do other things with, and those are all great technologies, too. But when you're trying to use voice as an interface, voice is really pretty uniquely well served to work with that. And we've seen a ton of interest from a wide range of customers around the technology, and we think that what we're trying to deliver in an embedded form factor is relatively unique at this time. So something we're really excited about. I got to say the team -- there's a ton of new in that device, and we're by no means done. So I don't want anybody to get overly -- overheated about it in the short term. But man, what an incredible accomplishment by the technical teams involved in developing the product, speccing it out, having a first production-oriented device in 28-nanometer, having the [Rev A0 final] -well, [Rev A0] silicon come back and work and be demoed to customers. That's really a pretty amazing, amazing accomplishment right out of the gate. So kudos to that team. Anyway, thanks for your question.

#### Operator

Your next question comes from the line of Ruben Roy from MKM Partners.

#### Ruben Roy - MKM Partners LLC, Research Division - MD

I guess following up to that discussion, Jason, I was just wondering if you can maybe provide a quick update on your thoughts around competition. Obviously, a lot of voice applications are becoming more common with voice rec, et cetera, and other component companies talking about the various markets and various approaches to the problem. So you've got some new products out there within these markets, so maybe just an overview on what you're seeing in terms of alternative solutions and your approach competitively to what's out there.



#### Jason P. Rhode - Cirrus Logic, Inc. - CEO, President & Director

Well, it's a pretty -- I mean, it's a pretty fragmented set of applications that we sell into in the traditional voice markets, whether it's echo cancellation or some sort of noise suppression or beamforming or that sort of thing. There's solutions out there. We think voice biometric is really pretty unique. We don't see a lot of solutions out there. There's a number of things where I think people will probably look at it and go, "Oh, well, there's a connected home device that's got X, Y and Z voice services. Why aren't you in that?" and there's a number of those that we are in. There's also a number of cases where things that are being done in the cloud, for example, these -- the voice identification things that are being done in the cloud are applications that we can sell front-end technology to help clean up the signal so that those algorithms in the cloud can do a better job of identifying you, whether it's to figure out what song to play or, unfortunately, what ads to target at you or what not. So I don't see it -- I see it as such a huge opportunity that the world has thought about since we all watched The Jetsons when we were little kids. So it's not likely that we're going to be the only folks (inaudible). But I do think we're really pretty uniquely situated to serve that market given the ultrahigh performance, very low power, low latency capabilities that we have with our chips and then the supporting algorithms that go underneath those. And I think nowhere is that more -- nowhere can you make a more compelling case for what we do than really complexing the processing challenges like noise cancellation or the upcoming voice biometrics. So again, by no means a slam dunk, that we're done yet, but it's really great progress thus far.

#### Ruben Roy - MKM Partners LLC, Research Division - MD

No, that's helpful. As a quick follow up, in the Shareholder Letter, you guys talked about gaining momentum around digital headsets, and I guess you characterized development activities as robust. Anything incremental there over the last 90 days that make it -- that drove increased activity, I guess? Or is it kind of linearly progressing as you had originally thought for that market specifically?

#### Jason P. Rhode - Cirrus Logic, Inc. - CEO, President & Director

Yes, I mean, there's -- the aggregate up a bunch of base hits type opportunities and there's additional home runs out there that we're still swinging at. We talked about on the previous earnings call about our new device -- our new headset device for just basic digital headsets that was fully integrated with USB and all that. There's fair amount of interest in that. And then we're just busy broadening out the whole product line, whether it's ANC or basic digital headsets, further connectivity, et cetera. We think it will be a big and fragmented market and it will evolve over time. We're pretty pleased with overall how things have unfolded. It is definitely the case there's more ground to be gained in ANC over time. But for the coming years, we're pleased with how the digital -- the basic digital headset allow the replacement for traditional and expensive analog headsets. We're real pleased with our position there and how well that's gone thus far.

#### Operator

Your next question comes from the line of Tore Svanberg from Stifel.

#### Tore Svanberg - Stifel, Nicolaus & Company, Incorporated, Research Division - MD

So I think you've said in the past that you would expect the digital headset market and the wireless headset market to kind of coexist for a while. But specifically for Cirrus, could you maybe talk a little bit about the sort of relative opportunity for maybe the next few years, like, which one is greater?

#### Jason P. Rhode - Cirrus Logic, Inc. - CEO, President & Director

Well, certainly, wired is a much lower cost form factor, and we see that being a pretty big and meaningful, well, existing business for us. So for it to not be the bigger one, it would have to get a lot smaller, I would say. We see continued good opportunities for ourselves in lower-cost wired headsets. But that said, we've seen, as we referred to in the letter, wireless headsets as well. Our ANC device is interface agnostic. It can be used in a Bluetooth headset and clearly it has been. It can be used in wired headsets and clearly has been. So it's pretty well agnostic to that. And then the



purpose build, whether it's USB-C or the other dominant digital headset connection, we're well served to -- we're well situated to serve both those opportunities. And I would expect that to be larger than wireless for some time. You can do neat stuff with wireless, but it is significantly more expensive, of course. And then it come with the whole inconvenience of having to charge batteries and remember to do that for good old playing or what not. So people that use wired headsets tend to use -- tend to have a handful of them. You end up with one in your briefcase, one in your suitcase, one in your car. And obviously, they're a lot less expensive. So it ends up -- I think the dynamic will be, even [less] of fairly compelling opportunity for wireless headsets, I think wired will remain the more important form factor for us.

#### Tore Svanberg - Stifel, Nicolaus & Company, Incorporated, Research Division - MD

That's great perspective. And as my follow up, I -- you mentioned something in your Shareholder Letter I was hoping you could add some color on. I think you mentioned you have increased headcount and contract labor, working to accelerate certain key project. So I was hoping you can elaborate a little bit on that, please.

#### Jason P. Rhode - Cirrus Logic, Inc. - CEO, President & Director

Well, it's just — we're in the mode that feels like we've been in for better part of a decade where we couldn't possibly staff everything we would like to do. And to some extent, that's probably always true in a semiconductor company, but it's certainly more true now than ever. We've bitten off some much larger investments. Things like the voice biometrics chip is very, very different than doing a basic high-fidelity audio codec. You need a huge software team and tools folks and all manner of other things that we didn't use to need as much. The complexity of our devices, in addition to the high performance and low latency and the signal processing that we're well known for, has expanded quite a bit over the last handful of years. So that's certainly driven headcount. Most of the things that we're engaged in are very timely. If we could spend any amount of money possible to pull them in earlier, we would do that in a heartbeat because we know how compelling the opportunities are. So we try to use contractors wisely. Generally, that's not an IP creation type of deal. But in areas like silicon layout where we've used contractors for years to handle kind of peak loads, we think it would be really neat, like a lot of things in life, if everything was kind of a straight line, nice, smooth straight line over time. But as usual, there's peaks and valleys and whatnot, and you try to use contractors wisely to cover the peaks. That's more successful in areas like layout. Increasingly, things like verification and validation, we can do contract labor for some of that. But it is — it's definitely the case that even given an unlimited budget, we can't — we just cannot hire people fast enough that are capable of doing what we want to do. So that said, we've made great progress. As you pointed out, we've hired a bunch of good people over the last year. We'll keep an eye on that and be careful on that front from a financial perspective. But at the same time, we've got some really pretty remarkable opportunities in front of us,

#### Operator

Your next question comes from the line of Christopher Rolland from Susquehanna Internet.

#### Christopher Adam Jackson Rolland - Susquehanna Financial Group, LLLP, Research Division - Senior Analyst

You guys had some great commentary on haptics, and it definitely seems like it's becoming more robust in handsets today. So can you talk about that as a driver for your amp business? And then also you mentioned in your letter some unique implementations. Maybe talk about that. And were they specifically designed for a customer? Or are they your own designs?

#### Jason P. Rhode - Cirrus Logic, Inc. - CEO, President & Director

Well, I mean, everything we design is our own design. Generally, when we do custom designs for customers, we don't talk about them much other than they just show up in the results and we kind of have some generalities around them. So things we're talking about in the letter are -- tend to be for the open market. That doesn't mean we don't have similar things, obviously, going on for specific customers or custom devices, for example. But generally, if we're talking about it in the letter, it's for the open market. The haptics, that's a great extension of the amplifier product line. So



we developed boosted amplifiers a number of years ago, really started shipping that in 2012 and that's been a great product line for us since then. It's a big and growing part of the business. And increasingly, we've kind of realized some great work by our technical team and the technical marketing staff to figure out that, hey, that's an awful lot like what we would really need to do a great job of driving an LRA to create a haptic kind of an effect that also cares a lot about a lot of the things we're good at. You need to -- there's a lot of value in having the boosted power supply so that you can accelerate a mass very quickly or stop it very quickly. There's definitely a need for low latency. We've recently taped out a device that was for the audio amp market, which we talked about in the letter with the 55-nanometer DSP integrated onboard, which we think is going to be very, very successful in the Android market. As a result of the integrated DSP, it makes it just a lot easier to integrate into the system. But as it relates to haptics, it also forms a really good base product for a haptic amplifier where the DSP can be incorporated on a chip and we can do all sorts of stuff. As a self-contained product, it wouldn't take other people multiple devices or running code in an AP that maybe they don't have as much control over as they'd like. So anyway, it's a great example of using technology we have today to go explore a new market. So far the signs are good that there's good opportunities there. There's definitely a lot of interest from customers in all manner of uses of haptic, from button replacement to just good tactile feedback for various other reasons. So much like the rest of the amplifier market, there's a bunch of good trends there that make us pretty excited about the opportunities we have. But certainly days in the haptic space, and we'll capitalize on those opportunities as they unfold.

#### Christopher Adam Jackson Rolland - Susquehanna Financial Group, LLLP, Research Division - Senior Analyst

Great. And the next question is for Thurman. So this year was obviously a record year for you guys, huge content wins for you guys. But as we look out next year, there's potential risks here for ASP reductions year-on-year, maybe even loss of content in certain handsets. Would you make the corresponding adjustments to OpEx if we did happen to see downside? Would you try to mitigate your bottom line? Or do you consider your OpEx plans today absolutely necessary for your future growth strategy?

#### Thurman K. Case - Cirrus Logic, Inc. - CFO, Principal Accounting Officer & VP

Well, we feel that we'll continue to invest in R&D. We've talked about that. For us, with the long life cycles of our product development and other things and the innovation that we depend upon, those investments will be made. That said, we will invest appropriately. And SG&A, we've already said that that's going to be reasonably flat and we would expect that. So we manage our business along those lines, and we'll do what we believe is the appropriate thing without hurting our future development activities.

### Operator

Your next question comes from the line of Matt Ramsay.

#### Matthew D. Ramsay - Canaccord Genuity Limited, Research Division - MD

I guess, Jason, I'm just trying to characterize maybe over the next 12 to 18 months drivers of growth outside of sort of unit growth from your largest customer. I guess, would you characterize the opportunities in amp particularly in the Asia, China market and then with the new integrated USB-C headset product, would those be sort of the next 2 drivers of growth that we should think about in sort of that medium-term time frame?

#### Jason P. Rhode - Cirrus Logic, Inc. - CEO, President & Director

That's the same story we've been pitching for the last couple of years. I mean, our -- we've got these big opportunities, a number of layers in the growth strategy, certainly, headsets, amplifiers, broadening out the business for smart codecs into sort of Android accounts [3 through 10], if you will, or handset accounts 3 through 10, if you will. So that is a story that's unfolding. It's relative to our custom chip business where you kind of more or less know the plan a record 3 years in advance. You got less visibility about exactly what it's going to work out to be in any particular quarter in that market. But nonetheless, it adds up to a great bunch of opportunities, so there's certainly that. And then over time, adding on top of that set of our businesses, we're making good progress on the microphone side. Again, not a slam dunk. It's pretty far out there, but it's big



relative to the size of the company today, and the team's making good progress on all manner of technical issues to serve a market that could be pretty meaningful for us. Voice biometrics, again, early days. Got the device back, works better than really anyone rational should have a right to expect right out of the gate. So again, amazing job by the team there. So that's -- again, that's probably further out, but that's great. We've got plenty of things over the next year or 2 that we expect to help drive growth in that time frame. Pretty much same story though is...

#### Matthew D. Ramsay - Canaccord Genuity Limited, Research Division - MD

Just a couple little things and a follow-up. I guess one, one of your larger smartphone customers [in Korea] made some decisions to [use] sort of more of a mid-tier product from you guys, and I don't know, some work we've done. Maybe there's some opportunities to win that business back for you. I don't know how you would characterize that. And second, Thurman, you pointed out it's a 13-week quarter in the December quarter. Maybe you can help us sort of level set OpEx expectations as we go into March just to understand in which parts of OpEx are variable and which aren't for the extra week.

#### Thurman K. Case - Cirrus Logic, Inc. - CFO, Principal Accounting Officer & VP

Okay. So well, on the extra week, it's -- a lot of it is not variable. I mean, it's just the -- what we're spending. So when you look into the March quarter, you can look at that as OpEx will move downward in the direction in some of the areas. We'll continue to add headcount, and variable comp moves around based on what is happening. So the March quarter will reflect that difference from the December quarter, and we would -- and we'll talk about that at that point.

#### **Jason P. Rhode** - Cirrus Logic, Inc. - CEO, President & Director

Then yes, as it relates to the codec, it's a kind of thing that happens from time to time. Like, as I would say, it's not a straight line up into the right. We didn't think that was a sensible decision. I think facts have borne that out sort of after things have gone down at that customer. We -- nonetheless, we have a great relationship there. We see many ways to grow that business in a pretty meaningful way, both inclusive of both regaining the content, regaining -- resuming shipping a larger die there in the future, but other opportunities as well. It's a great relationship, a customer that clearly values what we're able to do. We think we can gain share there. We think we can sell multiple new different devices there. We can -- think we can sell into form factors there that we haven't sold into before. So all in all, I think -- there's always ebbs and flows to everything, but our opportunities there are better than they've ever been.

#### Operator

Your next question comes from the line of Blayne Curtis.

#### Blayne Peter Curtis - Barclays PLC, Research Division - Director and Senior Research Analyst

Just want to follow up on the questions on the extra week. A lot of times companies say, hey, it's less than kind of 7% to 8% if you just did the math because it's the end of the year. For you, with your customer, I thought that's maybe even bigger. So I'm just trying to understand what that impact was for December revenue?

#### Thurman K. Case - Cirrus Logic, Inc. - CFO, Principal Accounting Officer & VP

Well, we haven't actually had December yet. So for us to be able to gauge what that number will be in the last week, the last week of our quarter this year will be the 30th of December, and what happens in that last week, we -- there's no way for us to be able to tell at this time. So it could be larger, it could be smaller. But we've always said that when you get towards the end of the quarter, there can be a lot of variability between the quarter that we're in and the quarter, the next quarter and there can be some movement during those weeks.



#### Jason P. Rhode - Cirrus Logic, Inc. - CEO, President & Director

Yes, I mean, it's interesting. It's certainly much more formulaic on the expense side. The revenue side, I was talking to somebody the other day and my joke about that was, "Well, you just tell me which week was the extra week and then we'll let you know what the impact was." There's always dynamics around the end of the quarter that, like, look, the last couple of weeks of the quarter tend to be where contract manufacturers are (inaudible) all sorts of backlog around trying to manage their contract pricing and all sorts of stuff. So it just tends to be a busier time, the very last end of the quarter and the very early part of the next quarter. And so as Thurman pointed out, it's hard to predict, and it's definitely hard to be able to definitively pin down on revenue. So we just approach it the same way we always do on the revenue side of looking at here's what the forecast says, here's what the backlog says and that's where we end up with the number. And on the revenue side, there's not a lot of point for us spending time on the extra week angle. It's just whatever the number looks like. It is what it is.

#### Blayne Peter Curtis - Barclays PLC, Research Division - Director and Senior Research Analyst

Got you. And then I do want to ask you, Jason, just -- you talked about a lot of opportunities outside of that largest customer. I mean, if you just do the math and kind of back out the disclosed revenue for Apple, the remainder hasn't grown for a long time, so I'm just kind of curious. I know you had ups and does. You mentioned that one customer. I mean, you've had opportunities, you've been in stuff and then they've worked their way out. You're hopeful on all these different other avenues. I'm just kind of curious when you think this non-Apple revenue will resume growth.

#### **Jason P. Rhode** - Cirrus Logic, Inc. - CEO, President & Director

Well, I mean, if you look at it, it's -- I always love when the premise of the question is when your largest opportunity, if it wasn't there, then you wouldn't be doing as well, which, yes, that is probably true. The neat bit about that is we've done a great job of making sure we staff our biggest opportunities, which -- a lot of which happen to be our largest customer. And so we've managed to capitalize on that very well and make a great and happy customer out of them. Looking back to 2014 when we did the Wolfson acquisition, the reality was Cirrus and Wolfson both were staring at these opportunities, gone -- neither of us can do everything we want to do to serve our markets. We had our largest customer we could barely keep up with, and they were in a similar situation with their largest customer. And see, if you look at it and put -- we ultimately put the 2 companies together. We've been able to broaden the product lineup more rapidly and do all sorts of good things, investing in microphones and headsets and voice biometrics to name a few. And so from an outside perspective, I get it. You can look at that and go, why has that taken so long. But at the same time, if I look at portable audio when we first started investing in that a number of years ago, that -- I don't think anything could have gone more on track. Like, we got a number of lucky breaks. We hit the ball out of the park. We got lined up with the best customer on the planet at just the right time. And it still took 5 years from when we started investing it -- in it to when it hits simple buyback of the cash, which at that point went through the roof and has been hugely profitable. So it's hard to call exactly when things take off in a general market sense. We're not waiting for some standard or we're not waiting for a bunch of things that are a little more formulaic to predict. But we've never been investing in this many big picture things. We've never been as plugged in with these many customers that can drive meaningful numbers for us. And we've never been investing in vectors that have the potential to be large relative to the size of the company. So I think the opportunities there are real. You think about that 5-year time line, I don't know if that's any -- if there's any magic to that number, but that is kind of how long it takes. And I think that puts us in a real good position to capitalize on the stuff we've done post the Wolfson acquisition over the next couple of years. So we don't give long-term forecast for a reason because it's pretty hard to predict overall. But nevertheless, the opportunities we're engaged in are really, really exciting and that's why we're investing in them. And as usual, if there's any sort of directional notions that we're giving out in this forum, it's usually in the context of us being a pretty conservative bunch with more than one way to get to the number. So the net of all that, I think, for people that are looking at us from the outside and followed us for as long as lots of people have, probably sets a pretty good tone for where we're headed in the future.

#### Operator

Your next question comes from the line of Rick Schafer from Oppenheimer.



#### Richard Ewing Schafer - Oppenheimer & Co. Inc., Research Division - MD and Senior Analyst

Yes, Jason, I guess my first question. I just was curious on -- you mentioned MEMS mics a minute ago. Maybe an update on the MEMS mic effort there and sort of when we expect capacity up to be able to support sort of a Tier 1 customer type volumes? And how do you get there? I mean, is it adding new lines? Is it better yields? Or sort of what are the hurdles to actually get in there?

#### Jason P. Rhode - Cirrus Logic, Inc. - CEO, President & Director

There is not a real hurdle to getting the capacity. It's a chicken and the egg problem. What we've said is that the real thing we need to develop is just the capability of being as sterling a supplier of microphones as we are in the silicon side. And our view is that if we can bring to bear what we do in silicon on the overall microphone business and bring the considerable resources that we bring to play, we should be able to do the exact same thing with microphones that we do with silicon. We should be able to take a spec from a customer, crank it out on time, have it be reliable and production-able and not have challenges and issues with it in production. There isn't a supplier, in my opinion, that you could say that about in microphones today, and it is the single most compelling thing that our customers ask for. If you could just take the surprises and the drama out of microphones, you'd be the most valuable supplier of those devices in the market. So it's -- I get it why it can look like a capacity challenge and that there is that wrinkle to it as well. But it's about kind of in parallel bringing up the capabilities of what we're trying to do as well as and then sensibly spending the CapEx with -- in partnership with our supply chain to develop the capacity as needed. But I wouldn't really view it as a capacity -- it's not primarily a capacity challenge. We have the resources to solve that problem as we sort the chicken and egg of making sure that we're able to deliver the same kind of -- to the same kind of expectations that our customers have come to know us for in the silicon side. So -- and that sets us up to be able to do a lot of great stuff over time, and we're certainly not the only guys out there talking about smarter microphones. But the reality is unless your device is connected too on the other side of the wire, you're kind of the kid with one walkie-talkie and it's hard to really do anything. And frankly, nobody wants you to do anything unique if you can't be relied on to be a single source. So it's kind of a multiyear, multilayer process of iron out the wrinkles, prove over a year or 2 that we can deliver very, very high volume microphones as a single source and then migrate those type of devices to be significantly more IP-intensive type devices where the overall chip set can deliver the kind of margins that our business is built around and the kind of value for our customers that those margins kind of require. So that's kind of the where we are in a nutshell. Where we were this time last year was a list of technical challenges a mile long with a supply chain that was kind of scattered all over the place. The team has done an amazing job of bringing up 100% supply chain in Taiwan, Tier 1 vendors right across the street from one another. And we're building microphones there and learning and growing and doing a lot of good things and having good dialogue with customers about it. So I'm increasingly optimistic, but with the caveat that microphones are really, really hard issue. For sure, you get paid more than \$0.30 per microphone. But the reality is a lot of the prices we're targeting have 3 or 5 microphones a piece, and it's not that often that you find opportunities where the big device that we're selling in the center of the board is \$1.50 worth the content connected to it around the device in a way where we can see that we can add value over time. So it remains a really compelling opportunity for us. I think the team has done a great job of making progress on it over the last year. I think it's an area where our resources give us a significant advantage, just financial resources, engineering talent and otherwise.

#### Richard Ewing Schafer - Oppenheimer & Co. Inc., Research Division - MD and Senior Analyst

Got it. And then just my follow-up is just, I think you guys have bought back about \$100 million worth of stock, I think, the last couple quarters. That's tracking a whole lot faster than last year. I guess my question is what's left on the buyback authorization now? And maybe if you could discuss plans for cash going forward.

#### Thurman K. Case - Cirrus Logic, Inc. - CFO, Principal Accounting Officer & VP

Well, we still have \$80 million left on the repurchase program. We'll continue to look at repurchasing on an opportune -- repurchases on an opportunistic basis, so we don't do that institutionally. We paid out our debt in Q1, so we're not looking at that. And then as normal M&A, whether it be tuck-ins or technology types of acquisitions or even something larger, we continue to look at those. But in terms of being actionable, transformative type of M&A is a challenge. So we consider it, and we'll continue to look at it, but those would be the things that we focus on.



#### Jason P. Rhode - Cirrus Logic, Inc. - CEO, President & Director

Yes, we'd love to find something else as big and transformative as Wolfson. It's just hard to know what that really would be. We're very much not -- from an M&A perspective, we're very much not pursuing the sort of financial engineering accounting that was really fashionable last year. It seems to be a little less so this year. But anyway, this is not our gig, but it is very [tempting]. The cash, we think we've executed on the buyback well. We don't announce them because we don't intend to do them. We announce them, tee them up and then we're just kind of quiet about taking shares off, as Thurman said, opportunistically and from time to time. It's not burn it all on our pocket. I think we've done a good job of delivering cash back to shareholders over the last 10 years. So we'll just keep continuing to look at it that way and take a very long term perspective about making sure we get the answer right.

#### Operator

(Operator Instructions) Your next question comes from the line of Rajvindra Gill from Needham.

**Rajvindra S. Gill** - Needham & Company, LLC, Research Division - Senior Analyst of Microcontrollers, Analog & Mixed Signal; Consumer IC & Multi-Market

On the Shareholder Letter, you mentioned lots of vectors of growth and content opportunities. Just wanted to kind of drill into the China market a little more specifically both in the amplifier market as well as the audio codecs and where the competition on the amplifier market might be an opportunity for you to kind of exploit as these competitors are larger in scale and have other products not necessarily focused on the midrange amplifier. So just wondering if you could touch a little bit on that side and then also on the audio codec side on the midrange. What's been kind of the feedback thus far about some of the customers potentially breaking the bundle that either Qualcomm offers or Samsung [LSA]?

#### Jason P. Rhode - Cirrus Logic, Inc. - CEO, President & Director

Well, it seems -- every quarter, it seems like we've broken the bundle at another account in China. We've done a great job with us starting with -there's plenty of teardowns out there that show us in Lenovo handsets with that set up. There is no technical barrier to breaking the bundle. It sometimes is an emotional hurdle, or sometimes it's a customer that there's just not a spec that they can market around that we can change for them for a variety of reasons. Android handsets in China tend to be very spec driven. So any number that a Sina or a GSMArena, for example, might measure, they'll figure out ways to better max that out to levels that sometimes make sense and sometimes don't. So we've seen a lot of opportunity there for our smart codecs and broken bundle situations for feature implementation, things like -- last year, it seemed like there's a lot of demand for karaoke on handsets, for example. Always-on voice is important in Android in general. It's a little bit less prevalent, I think, in China handsets for whatever reason. So -- but there's things like that, that will continue to drive opportunities for us in Android. And the cool thing is that, again, it takes longer than you would guess, but we've now got a range of smart codecs from very inexpensive single core devices up through the flagships with many cores and tons of MIPS and quite a lot of memory. And the cool thing about that is they're supported by the same set of tools and it's the same DSP core and all that. So once you've used our smart codec, once the leverage on that investment is really pretty high and is propagated around the rest of your product line, which we've seen happen. So from an amplifier perspective, you kind of referred to something that's an interesting point, which is the competition there for us tends to be Maxim and NXP. Both of them are pretty large and it's a bit of a sideline product for them. I certainly wasn't privy to why Qualcomm decided they wanted to take on that acquisition. I'm pretty happy they did, frankly. Though NXP, of the 2, tends to be a little more prevalent in China and that's, I think, specifically because of the integrated DSP that they've got in their amplifiers. So you don't have to run the code on the application's processor, for example, to do speaker protection. This new 55-nanometer device that we've talked about in our Shareholder Letter is squarely targeted at that market. It's a much finer line geometry. It's a much higher performance sort of processing capabilities than what we're competing with. And so far the interest level in that in the Android space has been very high because it's just a simple device to use. It delivers great benefits, result in a way that not only is measurable from a spec perspective but actually from a consumer, the owner of the handset, can experience it immediately. You can create a louder handset. You can easily create a stereo handset. And these are things that -- and consumers really, really want not just some magazine spec. So that, I think, opens the doors greatly for us. Generally, too, I would much rather compete against big competitors than scrappy little ones. So the fact that our big competitors get gobbled up into bigger



competitors is generally a good thing for us. It's certainly a good thing for us on the recruiting and hiring side. All of that M&A that's taken place over the last several years has proven to be a great benefit from us -- for us from a hiring perspective. So we made a lot of progress there. So anyway. Yes?

**Rajvindra S. Gill** - Needham & Company, LLC, Research Division - Senior Analyst of Microcontrollers, Analog & Mixed Signal; Consumer IC & Multi-Market

Yes, and just for my follow up. On the voice biometrics opportunity in terms of the application that you're seeing, say, outside of smartphones, how would you characterize some of the biggest applications or the low-hanging fruit, so to speak, for always-on voice activated world? Is that smart speakers, smart assistance, wearables, remotes?

#### Jason P. Rhode - Cirrus Logic, Inc. - CEO, President & Director

Yes, those are all things we're interested in. Our largest opportunities in — over the first life cycle of the product line is handsets and then followed by handsets because it's just a very compelling thing that we can do. The products are there. It's already a huge market. Customers are interested in it. So we're focused on that first. There are certainly things that if you think about the Internet of Things category of stuff that is connected to your handset, a lot of those are voice devices that are intended to be used when you're not fondling the device itself. So it's kind of nice if voice is the primary interface. And certainly, having voice be the biometric in those use cases is really pretty compelling. So it's not that it is — it's more that it's — it's more that it's — it's more that it's a related thing to the Internet of stuff applications. As far as smart speakers, it's a good opportunity over time. I think there's a lot of interest there. It's not the highest priority for us for the voice biometrics despite that we sell other things into that market in the short term. We certainly will attempt to convince our customers that adding an embedded voice biometrics device in a connected home, instead of beaming your data off to the cloud and dealing with all the — just what was it a week or 2 ago that one of the, well, more brand name suppliers of connected home speakers blew up all over the Internet for beaming your data up to the cloud when they weren't beaming your microphone data up to the cloud when they weren't supposed to be. You should have a secure, reliable voice authentication device in front of any transaction where you're going to start beaming voice data off to the cloud. I think if most consumers were savvy about what's being done in those — in some of those devices, they'll probably be very careful about deploying them. So I think we solved a real problem there. It's definitely a market where we think we can add a lot of value and we'll certainly try to convince our customers. There's i

#### Operator

Your next question comes from the line of Adam Gonzalez.

#### Adam Gonzalez - BofA Merrill Lynch, Research Division - Research Analyst

I just wanted to piggyback on Blayne's question from earlier. If you look at the rest of the business outside of your largest customer, it looks like year-on-year declines accelerated somewhat. I know the comps are being impacted by lower ASP at your next largest customer. But I just wanted to get your take on when the tide will turn there, when some of the opportunities you've been talking about, be it digital headsets or Android OEMs [3 through 10], when they'll become large enough to really drive a return to year-on-year growth in this other portion of the business.

#### Jason P. Rhode - Cirrus Logic, Inc. - CEO, President & Director

Yes, sure. Well, so I mean, we're not going to point defense and declare that they exactly -- you're right about the cause of that, the primary -- we've made great progress in the Android space. We've broadened out the customer base. We're shipping in more handsets. We're shipping to more customers. The ASP loss at our second largest customer was not certainly great, but it does happen from time to time and again, the relationship is intact. We're a highly valued supplier, and we see more opportunity there than we've ever had. So both in the context of "getting that content back, but also in selling new devices to that customer," 4 new devices at that customer and just all manner of good stuff going on. So again, we'll



decline to point defense on exactly what date. But over the next couple of years, we would expect to do really good things at the second largest customer. And I -- I've said this before, we do see good opportunities to diversify our business and also grow our business with our largest customer. Sometimes I've said that in the past and then our largest customer's kind of gone up -- gone out and beat up on everybody else. But that's a perfectly nice problem to have.

#### Adam Gonzalez - BofA Merrill Lynch, Research Division - Research Analyst

Got it. And just a follow-up on the MEMS microphone business. I understand the value of being a dependable supplier there. But do you have any other areas where you could perhaps explain where your differentiation will be versus the competition?

#### Jason P. Rhode - Cirrus Logic, Inc. - CEO, President & Director

Yes, long term, we're the largest supplier of the things that the microphones are connected to. And if we can't turn that — if we are able to be a dependable supplier of microphones, then we will be able to exploit that capability of supplying the whole chipset in the same way we do the whole rest of our business. It's just easier to buy parts from somebody that turns up with the whole kit of everything and it's done and it's all wired together and we deliver great customer support the way we do with everything. Yes, no, it is — it's part and parcel that and we really iron that out. And again, we make great progress, but I'm certainly not declaring mission accomplished in this space.

#### Operator

Your next question comes from the line of Tore Svanberg from Stifel.

#### Tore Svanberg - Stifel, Nicolaus & Company, Incorporated, Research Division - MD

I just had 2 quick follow-ups. First of all, on the DSP embedded on the amplifier. Does that mean that actually ASPs can increase over time? I'm just trying to think about how you can add more and more functionality onto the DSP. Am I thinking about that the right way?

#### Jason P. Rhode - Cirrus Logic, Inc. - CEO, President & Director

I would -- I mean, I get your point and there's an element of that to it. So the challenge is in thinking about the average of the average selling -- ASP is average selling prices. So if you think about the average of the average, it gets a little squarely. On a part-by-part basis, there are certainly opportunities for higher ASP devices. That particular device, this 55-nanometer integrated amp, is targeted at accounts where we don't currently sell amplifiers. It is intended to be a pretty cost-sensitive device, so we keep thinking about it in that \$0.50 range. It's a game of inches, of course. There's -- we say think about amps as a \$0.50 device. That could mean \$0.60. It could mean \$0.40 in some cases. But I would suggest continuing to think about them as a \$0.50 device. The great thing about that for us is it's just such a huge market. It's obviously all of Android that is still pretty new opportunity for us. It's all of Android migrating or a good bit of Android over time migrating towards stereo, which is a meaningful addition and content. And then over time, more and more people looking to capitalize on the haptics opportunities as well, which is additional opportunity for us and in some cases, with the same devices. So the net of it in a way, you could think about the ASP per handset that we target certainly over time will go up as more models migrate towards stereo.

#### Tore Svanberg - Stifel, Nicolaus & Company, Incorporated, Research Division - MD

Very good. And back to the voice biometrics chip. So just thinking about the ROI there, is all the heavy lifting has already been done? Or would you foresee maybe a second-generation part of that solution before it sort of becomes in full production?



#### Jason P. Rhode - Cirrus Logic, Inc. - CEO, President & Director

Well, I mean, the goal is always to knock the cover off the ball with the first part of its kind, but it's very rarely the case in our business that we can do one part and then we're done. We will certainly need to follow that on with devices where we've learned from the first engagements with customers. Again, we certainly hope and aspire to sell the first device in high volume. And so far, nothing is suggesting to us that, that wouldn't be the case. That said, we learned a lot. We'll learn how to make a better next one. And then additionally, it really begs to be integrated into the smart codec family over time from a differentiation perspective. We will -- we expect to wrap our mixed-signal portfolio [A/Ds] and amplifiers and so forth around that mostly. And to some degree, integrate it into the device, but also as a cohesive chipset to really integrate -- to really deliver a whole handset worth of audio comprehensive of voice biometrics. So that might entail us migrating our IP down to 28 -- our analog IP down to 28-nanometer, which we would do anyway for the long-term smart codec road map. But certainly, voice biometrics is a big enough piece of digital heavy lifting that we'll end up doing it sooner than we would do otherwise. So yes, I wouldn't -- it's certainly a big hurdle to get over and the big IP development from a voice biometrics perspective, but we will definitely need to keep turning the crank -- turning -- so that we can turn that into a valuable long-term product line.

#### Operator

(Operator Instructions) There are no further questions at this time. Ms. Chelsea Heffernan, I turn the call back over to you.

#### **Chelsea Heffernan**

Thank you, operator. There are no additional questions, so I will now turn the call back to Jason.

#### Jason P. Rhode - Cirrus Logic, Inc. - CEO, President & Director

All right. Thank you, Chelsea. In summary, we are pleased with our accomplishments in the September quarter as we reported solid revenue, operating profit and earnings per share as new product ramps and design activity accelerated across our portfolio. With a wide range of boosted amplifiers, smart codec, hi-fi DACs and MEMS microphones that target smartphone and other mobile devices, digital headset and smart home applications and innovative new technologies, such as voice biometrics, we believe Cirrus Logic will continue to be the leading provider of value on voice solutions for many years.

But also note that we will be presenting at the MKM conference in New York on November 16 and the NASDAQ conference in London on December 5. Live webcast of these events will be available at investor.cirrus.com. If you have any questions that were not addressed, you can submit them to us via the Ask the CEO section of our investor website. I'd like to thank everyone for participating today. Goodbye.

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