Q1 2018 Earnings Call

Company Participants

- David Pahl, Vice President, Head of Investor Relations
- Rafael R. Lizardi, Chief Financial & Accounting Officer, Senior Vice President

Other Participants

- Ambrish Srivastava, Analyst
- Blayne Curtis, Analyst
- Chris Caso, Analyst
- Christopher Brett Danely, Analyst
- Joseph Moore, Analyst
- Romit Jitendra Shah, Analyst
- Stacy Aaron Rasgon, Analyst
- Toshiya Hari, Analyst
- Vivek Arya, Analyst

MANAGEMENT DISCUSSION SECTION

Operator

Good day and welcome to the Texas Instruments First Quarter 2018 Earnings Release Conference Call. Today's conference is being recorded. At this time, I would like to turn the conference over to David Pahl. Please go ahead, sir.

David Pahl {BIO 18870833 <GO>}

Good afternoon and thank you for joining our first quarter 2018 earnings conference call. Rafael Lizardi, TI's Chief Financial Officer, is with me today. For any of you who missed the release, you can find it on our website at ti.com/ir. This call is being broadcast live over the web and can be accessed through our website. A replay will also be available through the website.

This call will include forward-looking statements that involve risks and uncertainties that could cause TI's results to differ materially from management's current expectations. We encourage you to review the notice regarding forward-looking statements contained in the earnings release published today as well as TI's most recent SEC filings for a more complete description.

I'll start with a quick summary of our financial results. Revenue for the first quarter increased 11% from a year ago as demand for our products remained strong in the industrial and automotive markets. In our core business, Analog revenue grew 14% and Embedded Processing revenue grew 15% compared with the same quarter a year ago. Operating margin increased in both businesses. Earnings per share were $1.35, including $0.14 cents in tax-related benefits not in our original guidance. These were primarily due to the recent tax reform law.

With that backdrop, I'll provide details on our performance, which we believe continues to be representative of the ongoing strength of our business model. In the first quarter, our cash flow from operations was $1.1 billion. We believe that free cash flow growth, especially on a per-share basis, is most important to maximizing shareholder value in the long term. Free cash flow for the trailing twelve-month period was $4.9 billion, up 17% from a year ago. Free cash flow margin for the same period was 32.1% of revenue, up from 30.7% a year ago. We continue to benefit from the quality of our product portfolio that is long-lived and diverse, and the efficiency of our manufacturing strategy, the latter of which includes our growing 300 millimeter analog output.

We believe that free cash flow will only be valued if it's productively invested in the business or returned to owners. For the trailing twelve-month period, we returned $5.1 billion of cash to owners through a combination of dividends and stock repurchases.

I'll now provide some details by segment. From a year-ago quarter, Analog revenue grew 14% due to power and signal chain. High volume was about even. Embedded Processing revenue grew by 15% from a year-ago quarter due to growth in both processors and connected microcontrollers. In our Other segment, revenue declined 13% from a year ago primarily due to custom ASIC products.

Now, I'll provide some insight into this quarter's revenue performance by end market versus a year ago. Industrial demand remained strong with broad-based growth. Automotive demand remained strong, with all sectors contributing to growth. Personal electronics grew, with increases across several sectors and customers. Communications equipment declined, but was about even compared with the fourth quarter. And lastly, enterprise systems grew.

As we get more insight into and guidelines on the tax reform law, we have updated our tax estimates.

First, we now expect a 16% ongoing annual operating tax rate starting in 2019, down from our prior expectations of 18%. Second, for 2018, investors should now assume a 20% annual operating tax rate, down from our prior expectation of 23%. The 2018 rate is higher than the 2019 rate due to a transitional non-cash expense in 2018. As a reminder, our operating tax rate does not include any discrete items.

To get you to an effective tax rate by quarter for the balance of the year, we continue to expect the benefit from stock-based compensation to be about $10 million in the second and third quarters, about and $5 million in the fourth quarter. Therefore, the effective tax rate will be about 20% in each of the remaining quarters of 2018. You will find this information summarized on our IR website under financial summary data, as we've done in the past. And then lastly, in the first quarter of 2018, we had about $140 million of tax benefits that were not in our original guidance. These include $50 million due to stock-based compensation, $50 million due to the updated estimates related to the tax reform law, and $40 million primarily due to the previously described decrease in the tax rate for 2018.

In summary, we continue to focus our strategy on the industrial and automotive markets, where we have been allocating our capital and driving initiatives to strengthen our position. This is based on a belief that industrial and automotive will be the fastest growing semiconductor markets. They have increasing semiconductor content. These markets also provide diversity and longevity. All of this translates to a high terminal value of our portfolio.

Rafael will now review profitability, capital management and our outlook.

Rafael R. Lizardi {BIO 20006334 <GO>}

Thanks, Dave, and good afternoon everyone. Gross profit in the quarter was $2.45 billion or 64.6% of revenue. From a year ago, gross profit increased due to higher revenue and lower manufacturing costs. Gross profit margin increased 160 basis points.

Operating expenses in the quarter were $880 million (00:06:42), a 1% increase from a year ago and about as expected. R&D grew 4% and SG&A was about even. On a trailing 12-month basis, operating expenses were 20.9% of revenue, within our range of expectations. Over the last 12 months, we have invested $1.52 billion in R&D. We are pleased with our disciplined process of allocating capital to R&D that allows us to continue to grow our top line and gain market share.

Acquisition charges, a non-cash expense, were $80 million. Acquisition charges will be about $80 million per quarter through the third quarter of 2019 then decline to about $50 million per quarter for two remaining years.

Operating profit was $1.55 billion or 40.9% of revenue. Operating profit was up 24% from the year ago quarter. Operating margin for Analog was 45.4%, up from 41.4% a year ago and for Embedded Processing, it was 35.4%, up from 29.9% a year ago. Our focused investment on the best sustainable growth opportunities with differentiated positions enabled both businesses to continue to contribute nicely to free cash flow growth. Net income in the first quarter was $1.37 billion or $1.35 per share.

Let me now comment on our capital management results, starting with our cash generation. Cash flow from operations was $1.11 billion in the quarter. Capital expenditures were $189 million in the quarter. Free cash flow was $4.92 billion on a trailing 12-month basis, up 17% from a year ago. In the first quarter, we paid $611 million in dividends and repurchased $873 million of our own stock for a total return of $1.48 billion in the first quarter. We have returned $5.1 billion to owners in the past 12 months, consistent with our strategy to return to owners all of our free cash flow.

Over the same period, our dividends represented 45% of free cash flow, underscoring their sustainability. Our balance sheet remains strong with $4.1 billion of cash and short-term investments at the end of the first quarter. Total debt is also $4.1 billion, with a weighted average coupon rate of 2.05%. Inventory days were 136, up 4 days from a year ago and within our expected range.

Turning to our outlook for the second quarter, we expect TI revenue in the range of $3.78 billion to $4.10 billion and earnings per share to be in the range of $1.19 to $1.39, which includes an estimated $10 million discrete tax benefit.

In closing, I'll note that the strength of our business model was demonstrated throughout our financial performance over the last few years from top-line growth and margin expansion to free cash flow generation. We continue to invest in our competitive advantages, which are manufacturing and technology, portfolio breadth, market reach and diverse and long-lived products.

We will continue to strengthen these advantages through disciplined capital allocation and by focusing on the best products, Analog and Embedded Processing and the best markets, industrial and automotive, which I believe will enable us to continue to improve and deliver free cash flow per share growth for a long time to come.

With that, let me turn it back to Dave.

David Pahl {BIO 18870833 <GO>}

Thanks, Rafael. Operator, you can now open up the lines for questions. In order to provide as many of you an opportunity to ask a question, please limit yourself to a single question. And after our response, we'll provide you an opportunity for additional follow up. Operator?

Q&A

Operator

Thank you. We'll go first to Vivek Arya with Bank of America Merrill Lynch.

Q - Vivek Arya {BIO 6781604 <GO>}

Thanks for taking my question, and congratulations on the strong results and the consistent execution. For my first question, since you guys have such a wide perspective on the global economy, I was wondering if you could give us a sense on what you are seeing versus for example what you might have thought at the start of the year. Are you noticing any areas of slowdown, or pause or anything? Because your Q1 results are very strong. Q2 is above consensus expectations. Perhaps sequentially, it's not what it has been in the past, so just broadly what you're seeing in the economy versus what you thought three months ago.

A - Rafael R. Lizardi {BIO 20006334 <GO>}

Okay. Let me, I'll start with that. And then, Dave, if you want to chime in on that. But I'll tell you from a global standpoint, what we're seeing is that it continues, that the macro economy continues to be constructive, although uncertainties have been introduced clearly in the geopolitical area with everything going on that we read in the news. Now, it's too soon in that, what that impact is going to be on the macro level. From what's important though in a year, from a year-ago basis, we continue to see strength in industrial and automotive. As Dave highlighted during his prepared remarks, personal electronics grew across several sectors. And while communications equipment declined, it was about even sequentially. Dave?

A - David Pahl {BIO 18870833 <GO>}

Yeah, and I think that, Vivek, when you look at the quarter with the revenue increasing 11%, the demand continuing to remain strong in both industrial and automotive, and I just described that demand as continuing to be very broad based. And I think that that speaks to one of our competitive advantages, which is diversity and longevity of product. So we're certainly benefiting from that today. Do you have a follow-on, Vivek?

Q - Vivek Arya {BIO 6781604 <GO>}

Yes. Thanks. Thanks, Rafael and Dave. CapEx, it's up 42% on a trailing 12-month basis, running ahead of revenue growth that's closer to 5% or 6% of sales versus the 4% target. I'm curious, why is CapEx growing so much faster when you're only 50% utilized in your 300 millimeter factory? I mean, should we look at growing CapEx as a sign of confidence in demand? Or at what point should we be worried that maybe you're going to build too much inventory?

A - Rafael R. Lizardi {BIO 20006334 <GO>}

Yeah, I'll give you a few things on that. First, maybe most importantly, let's step back and think about what is the purpose of CapEx. We talked about this during our capital management strategy a couple months ago. And CapEx is, our objective there is to support technology development and revenue growth. We want to extend our low-cost manufacturing advantage, so typically 300 millimeter. We're the only analog company with its own 300 millimeter factory. And what that does at the end of the day is allow us to maximize long-term free cash flow per share growth. So that's what the ultimate objective is. The CapEx percent of revenue, that's just a general guide that we give.

And on that, our sense is that that 4%, that could vary depending on what's going on in the marketplace. In a period of very strong demand, when we're expanding capacity, that could run off. And right now on a trailing 12-month basis it's 4.9%. But of course the reason that would run up is that we see opportunities to continue expanding our technology development and our low-cost manufacturing advantage, so that ultimately we drive long-term growth of free cash flow per share.

A - David Pahl {BIO 18870833 <GO>}

Okay. Great. Thank you, Vivek. We can go to the next caller, please.

Operator

We'll take our next question from Stacy Rasgon with Bernstein Research.

Q - Stacy Aaron Rasgon {BIO 16423886 <GO>}

Hi, guys. Thanks for taking my question. First, I wanted to ask about OpEx. In Q1, it grew but probably a little less than would ordinarily be typical sequentially. Were there any specific drivers to that, maybe push-out of spend maybe into Q2? And I guess along those lines, Q2 OpEx would usually be up a little bit. Any change that we should expect from what would be typical there?

A - Rafael R. Lizardi {BIO 20006334 <GO>}

Yeah, so on OpEx on first quarter, it came in about as expected, and we continue to be pleased with how we're allocating capital to OpEx in general, specifically to R&D as it continues to drive growth in the top line, and we continue to gain market share. On the subsequent quarter, as you know, we gave a range of revenue and EPS. We don't get in between the lines. If there was something unusual going on, we would point that out. We're not pointing it out, because there's nothing unusual going on in between those lines.

A - David Pahl {BIO 18870833 <GO>}

Do you have a follow-on, Stacy?

Q - Stacy Aaron Rasgon {BIO 16423886 <GO>}

I do. Thank you. I wanted to ask about the (16:23) grew year-over-year. I was a little surprised just given what we've heard from other players in that space right now. Could you give us a little more color? I think you said like in certain segments, could you give us a little more color about what's actually going on under the covers in personal electronics, and I guess whether or not you see the current trends actually extending into next quarter given what's going on in the supply chain?

A - David Pahl {BIO 18870833 <GO>}

Well, yeah, let me talk about this quarter that we're reporting. We'll wait for second quarter results to go through the details there. We described it as that we saw growth across several sectors and several customers, so we're trying to point out there it's not just handsets that are growing. There are other things that are growing inside of that. And I would describe the growth as somewhere in the mid single digits. So good growth, especially for a sector like personal electronics.

Long term of course we think that we'll see auto and industrial drive our business. That's where we've been allocating increasingly our capital to, and that's just the belief that those will be the two areas that will drive growth, not just for us but certainly in our industry overall. Okay. Thank you very much, Stacy. And we'll go to the next caller, please.

Operator

Our next question will come from Toshiya Hari with Goldman Sachs.

Q - Toshiya Hari {BIO 6770302 <GO>}

Great. Thank you so much for taking the question. On inventory, Dave, I think Q1 inventory grew about 4% sequentially. I think days of inventory grew a little bit as well. Can you describe how you guys see internal inventory today? And if you can comment on the channel, what you guys see in the channel, that would be helpful as well.

A - Rafael R. Lizardi {BIO 20006334 <GO>}

Okay. I'll talk about our internal inventory, and then Dave will talk about channel inventory. But on inventory, let me step back again and refer you to our long-term objectives that we talked about at the capital management call. What do we want inventory for? The objective of inventory is to maintain high levels of customer service, minimize obsolescence, improve our manufacturing asset utilization, and we also see value in controlling that inventory, having more of it in our own product distribution centers, more in consignment, more in low volume buffers.

I talked about this at the capital management call as well as 90 days ago when we closed the last quarter and this topic came up. So we're very pleased where inventory ended up. From a days basis, it was 136 days. From a year ago, that's up 4 days. Sequentially, it's up 2 days. And it's well within our 115 to 145 day inventory days range.

A - David Pahl {BIO 18870833 <GO>}

Yeah and, Toshiya, from a channel standpoint, inventories remained at about four weeks. And I'll, just as a reminder, for those that aren't familiar, as Rafael pointed out, we believe that there's value in owning and controlling our own inventory, and that shows up in the consignment program. So about 65% of our distribution revenue is shipped through a consignment program. So that four weeks really represents maybe a half to a third of what many of our peers will run in the channel. So we feel that that's a good level, that combined with the inventory positions that we have on our books. Do you have a follow-on, Toshiya?

Q - Toshiya Hari {BIO 6770302 <GO>}

I do. Thank you. So on communication equipment specifically, I think three months ago you guys talked about the business being a little bit choppy, and today I guess you told us that revenues were down year over year and kind of flattish sequentially. At what point would you expect this business to revert to growth? Is it sort of in the second half of 2018 given lower comps? Or do we need to wait longer for this business to start growing again? Thank you.

A - David Pahl {BIO 18870833 <GO>}

Yeah, so I won't try to predict what the back half of the growth for comms equipment will look like. As you mentioned, and you've been following the industry long enough, you know that that sector is just choppy the way that operators place orders and the OEMs have to build inventories to respond to that. That doesn't make it a bad business. It is just the nature of it. And there will be more communications equipment shipped in the coming years. So we've got a great position today in 4G products. We'll have a great position in 5G products, and we don't spend really any time trying to figure out when that mix will begin to shift, and we'll just enjoy the demand as it comes in. All right. We'll go to the next caller, please.

Operator

Our next question will come from Joe Moore with Morgan Stanley.

Q - Joseph Moore {BIO 17644779 <GO>}

Great. Thank you. I wonder if you could just talk about what you're seeing; you mentioned channel inventory, if you could speak to your customers' inventory a little bit. And I guess we've seen shortages of things outside of your space like passives and embedded memory and things like that. Is that causing any change to your customers' inventory behavior in your business, either because they have inventory waiting for those things that are in shortage? Or are they holding more of a buffer? Or is it sort of business as usual?

A - David Pahl {BIO 18870833 <GO>}

Yeah, Joe, I would say that we've got no indications of inventories growing or double orders for that matter, which history suggests also, I'd very quickly point out, that you never really see that ahead of time, right. So I think with that said, I think it's always important to qualify what we can see.

So we've got good visibility into distribution inventories that I talked about earlier. A good portion of that remains on consignment, so we'll actually hold that inventory on our books. Our visibility in the customer inventories varies. Really it depends on whether we've got consignment or not. So with consignment OEMs, we're carrying that inventory on our books, and we're not seeing anything that I would describe as unusual signals, things like expedites and things like that that would suggest that there'd be some other broader issue.

Now our visibility into inventory beyond our customers' manufacturing operations of course is very low, so our lead times remain stable. Of course, we always have hot spots. We work aggressively with customers to close, and other metrics like cancellations, reschedules, those also remain at very low levels.

So those are the things that we can see and we can measure. For a long time, we would just try to keep doing what we've been doing, which is with our manufacturing and our internal inventory strategies, we just stay focused on keeping those lead times stable, and more importantly, delivery metrics very high, because that's ultimately what gives customers confidence they can get support from us when they need it. Do you have a follow-on, Joe?

Q - Joseph Moore {BIO 17644779 <GO>}

That makes sense. No, that's all I had. Thank you very much.

A - David Pahl {BIO 18870833 <GO>}

Okay. Thank you. We'll go to the next caller, please.

Operator

Our next question will come from Chris Danley with Citigroup.

Q - Christopher Brett Danely {BIO 3509857 <GO>}

Hey. Thanks, guys. First question is just a quick one. So sequentially revenue increased but gross margins were down a bit. Can you comment on why that happened?

A - Rafael R. Lizardi {BIO 20006334 <GO>}

Yeah, when you look at a gross margin fall through, which is kind of what's embedded in your question there, in any one sequential transition, particularly when revenue is about flat, it's up 1%, it's difficult to do that analysis and have anything meaningful come out of that. You probably want to look at it on a year on year basis, and on that basis, our gross profit margin increased 160 basis points. The fall through was about 78% and that's along the lines of what we have guided all of you before, that on a long-term basis, the fall through that you should expect from our revenue growth should be between 70% and 75%.

Q - Christopher Brett Danely {BIO 3509857 <GO>}

Great. Yeah, for my follow-up, now that the tax rate continues to go down, can you just talk about your plans for this extra cash? Is it possible? I know you usually raise the dividend sometime around August or September. Is it possible or feasible you could raise the dividend twice this year? Why not crank up the buyback a little bit more? I think you took your share count down by just a couple of million. Comment on that?

A - Rafael R. Lizardi {BIO 20006334 <GO>}

Yeah, so let me step back and talk about the tax return and how we think about that and then how we think about dividends and repurchases. From a cash return standpoint, our objective is to return all free cash flow to the owners of the company. And we have been doing that for a number of years. In fact, on a trailing 12-month basis, we generated $4.9 billion of free cash flow, and we returned $5.1 billion of free cash flow. So we are doing that.

Now obviously we do that in two ways, dividends or repurchases. From a dividend standpoint, we want to provide sustainable and growing dividend. As of the end of last year, we have been growing that dividend 24% on a compounded basis for the previous five years. And at the end of last year, also on a trailing 12-month basis at 45% of free cash flow, so that underscores the sustainability. On the repurchases, we just got done repurchasing $873 million of our own stock, and our objective there is the accretive capture of the future free cash flow for the long-term owners of the company.

So we use reasonable assumptions to extrapolate, estimate what we think our free cash flow growth is going to be, and then based on that, we come up with different scenarios and valuation. And as long as the market price is below those scenarios, we buy back the stock. And that's what you've seen us do for a number of years now, and we will continue doing that.

A - David Pahl {BIO 18870833 <GO>}

Okay. Thank you, Chris, and we'll go to the next caller, please.

Operator

Our next question will come from Blayne Curtis with Barclays.

Q - Blayne Curtis {BIO 15302785 <GO>}

Hey guys. Thanks for taking my question. Actually, maybe I could just follow up on the last question on gross margin. I know you don't guide specifically into June, but in just kind of similar question, sequential growth into June. What sort of way to think about gross margin? Is there any headwinds to think about mix-wise or such as to why the gross margin wouldn't be up?

A - Rafael R. Lizardi {BIO 20006334 <GO>}

Yeah, I'll just tell you, of course for on any given point, we're not going to give you a specific projection on that. We give a revenue range and an EPS range. But the bigger picture on that is that, A, we continue to drive revenue growth, and that's the biggest contributor to free cash flow growth.

And then in addition to that, we continue increasing our loadings on 300 millimeter, which has a 40% cost advantage. That's one of our competitive advantages. We're the only analog company with its own 300 millimeter factories. So every time we build an incremental wafer on 300 millimeter, we have better fall through on that. We have better free cash flow per share growth. So we will continue to do that for the foreseeable future and even beyond the current capacity of those factories.

A - David Pahl {BIO 18870833 <GO>}

Do you have a follow up, Blayne?

Q - Blayne Curtis {BIO 15302785 <GO>}

Thanks. Just in the March quarter you saw good strength in embedded and particularly processors. I wonder if you can just speak about that strength in terms of end market or particular products or such. That would be helpful.

A - David Pahl {BIO 18870833 <GO>}

Yeah, if you look at embedded overall and processors specifically, they have a very high exposure to industrial and automotive. So that growth is really coming from very diverse places. Connected micro controllers also grew, grew very nicely as well. And again, that includes our connectivity products there, and they are doing quite well. And we're encouraged because that growth is coming from diverse places, which I think gives us confidence in the long-term ability of that portion of our business to continue to grow. Okay. Thank you, Blayne. We'll go to the next caller, please.

Operator

Our next question will come from Ambrish Srivastava from Bank of Montreal.

Q - Ambrish Srivastava {BIO 4109276 <GO>}

Hi. Thank you very much, Dave, Rafael. I apologize if I missed it. What were the orders for the quarter?

A - David Pahl {BIO 18870833 <GO>}

Yeah, our orders for the quarter were up about 11% year on year and that put our book-to-bill about 1.03. And whenever I give a book-to-bill, I always try to remind everyone that we've got about 60% of our revenues that go on consignment, so we don't carry a backlog. We get orders running up to the quarter. They're all, they happen when the revenue happens. So always be cautious on both of those numbers. Do you have a follow-on, Ambrish?

Q - Ambrish Srivastava {BIO 4109276 <GO>}

Yes I did, and thanks for the color. Geo-wise, was there any geos that stood out as stronger, weaker as you went through the quarter? Thank you.

A - David Pahl {BIO 18870833 <GO>}

Yeah, so from a geo standpoint, we had revenue up in three of the four regions and from a year ago. So Asia was up followed by the U.S. and Europe. Japan was down. And a couple of comments, so first, I'll make the comment that that is measured by where we ship the product, not where it's consumed. So usually our regional shipments don't often reflect the broader macro in a particular region. And the second thing that I'll add is from a Japan standpoint, we are seeing that companies in Japan are building products in other regions of the world. So as products get designed in Japan, they actually may be produced in other regions, so I wouldn't look too much on that as well. Okay. Thank you, Ambrish. And we'll go to the next caller, please.

Operator

We'll take a question from Chris Caso with Raymond James.

Q - Chris Caso {BIO 4815032 <GO>}

Yes. Thanks, guys. Good afternoon. Just a question on what you saw as perhaps better and worse in the quarter. And it looks like the revenues came in a little better than you'd expected. Can you talk about what was the driver of that?

A - David Pahl {BIO 18870833 <GO>}

Yeah, Chris. So revenues came in within our expectations for the quarter. Certainly, they're in the upper half of our expectations. And I would just say that of course, that was driven by industrial and automotive. And I'd just say that strength we saw very, very broadly, so there wasn't one specific thing that we would point to. And I think again, that highlights one of those competitive advantages of diversity and long-lived positions that we can see that kind of strength and it comes through and shows up even on the top line. Do you have a follow up?

Q - Chris Caso {BIO 4815032 <GO>}

I do. Thank you. And I guess that we've been in a situation where business conditions have been stable if not pretty good for a while, and I know you guys have been doing this a while. Whenever things are good in semis, we wonder how long it's going to last. Can you talk about perhaps for what we're seeing now, what perhaps is different than what we've seen in past cycles? Are there things that TI is doing differently? Is there things within the industry that are different as compared to last cycles, such that things would be more stable now?

A - Rafael R. Lizardi {BIO 20006334 <GO>}

You know, what I'm going to point out for this question is that we are now a much larger company in terms of industrial and automotive. Our percent of our revenue is, so at the end of last year it was 54%. If you go back a few years ago, that number was sub 40%. And that provides inherent stability to our revenue, because that revenue comes from many, many customers, many, many sectors within industrial and many, and equipment.

Now, that doesn't mean that we will be immune from a correction. I think a correction, short-term or medium-term, would affect all those sectors. But the important point is that longer-term, this is the place where we want to be, because this is in both of those end markets, automotive and industrial, that's where the content is growing. So even if there is, or when there is a correction and we go through that, the endpoint down the road, 10, 15, 20 years from now is still the same, which is more and more content in those end markets.

A - David Pahl {BIO 18870833 <GO>}

Okay. Thank you, Chris. And we've got time for one more caller, operator.

Operator

We'll take our next question from Romit Shah with Nomura Instinet.

Q - Romit Jitendra Shah {BIO 16865852 <GO>}

Okay. Great. Thanks for taking my question. Hey guys. Just following up on the last question, Rafael, if I look at the five and 10-year averages for revenue growth, Q1 has been down low to mid single digits. Q2 and Q3 have been up high singles, and then Q4 has been kind of down the most. Given your enhanced exposure to industrial and automotive, do you still think those averages are good guideposts for us as we forecast your business? Or do you think it's different now?

A - David Pahl {BIO 18870833 <GO>}

Yeah, Romit, I'll take a shot at that. I think that when we look at seasonality, I would remind you that we still have a very nice calculator business that has a strong seasonal pattern with the back-to-school. So that, along with the balance of the semiconductor business in the past has been stronger in the second and third quarters. So for seasonality in general, that makes second and third quarters stronger than the first and fourth quarters.

If you look at those sequential changes, you'll see that you can take an average of them, but out of the last five or 10 years, there's a very, very wide range of numbers that are in there. So when we look at it, we just talk about seasonality in those two quarters. Do you have a follow-on?

Q - Romit Jitendra Shah {BIO 16865852 <GO>}

Yeah, thanks for that. Just on R&D, the last several years in Q1, R&D has gone up by about $20 million to $25 million. This Q1 R&D was down $1 million. I know that in 2016, R&D grew faster than revenues, and then it grew about in line with revenues in 2017. Just given what we've seen so far year to date, is it reasonable to assume that we might see more R&D leverage this year versus the last couple years?

A - Rafael R. Lizardi {BIO 20006334 <GO>}

No, we're pleased that we're allocating capital to R&D, even SG&A and CapEx, and ultimately to drive top line growth and market share. We do that based on long-term expectations on growth, particularly industrial and automotive as I talked about earlier, given how well our portfolio matches those markets. So we'll continue to do that. And if we have a opportunity to increase R&D because we have even better opportunities, we'll do that. If not, we'll keep it about where it is. But we don't have any set percent increase or number to give you.

A - David Pahl {BIO 18870833 <GO>}

Okay. Thank you, Romit. And with that, we'll wrap up the call. Thank you all for joining us. A replay of this call is on our website. Good evening.

Operator

This concludes today's call. Thank you for your participation. You may now disconnect.
