

Vicor Corporation (NASDAQ:[VICR](#))

Q1 2019 Earnings Conference Call

April 23, 2019 5:00 PM ET

**Company Participants**

James Simms - Corporate VP, CFO, Treasurer & Secretary

Patrizio Vinciarelli - Chairman, President & CEO

**Conference Call Participants**

Quinn Bolton – Needham & Company

John Dillon - D&B Capital

Alan Hicks - Ainsley Capital Management

Doug Campbell - Podomus Capital Partners

**Operator**

Good day, and welcome everyone to the Vicor Earnings Results for the First Quarter Ended March 31, 2019 Conference Call. My name is Christian, and I am your event manager today. During the presentation your lines will remain on listen-only mode. [Operator Instructions] I would like to advise all parties this conference is being recorded for replay purposes.

Now I would like to hand over to James Simms. James, you may now go ahead sir.

**James Simms**

Thank you. Good afternoon everyone and welcome to Vicor Corporation's earnings call for the first quarter ended March 31, 2019. I'm Jamie Simms, Chief Financial Officer, and with me here in Andover is Patrizio Vinciarelli, Chief Executive Officer. After the markets closed today, we issued a press release summarizing our financial results for the three month period ended March 31st. This press release has been posted on the Investor Relations page of our website [www.vicorpower.com](http://www.vicorpower.com). We also filed a Form 8-K today related to the issuance of this press release.

As always, I remind listeners this conference call is being recorded and is the copyrighted property of Vicor Corporation. I also remind you various remarks we make during this call may constitute forward-looking statements for purposes of the Safe Harbor Provisions under the Private Securities Litigation Reform Act of 1995. Except for historical information contained in this call, the matters discussed on this call, including any statements regarding current and planned products, current and potential customers, potential market opportunities, expected events and announcements,

planned capacity expansions, as well as forecast sales growth, spending, and profitability are forward-looking statements involving risks and uncertainties.

In light of these risks and uncertainties, we can offer no assurance that any forward-looking statement, will, in fact prove to be correct. Actual results may differ materially from those explicitly set forth in or implied by any of our remarks today. The risks and uncertainties we face are described in Item 1A of our 2018 Form 10-K, which we filed with the SEC on February 28, 2019.

Please note, the information provided during this conference call is accurate only as of today, Tuesday, April 23, 2019. Vicor undertakes no obligation to update any statements including forward-looking statements made during this call, and you should not rely upon such statements after the conclusion of the call. A replay of the call will be available beginning at midnight tonight, through May 8. The replay dial-in number is 888-286-8010 followed by the passcode 88788951.

In addition, a webcast replay of today's call will be available shortly on the Investor Relations page of our website. I will start this afternoon's discussion with a review of our financial performance for the first quarter, and Patrizio will follow with his remarks, after which we will take your questions.

Beginning with consolidated results, as stated in today's press release, Vicor recorded total revenue for the first quarter of \$65.7 million, representing a 10.8% sequential decline from our fourth quarter revenue of \$73.7 million, and less than a percentage point increase from the \$65.3 million recorded for the first quarter of 2018.

As anticipated, Q1 revenue was sequentially lower, reflecting reduced demand for Advanced Products from the pause in datacenter buildout and an associated inventory correction. Both shipments and bookings were affected, as existing backlog was rescheduled from Q1 into Q2 and Q3.

Brick Product revenue was flat sequentially, but approximately 15% higher than the figure for the first quarter of 2018. Advanced Products revenue declined just under 30% sequentially, reflecting the aforementioned backlog rescheduling. Revenue from other product categories within Advanced Products was generally steady for the quarter.

Reflecting current circumstances, the Brick to Advanced Product revenue split for the first quarter was 71% Brick Products and 29% Advanced Products.

Our turns volumes did not materially change sequentially.

International revenue declined 18% sequentially, although international shipments of Brick Products were flat quarter-to-quarter. The decline reflects the higher percentage of Advanced Products that are shipped to offshore contract manufacturers. Because of the drop in such shipments, international revenue fell to 56% of revenue for Q1 from 61% for Q4.

Although distribution revenue was steady in China sequentially, Chinese revenue as a whole declined to 22% of total revenue from the prior quarter's level of 33%. The primary driver of this decline was the lower direct volume of Advanced Products shipped to CMs, but an additional factor was the transfer of certain projects by CMs from their locations in China to other Asia Pacific locations in an effort to reduce exposure to current and potentially higher import tariffs.

Consolidated gross margin as a percentage of revenue rose to 47.3% for Q1 from Q4's 45.9% and compares favorably to Q1 2018 gross margin of 46.3%. The Q1 improvement largely reflects a favorable mix, which offset lower absorption, brought about by the reduced volume, and an increase in Section 301 tariff charges, which totaled over \$1 million for the quarter. We continue to assess the impact of Section 301 tariff charges and may add a tariff surcharge to the selling price of our products if the Chinese trade dispute is not resolved.

Quarterly operating expenses were flat sequentially and year-over-year. Reflecting the decline in revenue, quarterly operating income declined 37%, totaling \$4.5 million or 6.8% of revenue, in contrast to the prior quarter's \$7.1 million, representing an operating margin of 9.6%. In Q1 2018, operating income was \$3.7 million representing an operating margin of 5.6%.

Our effective tax rate for the first quarter was 9%, reflecting continued utilization of federal net operating loss carry-forwards and tax credits. The bulk of our quarterly provision is associated with our 2019 tax estimates for state and foreign jurisdictions in which Vicor does not have NOLs for credits.

Net income attributable to Vicor totaled \$4.3 million for the first quarter, representing a diluted EPS of \$0.10. This is in contrast to Q4 2018 net income of \$6.9 million, representing diluted EPS of \$0.17. For Q1 2018, we recorded net income of \$3.9 million and diluted EPS of \$0.10.

Our fully diluted share count as of March 31<sup>st</sup> was 41,29,000 shares, which is the sum of both common share classes, representing approximately 29.3 million registered common shares and dilutive stock options, and approximately 11.8 million Class B common shares, which are neither registered nor listed.

Turning to our balance sheet, cash and cash equivalents sequentially declined \$3.9 million, ending the first quarter at \$66.6 million. On a year-over-year basis, after substantial investments in additional capital equipment, cash increased by \$23.9 million.

The Q1 cash decline reflects a decrease in accounts payable, mostly associated with paying for much of the production equipment recently installed and an increase in finished goods inventory brought about by the customer rescheduling.

Capital expenditures for Q1 were lower sequentially totaling \$3.3 million, as certain equipment was not yet formally placed in service by March 31<sup>st</sup>. I will return to capital spending and capacity in a moment.

Trade receivables, net of reserves, totaled \$40.8 million at quarter-end, down sequentially 5%, with DSOs rising 46 days from 44 days.

Inventories, net of reserves, increased 9% sequentially to \$51.6 million, as mentioned, due to the higher finished goods and WIP inventories associated with delayed shipments. Our raw materials balance actually declined 4% sequentially. Annualized inventory turns fell to 3.1, reflecting the increased total balance and the lower volume.

Concluding my review of the first quarter, total employee headcount as of March 31<sup>st</sup> stood at 1,022, up from 1,007 for the prior quarter. Full-time headcount was 985 at the end of Q1, up from 976 at year-end.

I'll now provide an update on our capacity expansion. We believe we are close to receiving the approvals to proceed with our proposed 85,000 square foot addition to our Andover facility. As previously reported, we plan to break ground on this addition to our existing plant in 2019 and take occupancy in 2020, providing the space necessary to add manufacturing lines to meet forecast capacity requirements through 2021.

Again, we anticipate internally funding both the building and the planned phases of equipment installation.

While staying focused on the Andover factory expansion, we continue to assess alternatives for an additional facility in 2021. We are also pursuing opportunities to expand global manufacturing capacity with parties interested in acquiring a license to source Advanced Products into datacenter and/or automotive applications.

Turning to the second quarter, our near-term outlook, since speaking to you eight weeks ago, remains essentially unchanged. While demand for Brick Products is firm, demand for Advanced Products will resume after the recent inventory correction has run its course and major design wins enter production in the second half of 2019.

To conclude my remarks, we are pleased with Q1 financial results, given the quarter's challenges. We are forecasting modest revenue growth for Q2, with sustained profitability and improved operating cash flow.

Having offered this limited guidance, I'll remind listeners, as I do each time I speak with you, our operating and financial forecasts are subject to an unanticipated change, many of which are caused by factors and influences outside of our control.

So, with that, I'll turn the call over to Patrizio Vinciarelli.

### **Patrizio Vinciarelli**

Thank you, Jamie. As stated, our Brick Products shipments are likely to rise, as bookings for Brick Products increased 17% sequentially, with improvement in the channel and in defense electronics.

Our quarterly bookings for Advanced Products declined 7% sequentially, reflecting reduced demand from a pause in datacenter build-out and the inventory correction

ahead of next generation servers and GPUs. While Q2 demand for Advanced Products remains weak, our penetration of servers, supercomputing, and AI accelerators is gaining momentum, with major design wins for NBMs and lateral power delivery solutions entering production in the second half of this year. We're also seeing early traction for our vertical power delivery systems. Owing to their superior power density, lateral and vertical power delivery solutions are the solutions or choice for high performance, demanding processor applications, particularly AI accelerators.

At the architectural level, the transition from 12 volt to 48 volt power distribution is gaining momentum in the cloud and the automotive segment. In datacenters, for years after Google's pioneering initiative to convert from 12 volt racks to 48 volt racks, other hyperscalers did not follow through. However, confronted with the necessity to power GPUs and other 48 volt loads, bastions of legacy 12 volt power distribution systems have recently started to crumble, deciding to convert to 48 volts within a few years.

Power distribution infrastructure developments in datacenters and the cloud reflect corresponding developments in automotive, where, for similar reasons, GPUs and AIs ASICs for autonomous driving in general vehicle electrification requirements, 12 volt legacy energy storage and 12 volt power distribution are giving way to 48 volt.

These trends set the stage for broader adoption of power distribution architectures, power conversion typologies, control systems, and packaging technologies that Vicor invented and comprehensively patented over the last 15 years.

As our Advanced Products gain broader adoption in the datacenter and other multi-markets, we're continuing to expand the performance gap that sets Vicor apart from so-called competitive solutions at the point of load, in AC front ends, and in complete power systems. With the roll out of our 4G power modules across our Advanced Product families, we're expanding our power density advantage to at least 2X and in many instances, for certain classes of products, as much as 5X over the closest so-called competitive product. It is this kind of enabling technology that drives major customers to come to Vicor for their high-performance power system requirements, which cannot be effectively supported by bulky and clunky alternatives.

In summary, with power system solutions that anticipate market requirements and enable superior end-product capabilities, and a comprehensive portfolio patents protecting its technology, Vicor's competitive position rests on a solid foundation.

As to the near-term outlook, in 2019 we see a positive progression from quarter-to-quarter, with firm demand for Brick Products and heading into the second half of the year, resumed growth for Advanced Products.

Let's now open the call.

Operator?

**Question-and-Answer Session**

## **Operator**

[Operator Instructions] First question is coming from the line of Quinn Bolton. You may now go ahead, sir. The line is open.

## **Quinn Bolton**

A few questions. Just first on the Advanced Products, about eight weeks ago I think you said you'd seen a pretty sizable order for advanced GPUs pushing from sort of Q4 into late Q1 or early Q2. On this call, you mentioned some push out given into the third quarter. Wondering if you could give us an update. Have things continued to push from the first half into the second half in Advanced Products?

## **Patrizio Vinciarelli**

So, as suggested in the prepared remarks, both in datacenter build-out, with the advent of next-generation processors and with respect to the existing GPU opportunities, we've seen, starting late last year, a pretty dramatic change in requirements. We believe we've settled out at this point, as suggested in the prepared remarks. We see demand picking up in the second half of the year, as the inventory that had been built up works itself through the supply chain, and as new applications come into production. There hasn't been much of a change since the last time we talked, except that we see now confirmation of what was starting to become clear a couple of months ago.

## **Quinn Bolton**

Thanks. And Patrizio, a second question, you talked about the opportunity, the growing opportunity in the datacenter both in the rack and as well with advanced GPUs and AI processors, to sort of expand your customer base. What do you think the timing for some of the other hyperscalers to adopt 48 volts in scale? What's that timeframe look like? Do you think that happens over the next one or two years or is it further out?

## **Patrizio Vinciarelli**

So, with one large potential customer, what we've recently seen -- and this is a customer that we've been endeavoring to penetrate for quite some time and it's a customer that was very entrenched at 12 volts, reluctant to entertain changing infrastructure to 48 -- what we've recently seen, within the last couple of months, is the decision to effect a transition in a two-year timeframe.

Now, leading up to that with other customers, some potential customers in the space, we're seeing steps being taken in that direction that frankly, the NBM that was referenced in the prepared remarks -- which, as a reminder, it's a very high density 48 to 12 and 12 to 48 converter -- plays a role in this phase. It plays a role because it allows, it enables the use of 48 volt GPUs, of 48 volt AI loads, in a 12 volt infrastructure. It's also discussed in prior calls. It can serve a purpose going the other way from 48 to 12 to enable 12 volts solutions within a 48 volt power distribution, which is something that customers that don't want to have single source dependencies are interested in

embracing, because it's a way in effect to provide for a multiplicity of sources and mitigate risk.

### **Quinn Bolton**

And then, sorry, the last question is just coming back to the vertical power opportunity. I know the pace of development in the GPU and the AI processor space, it's pretty rapid. Do you think we may see initial prototype units shipping to the market in 2020 for the vertical power in terms of datacenter applications?

### **Patrizio Vinciarelli**

Yes. We expect to actually be in a mass production in 2020, around the middle of 2020. So, we have large projects, more than one in the works, different stages of development, that we're seeing opportunities for mass production at the middle of next year.

So, we engaged a number of different fronts. I think as mentioned in the earlier remarks, vertical power delivery is a natural next step with respect to the trend towards Power-on-Package. As a reminder, Power-on-Package is the key to eliminating power distribution losses or largely reducing power distribution losses that have historically limited power distribution efficiency in classic servers -- including Intel servers, in spite of the fact that Intel servers are historically operated from 1.8 volt at the point of load. Even at 1.8 volt, the power distribution losses as the current consumptions of these devices have escalated from less than 100 amps to hundreds of Amperes, became substantial. But with AI processors, that typically operate nowadays at 0.8 volt and in the future are going to go down to even lower voltages, with the lower voltages and currents escalating a to 600, 700, 1,000 amps. Just within the last week, we powered up a device at 1,200 amperes. We're working on applications up to 2,000 amperes.

With that escalating demand for current, even with the lateral power delivery Power-on-Package, which dramatically cuts the on-motherboard interconnect losses of non-Power-on-Package power delivery, you still have substantial power losses. So, just to quantify the handicap of these relative solutions, without Power-on-Package at 600 amps, you might have the better part of 100 watts of interconnect losses in one form or another. With lateral power delivery, you can cut that down by at least a factor of two to 30 or 40 watts. With vertical power delivery, you can get it down to single-digit, less than 10 watts. And so, that makes a huge difference with respect to enabling very high current, very low voltage nodes that push the envelope with respect to AI capabilities.

### **Operator**

Okay, the next question is coming from the line of Don McKenna. You may now go ahead, sir. The line is open.

### **Don McKenna**

I wanted to ask you if you still, and this is, I'm going back from memory here now, we were looking at, I think for the fourth quarter, to see a run rate of about \$100 million, so that we'd be at annualized \$400 million and that your existing facility with the new equipment that you brought in was going to give us a capacity of about \$750 million, and with the new facility coming on, that we could get up to about \$1 billion a year in revenues. And now, you mentioned the possibility of needing additional facilities in 2021. Am I right with what I had already said, and do you see that demand having such a significant, almost parabolic, increase coming in those next two years?

**Patrizio Vinciarelli**

Yes, we see demand for capacity expanding dramatically.

So, the addition of, the expansion of the existing facility at Federal Street will bring about approximately a quarter of a billion worth of increased revenue capability, on top of the existing facility. Whether the aggregate ends up supporting \$750 million or closer to \$1 billion, it remains to be seen and may be a function of efficiency improvements we may be able to capture. But we're confident that \$750 million is within the capability of the expanded facility. Going back to your question regarding the progression to these levels, to be clear, the forecast of \$100 million was for bookings in Q4, in that ballpark, as distinct from revenues that will lag by one to two quarters.

**Don McKenna**

Okay. And that's still good?

**Patrizio Vinciarelli**

That's as far as we can see is still good. Yes.

**Don McKenna**

And could you talk for a second on the licensing agreement with Kyocera? And also, I know back in 2004, you signed one with Sony. Is there still a relationship with Sony?

**Patrizio Vinciarelli**

Well, so let me talk about Sony first. So, the opportunity with Sony had to do with I think PlayStation 3, and that game – no pun intended -- changed dramatically with Nintendo's entry in the market ahead of Sony with a device that had certain advantages, and in that particular case didn't consume all that much power. So, nothing ultimately came of that relationship, because of a change in the power system requirements for PS3.

Coming to the present -- to be clear, we do not have at this time a licensing relationship with Kyocera -- as I articulated in the recent press release, we've been working closely with Kyocera and that has played a key role with a number of customer engagements with respect to general packaging technology. It complements our power system expertise. They've become quite adept at incorporating our Power-on-Package within a



complete solution, so far for variety of customers and that's what circulated in the recent press release.

**Operator**

Okay, next question is from the line of John Dillon. John, you may now go ahead, sir.

**John Dillon**

Patrizio, I want to go back to Don's question a little bit on the capital spend. It looks like you bought \$11.3 million of capital equipment in the fourth quarter and \$3.3 in the first quarter. What is the capacity now with that equipment all installed in your existing building?

**Patrizio Vinciarelli**

So, I think we're good through Q1, Q2 of next year, and that's when the expansion in the facility and an additional line comes into being. And obviously we're going to do that. We'll keep monitoring progress, keep monitoring demand. We're going to proceed with having the space ready, because, obviously, there's a longer lead time with that.

With respect to deploying equipment, we can make it happen in about six months. So, we'll pull the trigger on the equipment with that lead time in mind and wanting to make sure that the equipment is installed and the production lines are qualified for mass production with at least a quarter of guard band, relative to capacity needs.

**John Dillon**

The current capacity is that around \$500 million or half a billion dollars now that you've got that equipment installed?

**Patrizio Vinciarelli**

In that ballpark? Yes. In that ballpark. So again, capacity has some level of elasticity. We're not at the limits in terms of 24/7. So, there's flexibility, but obviously we want to reserve capacity for peak demands that may come without enough forward visibility, so it doesn't make sense to run anywhere close to the capacity constraints or ultimate capacity constraint of the facility. I think the summary model I suggested in answer to the earlier question for revenue capacity is around half a billion within the existing walls and an additional \$250 million with the 85,000 square foot expansion. Whether we can stretch it to something more than \$750 million, I think remains to be seen, but obviously we're always striving for maximizing capacity utilization and overall efficiency.

**John Dillon**

Okay. And then what I thought I heard on the last conference call is, okay, so you've got \$14.6 million you've just installed, but in the new facility you're going to add \$12 million. Is that correct or was it more than \$12 million?

**Patrizio Vinciarelli**

We're budgeting in total for the new facility including construction of the building itself, something of the order of \$30 million. The details of that are not to be taken within too fine a level of accuracy. I think it's the kind of thing that could change easily by \$5 million, \$7 million. But let's say that it's in the ballpark, we're looking all in, including the additional lines, \$25 to \$35 million.

**John Dillon**

Okay. But that includes the building too. So that's amazing that you've got \$14.6 million. So, you've really got the capacity today to do about \$0.5 billion in the existing building is what I think I'm hearing.

**Patrizio Vinciarelli**

Yes. Obviously bear in mind that some of that is good old bricks...right, that never seem to go away...

**John Dillon**

That's good. Okay. Now that answers my question. Okay.

So let me jump to the front-end products. This was not a forecast, but several conference calls ago you gave an example how you were working with one company and this one company that had the potential, the potential to take basically all your capacity on the front-end products. Now that we were a little bit farther along and pretty close to the fourth gen for the front-end products, do you still, is that customer still interested in the front-end products and do you have others also interested in front-end products that could substantially take a big step up into production on those?

**Patrizio Vinciarelli**

Yes. I think the front-end volume production and its impact on the top line and bottom line, frankly, is still some distance away. But without question, we're seeing tremendous interest in front-end capability, particularly AC to DC, particularly AC three phase for high power systems going into 48 volts -- or I should say 54 volts -- intermediate bus outputs.

With 4G, to your point, we are raising the bar on these front-end capabilities, and we're doing that because -- in one way of looking at it -- we intentionally skipped one control generation in terms of refreshing our front-end capability. To be a little clear with respect to that, the 3G control technology was really a rifle-shot into point a load applications that did not provide for a refresh of our front-end capabilities. So, all of our front-end products, high voltage bus converters, and existing RFMs, to be clear, still rely on 2G technology, and we're now in the midst of upgrading that capability, in effect, by two generations of control silicon.

And with that comes a much higher level of efficiency. The magic is actually in part count, better efficiency, better density, and with a much lower cost card. That's what's coming together now. There's one controller, which is in fab as we speak, due to come out in about eight weeks, that is key to some of these developments. And this is a controller which is in effect a derivative of an existing 4G PRM controller, which is already in production, but it is a PFC valiant of that 4G controller that will enable the 4G AC-DC front-ends that will further increase the density, the efficiency, and the cost effectiveness of our front-end solutions. So, we're going to start rolling those out in the second half of this year. We've got a lot of interested parties. We have interested parties in the existing RFM and a variety of front-end products, but the level of capability with 4G and the level of cost effectiveness is going to be substantially improved.

So, if you look, for instance, at our website, you might've seen there an RFM which is, we call it the power tablet, it's the size of a tablet. It weighs quite a bit more than a tablet, but it's about the size of the tablet. And with that, we process, depending on input voltage range, 10 kilowatts to 12 kilowatts. So, with 4G we're going to have a much more granular capability. We're going to be able to make front-ends within our panel molded packages, using the same packaging technologies we use for point of load devices. And that will make it considerably more cost effective and more scalable, and more granular. So, we're going to have the level of a five kilowatts or six kilowatts solution in the size of an iPhone. And with a cost card it's going to be extremely competitive.

### **John Dillon**

Wow. So, on the point of load, you've got some enabling technology that it's pretty obvious, you eliminate pins, you get the power there, you save power, but you can also put the components closer together, which makes a faster computer. Is there a similar enabling piece on the front-end stuff or is it really more of the efficiency, the cost card, that's going to win the business for you?

### **Patrizio Vinciarelli**

Well, in the power system industry, the issues and the opportunities tend to be very similar. Obviously, the challenges of the point of load are not necessarily the same as the challenges in the front-end, but there are common denominator requirements and common denominator opportunities. So, whether its point of load or front-ends, generally speaking, power density is a key differentiator. It may be more of a differentiator at the point of load, because it's key to enabling, as an example, advanced ASICs or AI accelerators, but at the front-end density is also important. Front-end efficiency is also important because it impacts total cost of ownership, obviously in many instances the customer ends up paying the utility bills. So they care for solutions that are efficient, dense, and cost effective, and reliable, and scalable with all the other necessary attributes in terms of performance, low noise, and so on and so forth.

And last, but not least, what's important, we believe, in bringing about the market opportunity in its entirety is the ability to service requirements from the wall plug to the point of load. There is a great deal of synergy that comes from providing the front-end

solution that takes power from AC mains, three phase AC mains in particular, deliver it at 54 volts for energy storage in batteries, as a stepping stone to delivering a sub one volt to, as we were discussing earlier, 1,000 amp processors. Being able to provide that complete solution with all the right attributes and all of the related connectivities and capabilities is, we believe, key to success in the market.

## **Operator**

The next question is coming from Alan Hicks. You may now go ahead, sir.

## **Alan Hicks**

Good afternoon. I want to congratulate you on navigating through, I would say a lot of cross currents and headwinds, so I think you're doing a good job. My question is it sounds like the BBU unit was basically flat from quarter to quarter?

## **Patrizio Vinciarelli**

Yes, in terms of revenue. Again, as we suggested earlier, bookings for BBU had been surprisingly strong. And I wouldn't make too much out of that. To your point, it's helped us navigate through what would otherwise have been a more difficult period.

Because frankly, as suggested from comments that Jamie made, we had a bit of an implosion in the Advanced Products, from bookings perspective in particular, taking place late last year and into Q1. And that's fundamentally related to the fact that that business is not yet statistically aligned. It's dependent on a really small number of applications and customers. And so, events that unfolded late last year caused it to undergo a very dramatic temporary change.

Now, as we look at the mix of customers and applications going into the second half of this year and into next year, the Advanced Products are going to be on a much stronger foundation, because they're going to get to be statistical, or a lot more statistical, in terms of their dependency on a multiplicity of customers and applications.

So, what we're starting to see this -- within the last quarter we had a significant million dollar type booking from a new GPU type of application. That's the kind of thing that begins to differentiate and build the kinds of statistical business that we've enjoyed for a long time in the Brick Business Unit, but have not yet established that when it comes to Advanced Products. But that day's coming. And I think starting in second half of this year, we're going to see a much more significant mix of customers and applications.

## **Alan Hicks**

Why did that get delayed in Q4, it was supposed to ship in Q1/Q2; did any of that ship in Q1?

## **Patrizio Vinciarelli**

Some, there is more going in Q2, but the inventory correction there is pretty substantial, so we're not looking at that as making a contribution for the bulk of 2019. I think the action there is going to resume in earnest as we get towards the end of the year.

**Alan Hicks**

Is that total \$5 million order going to be delivered?

**Patrizio Vinciarelli**

Yes, it is.

**Alan Hicks**

Okay. And in the BBU, do you have some visibility for the rest of the year; is it going to stay at this level, can it continue to grow from here?

**Patrizio Vinciarelli**

Its firm, but we should be clear that we don't see an opportunity for growth there. In fact, we are well along in terms of doing our own cannibalization of our classic big products. So, we've done very well with our DCM product line, which is an Advanced Product line using ChiP packaging technology, and in many applications we're really seeing customer transitions from old Bricks to DCMs directly because the products are much more efficient, they are much denser.

And we're happy because we make bigger margins on DCMs than we do on old Bricks. So to be clear, Bricks have been remarkably resilient, as suggested earlier, we like it because it's a very diversified customer base, we literally got thousands of different customer's applications. But as time progresses, those are going to get converted to Advanced Products, and they are not going to stay Bricks forever.

**Alan Hicks**

So that business won't go away, it will converge into...

**Patrizio Vinciarelli**

No, the business will transition from being products effectively – that were developed 20-30 years ago to Advanced Products that have been developed over the last four or five years.

**Alan Hicks**

What would you say your capacity is in Brick Products versus Advanced Products?

**Patrizio Vinciarelli**

So, we have substantial capacity for Bricks and what has been happening over time, our production team is very aware of this, is, as we continue to get more production

efficiency out of the older products, we also keep reclaiming some of the floor space and we reassign it to Advanced Products. We're going to be doing more that kind of thing, and, particularly, as suggested a moment ago, as some of the customer applications get converted from, let's call it, classic Bricks, which are DC converters, to the DCMs, which are also DC converters, but they are built on our Advanced Product platform. We're going to have modern opportunity to in effect scale down on the older lines which are at this point more than fully depreciated -- they have been depreciated quite some time ago -- and reclaim this space for Advanced Product lines, which by their nature are very flexible, because on the same line we can make a DC-DC converter product that performs the function of a Brick in a smaller volume with better performance. While at the same time on the same line we can make MCMs or GCMs or point-of-load devices for Artificial Intelligence powering.

So that is part of the strategy with respect to adding flexible capacity that, over time, is going to be fully redeployed within available space to leading Advanced Products capacity.

**Alan Hicks**

What would you say your capacity is just in Advanced Products today?

**Patrizio Vinciarelli**

So, of the \$400 million as a rough figure. In gross terms, it's pretty close to half and half. But again, it's something that keeps evolving and obviously that's being growing, we've been investing -- we've made a substantial investment in second half late last year on additional Advanced Product line capacity. So this is not a stationary number, it keeps evolving towards more and more capacity for Advanced Products. I think, overtime, it's going to be less capacity for our classic Bricks.

**Alan Hicks**

And last question is, Vicor used to be strong in telecom; is there any new opportunities with the 5G telecom equipment coming?

**Patrizio Vinciarelli**

Oh, yes. I mean, so -- there too are applications with very high current demands, approaching 1,000 amps. So there are -- this common denominator requirements that are not selective in terms of applying only to datacenter or automotive -- I think part of our strategy with the products and the power distribution architecture, the packaging, the control systems and the general capabilities is to leverage across different end-markets and 5G certainly is very demanding in terms of some of the point of load current requirements, and also in terms of front-end requirements. So the power density needs are escalating, so there is a lot of interdependency across these end-markets and the silicon that is a common denominator driver for more current, lower voltages, with greater power density needs.

**Alan Hicks**

Are you getting traction with telecom customers with some of these new products?

**Patrizio Vinciarelli**

Yes, we are.

**Alan Hicks**

Okay, thank you very much.

**Patrizio Vinciarelli**

If there is one more question, we'll take it.

**Operator**

So my next question is coming from Doug Campbell. Doug, you may now go ahead, sir.

**Doug Campbell**

Just two quick questions: in Q3 and Q4, you talked about entertaining a Japanese partner for extending your manufacturing in Asia. Have there been any future discussions or further discussions in that regard? And just -- if you could clarify both, Patrizio and Jamie, you both said major design wins coming in second half of this year. Are you just anticipating, I mean, we expand on that statement? Thank you.

**Patrizio Vinciarelli**

No, these are designed wins. I mean things have already gone -- the example I started earlier -- already gone into some pretty significant initial orders; so there is not a great deal of speculation with respect to spreading our wings across variety of GPU applications with a multiplicity of customers and other applications for, again, a variety of AI chips with leading companies in that space.

Going back to the first half of your question, so I can't really go into details, but suffice to say that we're engaged with two Japanese companies in negotiations regarding alternate source capability that we've been asked by a few customers to bring about, sooner rather than later, because of their need to have an alternate source for the products where, either because of general policies within these companies with respect to an alternate source it must have, or because of geopolitical considerations having to do with, let's say, Chinese companies not wanting to be single source dependent from a U.S. company for obvious reasons.

These companies are putting pressure on us to establish these second sources and in some cases, they are acting as, in effect, catalysts for bringing these about.

**Doug Campbell**

Great. So the talks for a Japanese partner are still continuing if I hear you correctly?

**Patrizio Vinciarelli**

Yes.

**Doug Campbell**

And just last follow-up on the major design wins. So those have already been accomplished. When you receive those orders or when you get those wins, do you guys put out press releases, because I feel like I miss those?

**Patrizio Vinciarelli**

No, you haven't missed anything. Well, we're not in the habit of naming customers or putting out press releases when we get a design win. That's just not the way we operate, so -- but you can be sure -- we are, we're very, very busy.

Frankly, there is more demand for support in the design-in cycle than we can support. We're being selective with respect to which applications we choose to support. There's -- again -- a lot of opportunity in automotive, in particular, in the datacenter space with a variety of AI applications. These engagements tend to be very deep, they typically require a team of our own applications engineers supporting each application that typically goes through at least six, nine months, 12 months of design-in cycle within which time the demand on our team is quite expensive. So it's something that has been progressing and keeps expanding. And we're mindful of -- we're looking for ways to bring about more scalability with the process, more as I mentioned, with the tools and the capabilities because there are limitations as to how many great applications engineers we can have and deploy in support of each and every customer opportunity which -- they all tend to be somewhat -- even though they have common demand of requirements in many respects -- but they also have unique traits that require some level of handholding.

**Doug Campbell**

No, I get it. And to be clear, I think you guys have built a tremendous business. As a portfolio manager, I just -- I wish more Wall Street investors, more institutional investors know about your story and I guess as you get bigger, they will.

**Patrizio Vinciarelli**

That's right. It's as simple as that.

**Operator**

Thank you.

**Patrizio Vinciarelli**



Thank you. And with that, thanks again, and we'll be talking to you in -- well, actually we have a shareholders meeting coming up. But if not there, in three months. Have a good evening.

**Operator**

Okay. So everyone, that concludes your conference call today. You may now disconnect. Thank you for joining and have a very nice day ahead.