Q1 2017 Earnings Call

Company Participants

- Ashish Saran, Investor Relations
- Hock E. Tan, President, Chief Executive Officer & Director
- Thomas Krause, Chief Financial Officer & Vice President-Corporate Development

Other Participants

- Blayne Curtis, Analyst
- Harlan Sur, Analyst
- John William Pitzer, Analyst
- Ross C. Seymore, Analyst
- Stacy Aaron Rasgon, Analyst
- Toshiya Hari, Analyst
- Vinayak Rao, Analyst
- Vivek Arya, Analyst
- William Stein, Analyst

MANAGEMENT DISCUSSION SECTION

Operator

Welcome to Broadcom Limited First Quarter Fiscal Year 2017 Financial Results Conference Call.

At this time for opening remarks and introductions, I would like to turn the call over to Ashish Saran, Director of Investor Relations. Please go ahead, sir.

Ashish Saran {BIO 18971141 <GO>}

Thank you, operator, and good afternoon, everyone. Joining me today are Hock Tan, President and CEO; and Tom Krause, Chief Financial Officer of Broadcom Limited.

After market close today, Broadcom distributed a press release and financial table describing our financial performance for the first quarter and fiscal year 2017. If you did not receive a copy, you may obtain the information from the Investors section of Broadcom's website at www.broadcom.com.

This conference call is being webcast live, and a recording will be made available via telephone playback for one week. It will also be archived in the Investors section of our website at broadcom.com.

During the prepared comments section of this call, Hock and Tom will be providing details of our first quarter fiscal year 2017 results, background to our second quarter fiscal year 2017 outlook and some commentary regarding the business environment. We will take questions after the end of our prepared comments.

In addition to U.S. GAAP reporting, Broadcom reports certain financial measures on a non-GAAP basis. A reconciliation between GAAP and non-GAAP measures is included in the tables attached to today's press release. Comments made during today's call will primarily refer to our non-GAAP financial results. Please refer to our press release today and our recent filings with the SEC for information on specific risk factors that could cause our actual results to differ materially from the forward-looking statements made on this call.

At this time, I would like to turn the call over to Hock Tan. Hock?

Hock E. Tan {BIO 1460567 <GO>}

Thank you, Ashish. Good afternoon, everyone. Well, we delivered strong financial results for the first quarter with revenue of $4.15 billion and gross margin at 62.4%, both at the very top end of our guidance.

Earnings per share of $3.63 grew by 5% sequentially, while net revenue was essentially flat. Revenue was better than expected in all four segments. The benefits we achieved through business diversification clearly came through this quarter with growth in wired, enterprise storage, and industrial completely offsetting the typical negative seasonality from wireless.

The integration of classic Broadcom has gone very well, and it's now mostly complete. We remain focused on driving financial performance towards our long-term operating margin and free cash flow targets.

Let me now turn to a discussion of our segment results, starting with wired, our largest segment. In the first quarter, wired revenue came in $2.09 billion, better than expected, and represented 50% of our total revenue. Revenue for this segment was up slightly on sequential basis. We benefited from strong demand for our Ethernet switching and routing product from cloud data center operators. This growth was partially offset by the continuing seasonal decline in demand for our broadband carrier access and set-top box products, which we expect to bottom in this first quarter.

Turning to second fiscal quarter, we forecast wired revenue to experience seasonal growth, a little bit stronger than what we saw in the prior quarter. We expect the momentum from cloud data center demand to sustain and expect the seasonal increase in demand for our broadband access and set-top box products.

Now, moving on to wireless. In the first quarter, wireless revenue came in at about $1.18 billion, better than expected; and wireless segment represented 28% of our total revenue. Revenue for this core segment was down 13% sequentially, driven by the expected seasonal decline in demand from a major North American customer.

Turning now to our projection for the second quarter of fiscal 2017. We expect to hit the bottom of the annual product cycle transition at a major North American customer. However, we expect to offset the significant portion of this decline in wireless from the ramp of the next-generation phone at our large Korean smartphone customer. This phone comes with an increase in Broadcom's RF and Wi-Fi connectivity content.

As a result, we expect our wireless revenue in the second quarter of fiscal 2017 to be still sequentially down, but in the high-single digits, better than the more difficult double-digit declines we have experienced in prior years.

Let me now turn to enterprise storage, which continues to be strong. In the first quarter, enterprise storage revenue came in at $707 million, and this segment represented 17% of our total revenue. Segment revenue grew 26% sequentially, came in better than expected, driven by stronger shipments of SaaS, RAID and fiber channel products. As you foresaw, our hard disk drive and custom solid-state drive controllers also had a very strong quarter.

And looking into the second quarter, however, we believe this resurgence of enterprise storage has to taper off and hence flatten out. Having said that, backlog for enterprise storage product continues up to today to be very strong, but we foresee seasonality to start slowing demand in the third quarter, if not in this late – in the second quarter.

Finally, turning to our last segment, industrial. In the first quarter, industrial revenue came in at $180 million, up 11% sequentially, better than expected, as we rebuild depleted channel inventory consistent with stronger product receipts.

The industrial segment represented 5% of our total revenue. And as we look into the second quarter, we are anticipating industrial activity to continue to improve seasonally. And accordingly, we are expecting industrial segment revenue to increase by high-single digits sequentially.

With all that, to simply sum up, this first quarter was strong. We were revenue flat from the seasonally high fourth quarter of the preceding year. As we now look into the second quarter, we expect this demand environment for our products to continue to be very healthy and our outlook for this quarter's revenue to be virtually flat to that of the prior quarter.

It is becoming evident that our broader and more diversified product portfolio has largely mitigated seasonal impacts to consolidated revenue during the first half of the year. This is certainly an intrinsic goal of our business model, just that we did not expect to achieve this so soon.

The integration of classic Broadcom is clearly going well, and we continue to invest across all our franchise products. We are sustaining our technology leadership, and our products are very well received by our customers.

Our revenue trajectory from the first half of fiscal 2017 could possibly extend into the second half. Nonetheless, we do not expect that the approximate 15% level of year-on-year growth we're guiding for the second quarter to really be sustainable in the long-term. Our long-term operating model will continue to assume mid-single digit annual revenue growth for the consolidated business.

With that, let me now turn the call over to Tom for a more detailed review of our first quarter fiscal 2017 financials.

Thomas Krause {BIO 17978469 <GO>}

Thank you, Hock, and good afternoon, everyone. My comments today will focus primarily on our non-GAAP results from continuing operations, unless otherwise specifically noted. A reconciliation of our GAAP and non-GAAP data is included with the earnings release issued today, and is also available on our website at broadcom.com.

Let me first start out by saying that we're very pleased with the execution this quarter, and specifically the progress we've made towards our long-term target model, which remains an operating margin target of 45% of net revenue and a free cash flow margin above 35% of net revenue. Further to what Hock was saying, we also believe that we can achieve these long-term operating targets based on a sustainable long-term revenue growth rate of mid-single digits.

Now, let me review the Q1 results. Revenue for the first quarter came in at $4.15 billion, approximately flat sequentially. Foxconn was a greater than 10% direct customer in the first fiscal quarter. Our first quarter gross margin from continuing operations was 62.4%, about 90 basis points above the midpoint of guidance primarily due to revenue at the top end of guidance and a slightly better product mix.

This quarter's gross margin also benefited from the impact of approximately $60 million of revenue related to the assignment of certain manufacturing rights to a customer in our wired segment, which is included in our original guidance.

Turning to our operating expenses. R&D expenses were $664 million and SG&A expenses were $120 million. This resulted in total operating expenses for the first quarter of $784 million or 18.9% of net revenue.

As Hock mentioned, we have now largely completed the integration of classic Broadcom. And I would reiterate that we feel comfortable at this level of operating expenses relative to net revenue. Operating income from continuing operations for the quarter was $1.8 billion and represented 43.5% of net revenue.

Provision for taxes came in at $77 million, slightly above our guidance. This is primarily due to higher-than-expected net income, first quarter interest expense of $110 million, and other income net was $8 million. First quarter net income was $1.63 billion and earnings per diluted share were $3.63. Our share-based compensation expense in the first quarter was $201 million.

Moving on to the balance sheet, our days sales outstanding were 43 days, a decrease of 5 days from the prior quarter due to better linearity of revenue in the quarter. Our inventory ended at $1.34 billion, a decrease of $64 million from the beginning of the quarter. We generated $1.35 billion in operational cash flow, which reflected the impact of approximately $313 million for annual employee bonus payments for fiscal year 2016, and approximately $80 million of cash expended on classic Broadcom restructuring and integration activities, including discontinued operations.

I'm very pleased that in the first quarter the business already demonstrated the ability to generate free cash flow close to our long-term target model of 35%. While free cash flow in the first quarter was $1 billion approximately or only 25% of net revenue, this does include, I want to highlight, the impact from the annual employee cash bonus payment as well as cash restructuring expenses and capital expenditures that as we discussed before are running higher than our long-term targets. Looking forward, we expect classic Broadcom related restructuring expenses to continue to decrease as we finish this integration.

Capital expenditure in the first quarter was $325 million or 7.8% of net revenue. However, we expect long-term CapEx, largely the fabless semiconductor company, to run at about 3% of net revenue consistent with that fabless business model.

As a reminder, for full fiscal year 2017, we expect CapEx to run at an elevated level of approximately $1.2 billion. This includes about $500 million towards campus construction, primarily at our Irvine and San Jose locations; and about $200 million towards purchasing of test equipment for consignment at our CMs. A total of $431 million in cash was spent on company dividend and partnership distribution payments in the first quarter. We ended the first quarter with a cash balance of approximately $3.5 billion.

Now, let me turn to non-GAAP guidance for the second quarter of fiscal year 2017. This guidance reflects our current assessment of business conditions and we do not intend to update this guidance. This guidance is the result from continuing operations only.

Net revenue is expected to be $4.1 billion, plus or minus $75 million. Gross margin is expected to be 62%, plus or minus 1 percentage point. Operating expenses are estimated to be approximately $789 million. Tax provision is forecasted to be approximately $74 million. Net interest expense and other is expected to be approximately $106 million.

The diluted share count forecast is for 452 million shares. Share-based compensation expense will be approximately $223 million. CapEx will be approximately $290 million. As you all have seen, our board has declared a dividend of $1.02 per share to be paid later in the second fiscal quarter.

We're also looking forward to completing the acquisition of Brocade, which is proceeding as planned, and we presently expect to close this transaction in our third quarter of fiscal 2017. I am pleased that we were able to reach an agreement with ARRIS earlier this quarter for the sale of Brocade's network edge business for $800 million in cash, plus the additional cost of unvested employee stock awards.

Following Brocade's recent results, we continue to feel very comfortable that Brocade's Fibre Channel SAN switching business, the key business that we're focused on, will generate approximately $900 million of EBITDA in fiscal 2018.

That concludes my prepared remarks. Operator, please open the call for questions.

Q&A

Operator

Your first question comes from the line of Ross Seymore with Deutsche Bank.

Q - Ross C. Seymore {BIO 20902787 <GO>}

Hi, guys. Thanks for letting me ask a question. I guess, Hock, the first question is on the wireless side. It's good to see the content rising at other customers besides just your big North American customer. Can you just talk a little bit more detail about what's driving that content up? Is there anything unique or is it basically the same goodness that you've seen in the North America side? And any more color about that goodness continuing in the North American side into the second half of this year, would also be helpful? Thanks.

A - Hock E. Tan {BIO 1460567 <GO>}

Yeah. Ross, thanks for the question. Yes, in fact, it's a phenomenon we've been indicating to you guys for the last several years which is, over the medium-term – long-term, I'd say, our strength, our franchise in cellular – RF in cellular analogue, the front end cellular analogue, which includes FBAR band (17:24) device and all the circuitry and component that goes in front of the transceiver in the handset for cellular, that's one area. And the other area in Wi-Fi, Bluetooth connectivity.

Those two functionalities, those two features in phones, continue to evolve and with each generation. And as each generation evolves, what it evolves in the case of RF cellular is twofold. One is basically more band as we progress, as more and more countries globally progress into 4G and eventually even further beyond that, more and more band – spectral bandwidth get pulled into the phone.

And number of SKUs of phones get less and less for a major OEM manufacturer simply because of complexity of these phones. And so, because of more band, it requires more filters, more components, like power amplifiers, low noise amplifiers. And because of that, necessary content increases. I should also add the difficulty of engineering those products increased fairly exponentially which, therefore, drives towards better and better content for us into those very high-end flagship smartphones.

In the case of wireless connectivity, the same phenomenon is happening and particularly driven on bandwidth on PO throughput, as we gradually move from what used to be much lower bandwidth in Wi-Fi to today's AC, as we move from single-user to multiple users and as we move next-generation from AC into AX and further.

Obviously, difficulty of doing those products in smartphone become correspondingly more difficult. Content increases, and we benefit from basically content increase. It's a normal phenomenon, and we expect to see that continuing into the medium-term.

Q - Ross C. Seymore {BIO 20902787 <GO>}

Okay. That's helpful. I guess, for my one follow-up, both you and Tom, Hock, mentioned about the 15% growth not being your long-term assumption. Just wondering why you're bringing that up? Is there something you're seeing now that gives you a pause that things are going to slow down? Or is this just kind of a reminder that the level we are now is not the base assumption in your business model?

A - Hock E. Tan {BIO 1460567 <GO>}

I think the fairest way to answer that is, we have articulated last fiscal year very clearly and even a year ago when we acquired Broadcom, as long as a year ago, that with our scale and with our diversification of product portfolio, our long-term model, out five years, 10 years, is the compounded annual growth of 5%. Not every year necessarily, but long-term 5%.

And why we feel the need to mention it is, obviously, you saw the numbers we're guiding for Q2 on the top line, and it's showing 15% year-on-year from a year ago. That's just one quarter, and obviously just one fiscal year; one point in time. So we felt it necessary to just mention it that do not just take it and extrapolate it to say that we have moved away from our broad model guidance of 5% compounded annual growth in the long-term to a 15%; far from it.

A - Thomas Krause {BIO 17978469 <GO>}

Yeah. And, Ross, and I'll just add – I also want to reiterate we don't believe we need to have this accelerated revenue growth to hit our financial targets, which we remain very focused on, specifically the free cash flow margins of 35%. We're very comfortable achieving those results based on a more normalized long-term CAGR of mid-single digits.

Q - Ross C. Seymore {BIO 20902787 <GO>}

Okay. Well, congrats on those results. Thanks a lot.

Operator

Your next question comes from Blayne Curtis with Barclays.

Q - Blayne Curtis {BIO 15302785 <GO>}

Hey, guys. Thanks for taking my question, and congrats on the great results. But just following up on just the wireless guide, you've talked in the past sometimes it could be seasonal, down 15%, 20%, to the high-single digits. Just curious, between content and the units, what are you seeing with your two large customers in terms of the seasonality and the timing of the ramp magnitude versus the content gains you're seeing?

A - Hock E. Tan {BIO 1460567 <GO>}

I don't have specific data between to be able to split up accurately between units and content. But off the cuff, my sense is it's largely content.

Q - Blayne Curtis {BIO 15302785 <GO>}

Okay.

A - Hock E. Tan {BIO 1460567 <GO>}

All right.

Q - Blayne Curtis {BIO 15302785 <GO>}

And you mentioned the strength in switching. I was curious, and obviously you don't want to guide for full year. I was just curious, you talked about some businesses being soft in the second half. There's obviously a big upgrade cycle, the 2500G. Just curious your perspective, as you look out at the rest of the year, the trajectory of the switch business?

A - Hock E. Tan {BIO 1460567 <GO>}

That's a very interesting question. And on the switching side, which is a subset obviously of our wired segment, which is our largest segment. But just if you look at our switching and routing side, a fair way to put them together, which is really data center, networking business, we continue to see strength through the rest of the year.

We see a big part of that strength, we see, is simply because of very strong data center buildup by the cloud operators. We're seeing that now and I suspect that phenomenon will still continue, particularly when we start to ramp up newer generation with high bandwidth of Tomahawks and Tridents. And as we go later part in the year, of our DNX router and aggregation switches. So we see that and this momentum to be fairly good based on demand, intrinsic demand out there on data center expansion, especially into the cloud, but also from the fact that we are launching a few very key new products in this year. Okay?

Q - Blayne Curtis {BIO 15302785 <GO>}

Thanks, guys.

A - Hock E. Tan {BIO 1460567 <GO>}

Thanks. Thanks.

Operator

Your next question comes from Harlan Sur with JPMorgan.

Q - Harlan Sur {BIO 6539622 <GO>}

Good afternoon, and thank you for taking my question. And it's great to see the diversity in the business playing out here. On the strong growth in the storage business, and I am assuming some of this is your SSD product lines. I believe you guys are supplying enterprise SSD controllers into the top two enterprise and cloud SSD suppliers. And I think your top customer here just grew their enterprise SSD business, I think, 20% sequentially and 20% year-over-year in the December quarter. Wondering if you guys are seeing similar growth trends? And do you expect double-digit in this SSD segment for the full year?

A - Hock E. Tan {BIO 1460567 <GO>}

I will be direct, our visibility in SSDs are not as good as perhaps our customers' are. A big part of it is, there are three parts to our enterprise storage, three broad parts. One, is very related to storage server connectivity, that's the RAID stuff and sometime the fiber channel holds parts of that side of RAID. And then, there is the components we ship into hard disk drives. And hard disk drive has experienced, as you well know, a strong surge over the last several months probably because flash have been in short supply.

And the last and smallest part of our business in enterprise storage is really related to enterprise flash controllers for SSD. And this really is a small part. So we don't get that broad visibility into this SSD market, as a lot of other people would. But you're right. Right now, it's very, very strong, especially in SaaS.

Q - Harlan Sur {BIO 6539622 <GO>}

Great. Thanks for the insights there. And then, off of the success of Tomahawk and I also hear that your prior generation Trident is still very strong as well. And the team is ramping into this upgrade cycle. But you started sampling Tomahawk II, I think it was second half of last year. Could you just give us an update on the qualifications, customer feedback and when should we see the adoption curve for T II starting to ramp? Is that going to be kind of 2018 timeframe?

A - Hock E. Tan {BIO 1460567 <GO>}

For very competitive reasons, I really hate to give you specifics here. Suffice to say, it's very well received. We have a lot of momentum on our entire switch portfolio. And by the way – and Tomahawk doesn't fully replace Trident. Trident is used in a different segment versus Tomahawk. And both are going very well, as are the Jericho products which are more aggregation switching and routing.

But broadly, our portfolio from high-end down to even on the low-end range of switching – campus switching pointers (27:51), those are all going very well. And I suspect it's all largely due to the strength in data center spending that still we see continue, particularly more recently since we had very strong conversion of enterprises into the cloud.

Q - Harlan Sur {BIO 6539622 <GO>}

Thanks, Hock.

Operator

Your next question comes from William Stein with SunTrust.

Q - William Stein {BIO 15106707 <GO>}

Great. Thanks so much for taking my question, and congrats on the very strong results and outlook. I wanted to address the free cash flow margin trajectory. Tom, I think, you referred to some of this in your prepared remarks. But I'd like you to maybe highlight what aside from the restructuring expenses that are still being paid and the temporarily higher CapEx that you're experiencing, what are the other drivers to get you to the 35% free cash flow margin and what sort of timing should we think about for that?

A - Thomas Krause {BIO 17978469 <GO>}

Hey, William. Good question. I mean, I think that's sort of the point of the prepared remarks is, if you look at where we are from an operating margin perspective, you look at the fact we've restructured the balance sheet around now fixed rate debt, if you look at our sustainable tax rate of 4.5% and cash taxes of approximately $100 million a quarter and you take out the restructuring costs which are bleeding off here pretty quickly, you take out the one-time campus initiative, the one-time tester initiative this year which will sort of play itself out here over the next couple of quarters, frankly, we're largely there. And that's probably the real take away. And, of course, that doesn't take into account what we would expect to be second half seasonally up trends from a revenue perspective.

Q - William Stein {BIO 15106707 <GO>}

It's helpful. Appreciate it. Maybe one more, something that came up last quarter was the change in capital allocation strategy. Maybe you can sort of highlight for us your plans on the M&A front from here despite the higher dividend, the significantly higher free cash flow that you're going to be generating I guess after these temporary expenses fall off would seem to me to continue to support a good M&A pipeline. Maybe you can characterize that for us, please?

A - Thomas Krause {BIO 17978469 <GO>}

Yeah. I mean, there's no real update there other than we outlined very clearly that we're going to continue to drive giving back 50% of free cash flows to investors in the form of dividends, which of course at these levels would imply that we're going to have the ability to continue to increase the dividend pretty meaningfully here over the next couple of years certainly.

Beyond that, we've used M&A to drive returns obviously over the last several years pretty effectively. We continue to see opportunities to do that. Brocade is the latest example of our being able to put capital to work in an interesting opportunity that drives better returns than our alternative. And so, we're going to continue to do that. But given our scale, we have the opportunity to do that mostly off of the balance sheet, particularly with most opportunities that arise.

Q - William Stein {BIO 15106707 <GO>}

Great. Thanks .

Operator

Your next question comes from Craig Hettenbach with Morgan Stanley.

Q - Vinayak Rao {BIO 16513070 <GO>}

Hello, this is Vinayak calling in for Craig. Thanks for giving me the opportunity to ask the question. So wanted to touch up on carrier aggregation. Like, this is one of the key growth drivers for your RF business. Hock, can you provide us an update on the trends you're seeing by geography for that and what that means for your portfolio?

A - Hock E. Tan {BIO 1460567 <GO>}

Okay. Carrier aggregation, as you well know, is the phenomenon of especially benefiting operators who have multiple spectral bandwidths, not necessarily one, but multiple. And in the interest of reducing CapEx in infrastructure, it's the phenomenon of enabling those bandwidths to mux, to combine together into one, which creates much more capacity throughput, and that's not only in infrastructure; it goes into the phone.

And we are probably one of the leading enablers in the phone of making that happen, simply because not just of architectural design of the cellular RF analogue, but also the fact that FBAR filters, which are FBAR, are much better performing and more integral – have been able to integrate the integrated into module to allow that maxing and demaxing of those spectral bands. And that's happening.

It started very aggressively obviously, as you've seen in China; continuing to be very much so in China. It's also happening very aggressively in the U.S. Those are the two biggest geographies where a lot of that is happening. It started with downlink last year, I think. And it's now moving on to uplinking, not just downlinking. Which of course then is part of reason why it's helping create – not the only reason, but one of the reasons – creating increased content in our cellular RF demand. So it's great for us. And we see that phenomenon continuing to grow and expand into other regions of the world.

Q - Vinayak Rao {BIO 16513070 <GO>}

Got it. That's helpful. And for my follow-up, I wanted to touch upon gross margins. Pretty good performance in gross margins both in the quarter and the guidance. But I was thinking about how should we think about gross margins for here. And if you can outline, like, what are the top two drivers of gross margin expansion as we look out towards the rest of fiscal 2017?

A - Hock E. Tan {BIO 1460567 <GO>}

Okay, well, it's a very interesting point. And if you look back to a year ago when we just closed the Broadcom transaction, every quarter since then we have been able to expand our gross margin in the range of roughly 40 basis points, 50 basis points sequentially. A big part of it is, as we settle down the portfolio, as we start to get the benefit of larger scale in purchasing materials and as various specific actions like basically bringing testing very much in-house and consigning testers to contract manufacturers instead of leasing test time for our huge volume of semiconductor chips, all those various actions.

A big part of this expansion of gross margin comes from our scale and ability to leverage on the scale in direct materials. It also helps that our product margin, as we move from one generation to the other, keeps getting richer in terms of the mix. So that's a combination of these two things. And in terms of where would it go from here, frankly, I don't know. Best indicator is probably look at history.

Q - Vinayak Rao {BIO 16513070 <GO>}

Got it. That's helpful. And congrats once again on a good quarter.

A - Hock E. Tan {BIO 1460567 <GO>}

Thank you.

Operator

Your next question comes from Stacy Rasgon with Bernstein Research.

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

Hi, guys. Thanks for taking my questions. For my first one, you talked a lot about free cash flow margins, but I wanted to dig a little bit into the payout ratio. You're paying out right now about a little over 30%. Target is 50%. Should we think about that sort of level going up to 50% in line with the margins going up to 35% or more? Or like how should we think about the trajectory of reaching your target on the payout ratio. That seems like something that's more in your control, maybe even quicker than the margins themselves?

A - Thomas Krause {BIO 17978469 <GO>}

Well, they kind of go hand in hand, Stacy. I think what we're going to do and what we've sort of articulated in the past is we're going to get to the end of the fiscal year. We're going to look back at the free cash flow trajectory and those margins over the course of that previous year, we're going to look at the business. Obviously, we're very focused on sustainability, and then we're going to pay out 50%.

And so, all you're seeing is the general trajectory improving from where we exited last year to where we are here, exiting Q1 and guiding Q2. And you're right, consistent with that policy, as we get to the end of year we're able to achieve expectations. Then, we're going to have to obviously be in the position to raise that dividend consistent with getting back to the 50% on an LTM basis.

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

Got it. Thank you. That's helpful. For my follow-up, I also wanted to dig into gross margins a little bit. And you talked a little bit about the drivers. But I heard you said earlier that you're sort of comfortable with your level of OpEx spending as a percentage of revenue, which implies that the operating margin improvement toward the model from here comes from gross margins. But it's not that much. It's only about 150 basis points, maybe 200 basis points from where we are. And this is even before you buy Brocade, which comes in at – gross margins in the 70s.

So given all the levers that you just talked about and Brocade coming in, why should 64%, 65%, which is where that would take you, why should that be upper limit? Like, how should we think about this if we're going farther. Like, I don't see any reason why I shouldn't expect the gross margins to go even higher than that, unless there's something else, mix or something else, that ought to be taking it down. Can you talk about that a little bit?

A - Thomas Krause {BIO 17978469 <GO>}

Well, Stacy, actually I think we're going to get into the gross margins where we think we can go. And if I go all the way back to the original Avago gross margins in the 30s, obviously, we're always focused on continuing to improve on our gross margins. I think the insightful part of the question is, we are in our seasonally weak part of the year. And so, when you do look at the general seasonality of the business and where things are, I think you have to take a whole fiscal year approach to looking at where operating margins will land and could land, and apply that to how you're thinking about the model. That's the only guidance I'd give you.

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

Got it. Thank you.

Operator

Your next question comes from Vivek Arya with Bank of America Merrill Lynch.

Q - Vivek Arya {BIO 6781604 <GO>}

Hi. Thank you for taking my question. Congratulations on the good results and the consistent execution. For my first one, Hock, your wired business has essentially been in this $2 billion to $2.1 billion range for the past year on a quarterly basis. Can you give us some puts and takes on what's done well? What's been different than expectations? Because my read is that the switching parts has probably done fairly well with all the cloud opportunities, but your broadband access and set-top box has perhaps not done so well.

But then, on the prepared remarks, you mentioned that you are starting to see a little bit of pick up on the broadband access side. So just if you could give us a look back on what was different than expectations. And then as we look forward to this year, could we see a contribution from both the parts of wired, both the cable side as well as the switching side?

A - Hock E. Tan {BIO 1460567 <GO>}

That's a very interesting – good question actually and very insightful. And let me try to explain it on our wired business. You're right, it's our biggest segment. And in simple terms, broadly they're two groups of products here and markets here. There's switching and routing, you correctly put out. And that comes from various fronts, from Jericho extended switching and routing, as well as ASICs, which is also a part in there, as would be building block products, as well as fiber optics components.

That business is very enterprise-driven directly and has actually done very well, especially on a year-on-year basis, because it's growing. As we move from 10-gigabit a few years ago, a couple of years ago, to increasingly 25-gigabit and 100-gigabit, coming up very fast. As that transition happens very fast, obviously it's driving. And you all hear products like Trident going to Tomahawk especially in the very high end, and Jericho. All this are related to the data center switching. And that's driving growth on infrastructure on a very, very stable basis, but driving growth very nicely and close to high-single digits, even double-digits.

Then, the other part of the segment, which is pretty big too, is our broadband. And here there's set-top box on the CPE side, and access gateways, like DSL PON on the infrastructure side. And here, the business is stable. It's very stable. It has been stable for the last couple of years – few years and continue to be very stable. And it's also very seasonal. And you will see that the later part of the second half of the year is typically when it drives up and in the first half of the year is when it shows a seasonal decline.

Hence, in my opening remarks I was mentioning that fiscal Q1 is probably very seasonal low point. And it gradually picks up seasonally, later part of Q2, but certainly Q3 and then starts rolling over again. But if you look at it year-on-year, relatively very, very stable. So we have a confluence of two segments mixed together in our wired business, which is what you're seeing. It dilutes basically the strength and growth of switching and routing. But nonetheless, both are very, very franchise product, very franchise business and drives stability in this company.

Q - Vivek Arya {BIO 6781604 <GO>}

Thanks, Hock. And as my follow-up question. It's a somewhat longer term question. You're obviously doing quite well in the wireless business and that can continue for some time. The cloud business is also doing quite well. But when I talk with a lot of your peers and asked them about growth in semis over the next three to five years, they talk about connected cars, or Internet of Things, or machine learning, or 5G. Do you feel Broadcom is investing adequately to pursue those markets? Is it a part of the company that is looking at those longer term areas? Or do you think M&A is the better way to address some of those things as they become real over time? Thank you.

A - Hock E. Tan {BIO 1460567 <GO>}

Great question. Using the opportunity to expound a little propaganda here, again, that we've always articulated. The franchise products we are in, we are the technology, we are also the market leader in those areas, in those niches. Some of them are very large niche, but we are the technology leader. And we don't get there by not investing. We invested, as my remarks said and I've said many times, very heavily in those areas we're in.

We develop products that generally, in those franchise areas, before anybody else do it out there. And that's why we can sustain it, that's why our margins are the way it is because we provide products that allow our customers to differentiate and innovate themselves. So we invest very heavily.

And you look at our total R&D, we invest in total $2.7 billion a year as a company in R&D. We have the best engineers out there, we have the best products in this area. So that's really where we continue to sustain leadership in our existing franchise products. In some of those flights of fantasy somewhat that you talked about earlier, I'm not saying it won't happen. I'll be direct. Let somebody else take another hit (44:31), and then we'll buy the company if it's successful. Thank you.

Q - Vivek Arya {BIO 6781604 <GO>}

Thank you.

Operator

Your next question comes from Toshiya Hari with Goldman Sachs.

Q - Toshiya Hari {BIO 6770302 <GO>}

Great. Thanks for taking my question, and congrats on the strong quarter. I had one short-term question and then another longer term question. On the short-term question, with regards to wireless, you talked about trends at your Korean customer offsetting the seasonal trend at your North American customer and, therefore, you're guiding Q2 to be down only high-single digits relative to history being down about 15%, I recall. Is the upside versus historical seasonality, is that all coming from dynamics at your Korean customer or dynamics in terms of units or content at your North American customer are trending better than history as well?

A - Hock E. Tan {BIO 1460567 <GO>}

You're really trying to parse the data, aren't you? That's all a combination rolling. It is. And you obviously know all that. It's also timing of some of the shipments and purchases by our two largest customers. So there's a few factors involved in it, one of which was there's timing this quarter – differences in timing. There's the fact that, you're right, Korean customer is coming in with a vengeance to try to recover share.

And broadly, we're also talking about content increases as each new generation comes in. And it's not even the Korean customer, it's also the major North American customer. And it's a mix of all these sectors. Have I sat down and broken it out in detail? No. We don't try to analyze that to any degree. But those multiple factors mix all together to basically indicate that the downward seasonality that we saw a year ago is perhaps less pronounced this year.

Q - Toshiya Hari {BIO 6770302 <GO>}

Okay, great. That's helpful. And then, as my follow-up, another question on wireless specifically around China. Obviously, you're tied to the North American customer and the Korean customer in a big way today. But when you think about your wireless business and your RF business, specifically on say a three-year view, how do you think about the opportunity in China today?

A - Hock E. Tan {BIO 1460567 <GO>}

Well, there are opportunities for us in China, but the focus of our success and our product's success in wireless, especially content increases year-on-year, is, as you know, we push the cutting edge on technology, be it wireless Wi-Fi connectivity or RF cellular. We push the envelope. And that tends to go very much largely to the flagship class phones. That top of the pyramid where a big part of it has been our major North American customer and the Korean customer, but a few other guys spread around. That's where our strength is. That's where the demand and value we see in our products coming out.

As China evolve over time, having said that opportunity exists, they'll move from feature phones, to low-end smartphones, to now some premium phones. And we've begun to get traction on even those premium phones to the extent that those brands in China use it. And that's why they need the technological engineering edge that we provide in our product. Until then, they need less of it, except with exceptions like carrier aggregation when we obviously are the leader in providing solutions for carrier aggregation on a discrete basis.

But on an integrated basis into smartphones, it's really the flagship phones and now increasingly premium phones making its way into flagship phones that we see the demand. And that transition is happening in China, albeit on a very gradual basis. But we're very patient people. We'll wait for it.

Q - Toshiya Hari {BIO 6770302 <GO>}

Thank you.

Operator

And our last question comes from the line of John Pitzer with Credit Suisse.

Q - John William Pitzer {BIO 1541792 <GO>}

Yeah. Good afternoon, guys. Thanks for sneaking me in, and congratulations. Hock, my first question is kind of a follow-up on the enterprise storage side. You rightfully pointed out that today the SSD controller business is the smallest part of that business. I'm kind of curious as you look out over time do you see that market developing similar and potentially getting to be the size of the HDD controller market? Or is there something inherent about the growing complexity of the raw NAND itself which means that there'll always be kind of a large portion of that controller market, which is in-sourced, the guys building the NAND actually building their own controller, or do you think eventually you'll end up in a situation where it's all outsourced?

A - Hock E. Tan {BIO 1460567 <GO>}

That's a very insightful question, and we see the SSD controllers for enterprise to be – a lot of it will be outsourced. Why? Because there's certain IP inherent in those enterprise flash controllers that are very tricky to do. Not dissimilar from the re-channel of hard disk drives. So that will happen. Kline (50:19), because the nature of Kline (50:20), it's not so complex technology, IP required is not so extreme. We see that as probably less opportunistic for us, though one never knows. But certainly, on enterprise, which is where we are very focused on, we see a lot of need for intellectual property blocks features that few people can do. And we are one of those few people who can do it very well.

Q - John William Pitzer {BIO 1541792 <GO>}

That's helpful. And then, Hock, as my follow-up, I think a lot of us in the investment community understand sort of the wireless, both on the RF and on the connectivity side, the content ASP story. I am wondering if you can talk a little bit about that same dynamic in your wired business, and maybe differentiate between switching and routing versus set-top box and broadband access. How do we think about sort of the ASP trends in those two segments over time? Or just your content going into the CapEx dollars being spent in the wired market?

A - Hock E. Tan {BIO 1460567 <GO>}

Well, if you talk about switching and routing, it's really more than just chips, or maybe it's a little building blocks of chips. It's really as much an architectural play, especially in the high end top of the rank, in the what you call leaf and the spine side of the data centers. And here is where our model is going beyond just selling pieces of silicon. We sell a lot of firmware and software that goes hand-in-hand to enable those chips to work with multiple OEM customers at the end of the day.

So that's a very interesting model for us. And what is overriding all this is obviously the need for more larger and larger, more and more throughput, especially in data centers and especially in top of the rank and all the way to the spine. So we have big advantages in this area simply because of the strength of the intellectual property we have in making very complex engineering, very complex SoCs, but also very high-speed interfaces or SerDes, as we call it. So all that plays to our advantage being able to do it. And we continue to do that. And we continue to do it as it goes from 10-gigabit, to 25-gigabit, to 50-gigabit, to 100-gigabit and maybe infinite, and going on in the future to 200-gigabit, to 400-gigabit.

We believe we're investing heavily to ensure that we can develop those kind of products and develop it first and better than anybody else. And with that expansion of features, we benefit from content increases simply because you're providing a customer throughput and it's not a one-on-one scaling. It's more and more – it's a lot of value for our customers to be able to go from 10-gigabit to 100-gigabit in the next year or two. And we provide lot of value in that.

And by the way, in broadband, it's not dissimilar, except that maybe it's not evolving as rapidly simply because it's a much more stable market. For instance, you hear about now, 4K TVs or video delivery moving on to high-definition, HD, and eventually moving even to 8K. So it'll be interesting to see how 8K is going to be accepted, since the human eye may not even notice the difference, but people want it. And they want that. We're able to provide that. But it might take a bit longer. That's why I said broadband to us is a much – we look at it as a much more stable, gradually evolving market.

Even as OTT, the hype behind OTT and all that comes into play, which we participate in. But in data centers, it's serious stuff. More and more data are being basically pushed through pipes, start, process as social media keeps expanding. And that's why we're seeing this past quarter and current quarter extraordinarily strength in the demand for switching and routing.

Q - John William Pitzer {BIO 1541792 <GO>}

That's great. Thanks, guys. Appreciate it.

Operator

That concludes Broadcom's conference call for today. You may now disconnect.
