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DIOD.OQ - Q4 2021 Diodes Incorporated Earnings Call

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PRESENTATION

Operator

Good afternoon, and welcome to Diodes Incorporated Fourth Quarter and Fiscal 2021 Financial Results Conference Call. (Operator Instructions) As a reminder, this conference call is being recorded today, Wednesday, February 9, 2022.

I would now like to turn the call over to Leanne Sievers of the Shelton Group Investor Relations. Leanne, please go ahead.

Leanne K. Sievers - Shelton Group - President

Good afternoon, and welcome to DIODES Fourth Quarter and Fiscal 2021 Financial Results Conference Call. I'm Leanne Sievers, President of Shelton Group, DIODES' Investor Relations firm.

Joining us today are DIODES' Chairman, President and CEO, Dr. Keh-Shew Lu; Chief Financial Officer, Brett Whitmire; Senior Vice President of Worldwide Sales and Marketing, Emily Yang; Senior Vice President of Business Group, Gary Yu; and Director of Investor Relations, Gurmeet Dhaliwal.

Before I turn the call over to Dr. Lu, I'd like to remind our listeners that the results announced today are preliminary as they are subject to the company finalizing its closing procedures and customary quarterly review by the company's independent registered public accounting firm. As such, these results are unaudited and subject to revision until the company files its Form 10-K for its 2021 fiscal year ending December 31, 2021.

In addition, management's prepared remarks contain forward-looking statements, which are subject to risks and uncertainties, and management may make additional forward-looking statements in response to your questions. Therefore, the company claims the protection of the safe harbor for forward-looking statements that is contained in the Private Securities Litigation Reform Act of 1995. Actual results may differ from those discussed today, and therefore, we refer you to a more detailed discussion of the risks and uncertainties in the company's filings with the Securities and Exchange Commission, including Forms 10-K and 10-Q. In addition, any projections as to the company's future performance represent management's estimates as of today, February 9, 2022. DIODES assumes no obligation to update these projections in the future as market conditions may or may not change, except to the extent required by applicable law.

Additionally, the company's press release and management statements during this conference call will include discussions of certain measures and financial information in GAAP and non-GAAP terms. Included in the company's press release are definitions and reconciliations of GAAP to non-GAAP items, which provide additional details. Also, throughout the company's press release and management statements during this conference call, we refer you to net income attributable to common stockholders as GAAP net income.

For those of you unable to listen to the entire call at this time, a recording will be available via webcast for 90 days in the Investor Relations section of DIODES' website at www.diodes.com.

And now I'll turn the call over to DIODES' Chairman, President and CEO, Dr. Keh-Shew Lu. Dr. Lu, please go ahead.

Keh-Shew Lu - *Diodes Incorporated - Chairman, CEO & President*

Thank you, Leanne. Welcome, everyone, and thank you for joining us today.

DIODES had a record year in 2021, reflecting sustained execution that consists of 5 consecutive quarters of record revenue as well as 7 consecutive quarters of adjusted earnings growth. In fact, full year revenue grew 47% and the gross profit grew 56%, with GAAP earnings per share expanding 166% and adjusted earnings per share expanding 120%, demonstrating the significant operating leverage in our model.

Additionally, gross margin expanded 610 basis points from the first quarter of 2021, the first full quarter after completing the LITE-ON Semiconductor acquisition to the fourth quarter of 2021. This increase was driven by a combination of product mix improvement, manufacturing efficiencies and improved loading. Also contributing to our ongoing margin expansion has been the achievement of 5 consecutive quarters of record Pericom revenue, 3 consecutive quarters of record industrial revenue as well as 6 consecutive quarters of record automotive revenue, which grew 59% in 2021 and reached a record 12% of total revenue for the full year.

With full year revenue of \$1.8 billion and gross profit of \$0.7 billion, 2021 represented a significant step toward our 2025 target of \$1 billion in gross profit on \$2.5 billion revenue and 40% gross margin.

In addition to the manufacturing synergies provided by LSC acquisition over this past year, we expect to realize expanded synergies across our product portfolio, customers and end markets in the coming years to drive additional revenue growth and gross margin expansion.

With that, let me now turn the call over to Brett to discuss our fourth quarter financial results and our first quarter 2022 guidance in more detail.

Brett R. Whitmire - *Diodes Incorporated - CFO*

Thanks, Dr. Lu, and good afternoon, everyone.

As part of my financial review today, I will focus my comments on the sequential change for each of the line items and will refer you to our press release for a more detailed review of our results as well as the year-over-year comparisons.

Revenue for the fourth quarter 2021 was a record \$480.2 million, an increase of 1.9% from \$471.4 million in the third quarter 2021. For the full year 2021, revenue was a record \$1.81 billion, an increase of 46.9% from \$1.23 billion in the prior year.

Gross profit for the fourth quarter was also a record at \$190.7 million or a record 39.7% of revenue, increasing 5.2% or 130 basis points from \$181.2 million or 38.4% of revenue in the third quarter of 2021. For the full year, gross profit increased 55.5% to a record \$670.4 million or 37.1% from \$431.1 million or 35.1% in 2020.

GAAP operating expenses for the fourth quarter 2021 were \$104.7 million or 21.8% of revenue and, on a non-GAAP basis, were \$100.1 million or 20.8% of revenue, which excludes \$4.1 million of amortization of acquisition-related intangible asset expenses and \$0.6 million of acquisition-related

costs. This compares to non-GAAP operating expenses in the prior quarter of \$99.6 million or 21.1% of revenue. GAAP operating expenses for the full year were \$394.4 million or 21.8% of revenue compared to \$296.8 million or 24.1% of revenue in 2020.

Total other income amounted to approximately \$22.8 million for the quarter, consisting of \$13.2 million of unrealized gain on investments, \$11.2 million of other income, \$788,000 of interest income, \$1.1 million in foreign currency losses and \$1.2 million in interest expense.

Income before taxes and noncontrolling interest in the fourth quarter 2021 was \$108.8 million compared to \$85.6 million in the previous quarter.

Turning to income taxes. Our effective income tax rate for the fourth quarter was approximately 39.1%, which includes taxes related to non-GAAP items. On a non-GAAP basis, the tax rate for the fourth quarter was approximately 18.4%.

GAAP net income for the fourth quarter of 2021 was \$65.5 million or \$1.43 per diluted share compared to GAAP net income of \$68.4 million or \$1.50 per diluted share in the third quarter of 2021. Net income per diluted share in the fourth quarter increased 142% year-over-year from the \$0.59 per diluted share in the fourth quarter 2020. The share count used to compute GAAP diluted EPS for the fourth quarter 2021 was 45.9 million shares. GAAP net income for the full year 2021 was a record \$228.8 million or \$5 per diluted share, a 166% improvement compared to the \$1.88 per diluted share or \$98.1 million in 2020.

On a non-GAAP, adjusted net income in the fourth quarter was a record \$73.3 million or \$1.60 per diluted share, which excluded, net of tax, \$3.3 million of acquisition-related intangible asset costs, \$0.4 million of acquisition-related costs, \$13.5 million of costs related to certain LSC investments and a \$9.4 million gain on the sale of a manufacturing subsidiary. This represents an 8.8% improvement from the third quarter 2021 of \$1.47 per diluted share or \$67.3 million and a 116% improvement from \$0.74 per diluted share or \$37.3 million in the fourth quarter 2020.

On a non-GAAP, adjusted net income for the full year 2021 was a record \$237.2 million or \$5.18 per diluted share, a 120% improvement compared to \$2.35 per diluted share or \$122.7 million in 2020.

Excluding share-based compensation expense of \$6.5 million for the fourth quarter and \$26.2 million for the full year 2021, both GAAP earnings per share and non-GAAP adjusted EPS would have increased by \$0.14 per diluted share for the fourth quarter and \$0.57 for the full year.

EBITDA for the fourth quarter was a record \$139 million or 28.9% of revenue compared to \$114.5 million or 24.3% of revenue in the prior quarter. On a year-over-year basis, EBITDA increased 107.2% from \$67.1 million in the fourth quarter of 2020, further highlighting our significant operating improvements over the past year. EBITDA for the full year 2021 increased 82.1% to a record \$434.6 million or 24.1% of revenue from \$238.6 million or 19.4% in 2020.

We have included in our earnings release a reconciliation of GAAP net income to non-GAAP adjusted net income and GAAP net income to EBITDA, which provides additional details.

Cash flow generated from operations was \$77.6 million for the fourth quarter 2021 and \$338.5 million for the full year. Free cash flow was \$22.5 million for the fourth quarter, which included \$55 million for capital expenditures and \$197.3 million for the full year, which included \$141.2 million of capital expenditures or 7.8% of revenue. Net cash flow in the fourth quarter was a positive \$82 million and a positive \$46.3 million for the full year, which included a paydown of approximately \$152.6 million of long-term debt during the year.

Turning to the balance sheet. At the end of fourth quarter, cash, cash equivalents, restricted cash plus short-term investments totaled approximately \$373 million. Working capital was \$717 million and total debt, including long term and short term, was \$301 million.

In terms of inventory, at the end of the fourth quarter, total inventory days increased to approximately 107 in the quarter as compared to 99 last quarter. Finished goods inventory days were 32 compared to 27 last quarter. Total inventory dollars increased \$26.5 million to approximately \$348.6 million. Total inventory in the quarter consisted of an \$18.5 million increase in finished goods, a \$15 million increase in raw materials and a \$6.9 million decrease in work in process.

Capital expenditures on a cash basis for the fourth quarter 2021 were \$55 million or 11.5% of revenue and 7.8% for the full year, which is within our target model of 5% to 9%.

Now turning to our outlook. For the first quarter 2022, we expect revenue to be approximately \$480 million, plus or minus 3%, which at the midpoint is better than typical seasonality of down 5%. We expect GAAP gross margin on a consolidated basis to be 39.7%, plus or minus 1%. Non-GAAP operating expenses, which are GAAP operating expenses adjusted for amortization of acquisition-related intangible assets, are expected to be approximately 21% of revenue, plus or minus 1%. We expect net interest expense to be approximately \$1.4 million. Our income tax rate is expected to be 18.4%, plus or minus 3%. And shares used to calculate diluted EPS for the first quarter are anticipated to be approximately 46.3 million shares.

Please note that purchasing accounting adjustments of \$3.3 million after-tax for previous acquisitions is not included in these non-GAAP estimates.

With that said, I will now turn the call over to Emily Yang.

Emily Yang - *Diodes Incorporated - SVP of Worldwide Sales & Marketing*

Thank you, Brett, and good afternoon.

As Dr. Lu and Brett mentioned, fourth quarter revenue increased 1.9% quarter-over-quarter, which is better than the midpoint of our guidance due to the continued strong demand and record revenue across all the regions. Distributor inventory in the fourth quarter in terms of weeks increased slightly quarter-over-quarter, which is still below our defined normal range of 11 to 14 weeks.

Looking at global sales in the fourth quarter. Asia represented 78% of revenue; Europe, 13%; and North America, 9%.

In terms of our end markets, computing represented 29% of revenue; industrial, 24%; consumer, 19%; communication, 16%; and automotive, 12% of revenue. We achieved record revenue in the Automotive, Industrial, Communications and Consumer segments.

Now let me review the end markets in greater detail.

In the Automotive market, we continue to expand our strong growth momentum with revenue increasing 37% year-over-year and 59% for the full year to set new records. Since 2013, when we began our expansion initiative into the automotive market, we have achieved an 8-year compounded annual growth rate of 30%. One key to our success has been our content expansion initiatives and design-win momentum that has continued across all target application areas, particularly in 3 focus areas of Connected Driving, Comfort, Style and Safety, and Powertrain.

Automotive DC-DC 32 volt and 40 volt buck converters, LED switching drivers and SBRs continue to see strong demand for telematics, front and rear LED lighting, daylight running lights and ADAS applications. Similarly, linear-mode LED driver product were designed into first responders' emergency lighting systems and high-efficiency charge pump LED drivers has been seeing traction for indicator LED lights in the household EV plugging charging unit. Newly released LDOs, current limit power switches and Pericom product lines of level-shifters, crystal oscillators, buffers and PCI Express clocks are seeing new design wins in ADAS, telematics, autonomous vehicle control unit and infotainment system.

We are also seeing great success from the high-voltage latch, high-voltage regulators and Omnipolar Hall switching, in cooling fans, window lifters, motors, water pumps and door lock applications. Additionally, transient voltage suppressors, MOSFET, gate driver ICs and USB charging controller products are being designed into applications, including battery managed systems, wireless charger converters and in-vehicle USB charging port. Fast recovery rectifiers were also well accepted in electric vehicle heat exchanger applications as well as automotive electric intelligent controllers.

MOSFET design-in momentum continued for automotive brush and brushless electric motor applications, including power steering, field, oil and ABS pumps, seats and mirrors. Our low capacitance ESD and surge protection devices are also being designed into applications for protection of In-Vehicle Networks and for the I/O port protection of its Far Field Cameras for advanced driving assistance.

In the industrial market, revenue increased 43% year-over-year and 46% for the full year to also reach new records. We are continuing to see growth and adoption of DisplayPort/HDMI switches and ReDrivers in the commercial display application. Our ultra-fast recovery rectifier products and PCI Express Gen 3 package switches are gaining traction in the artificial intelligence, video analytics 3D sensing camera modules and surveillance and security applications.

We are also seeing strong demand for application-specific multi-chip circuits and standard recovery rectifier products driven by multiple applications, such as diagnostic test systems, brushless DC motor drivers, energy metering, power supply, smart lighting and electro-medical applications, including automated blood and body flu analyzers.

We have also been pleased with the strong design win momentum for the LITE-ON Semiconductor Image Sensor product line being used in document scanners, lottery bar scanners and PCB inspection applications.

Additionally, our ultra-fast recovery rectifier product, bipolar transistors, synchronous controllers and MOSFETs continue to gain momentum in power supplies and inverter applications. Medium voltage DC-DC LED drivers have been gaining design wins in smoke detectors and SBR products are expanding in GPS tracking application, which enable real-time location monitoring during transportation.

In the Computing market, revenue was up 72% year-over-year and 122% for the full year. We are seeing strong traction for USB Type-C power switches, TVs, high-power density Schottkys, low-voltage Omnipolar Hall sensors, dual-output unipolar Hall sensors, DC-DC Buck converters as well as HDMI 2.0 redrivers in the new compute platform, including gaming notebooks and workstations. Similarly, we are seeing increasing interest for DisplayPort, USB Type-C, HDMI switches and redrivers in the docking stations, dongles, active cables and keyboard/video/mouse applications.

We also continue to see strong demand for SSD mux, crystal and oscillator products in the enterprise SSD storage modules and data center server applications. We have several design wins for the Universal Level-shifter product family in various applications, including SSD storage, gaming, server, laptop and mobile devices.

Additionally, LITE-ON Semiconductor image sensor product continued to gain momentum with new design-ins in the scanner and copy machines.

In the Consumer market, revenue increased 18% year-over-year and 12% for the full year to also set new records for the quarter and the year. DIODES continued to see strong revenue growth of standard recovery rectifier products and SBR in the consumer applications, including digital light projection, LED BACKLIGHT modules and high-efficiency vacuum cleaners. We also have new design wins for USB MOS and bipolar transistors in LED TV and display panels as well as increasing demand for low-power Class D audio amplifiers, SBRs and LED drivers utilizing monitor, Bluetooth speakers, LED lighting and smart doorbell applications.

We also continue to see strong momentum for CSP and small DFN MOSFETs for IoT and wearable devices as well as high-power density products securing new design wins in the home exercise equipment. Mobile phone adapters generated strong demand for DIODES' fast recovery rectifiers, and AC-DC products continue to see growth from quick charging applications.

Lastly, in the Communication market, revenue was also a record and grew 10% year-over-year and 13% for the full year. Design win momentum for the Pericom product line continued in this market for our USB mux and ultra-high voltage protection with 5G CPE application. There has also been growing demand for USB redrivers, primarily driven by the USB Type-C application.

Additionally, our small-sized, low-saturation transistors continued with design wins across multiple applications from base stations, routers, network cameras to doorbells. We saw strong demand for our SBR Chip Scale Package and design wins for High PSRR LDO product family in smartphone applications.

In summary, 2021 was an exceptional year for DIODES both operationally and financially. We achieved strong revenue growth and margin expansion from our total solution sales approach and content expansion initiatives, especially in the automotive, industrial end markets as well as the Pericom product family. We also successfully integrated the LITE-ON Semiconductor acquisition and benefited from the manufacturing synergies with

additional opportunities for the growth and expansion through the product, customers and end market synergies that we expect to realize over the coming quarters and years.

With that, we now open the floor to questions. Operator?

QUESTIONS AND ANSWERS

Operator

(Operator Instructions) I show our first question comes from the line of Matt Ramsay from Cowen.

Matthew D. Ramsay - *Cowen and Company, LLC, Research Division - MD & Senior Technology Analyst*

Congrats on the great results, Dr. Lu. I wonder if you might provide some commentary. Over the last, I don't know, 1.5 years or so, the industry has been very supply constrained and your company was fortunate enough to acquire the capacity from LITE-ON and did an amazing job in executing and filling that capacity, and it's led to some pretty remarkable growth. I wonder, as you think about the next year or two in DIODES' growth plans, where do you have the opportunity to add more capacity and how much of the growth are you thinking coming from pricing versus units versus additional capacity?

Keh-Shew Lu - *Diodes Incorporated - Chairman, CEO & President*

Okay. So I'd just answer several of your questions, okay? First, you are talking about how much of the growth coming from price increase and how much is coming from revenue growth, okay, or the capacity expansions. So we do not really separate that number very clearly, but we only increase the price based on our wafer or our cost material increase. So we reflect the material increase to our customer only. But we take this opportunity by better support customer to asking them to give us more design opportunity. So some of the areas, our customers will not allow us to touch in the past, now with this and great support of our customer, we can demand or ask them to open up the design-in opportunity for us. And so that is what we are doing today and using the capacity constraint to our advantage of open up more business opportunity.

Now you're talking about the future growth. Then we have like our SFAB 2 8-inch, we just, from very low, ramped it up to fully loaded by December last year. If you listen to what we have been talking about, last year, the whole year, we ramped up the SFAB 2. So this year, that would be fully loaded, okay? So then another is our GFAB. If you remember, we bought GFAB back in 2019. And we committed to the original owner we support them for 5 years and that every year, they would reduce their loading to us 10%. And so we gradually qualify our production or our technology, our product into the GFAB. And so we actually have additional capacity by original owner requirement reduced. And so we are able to take the opportunity to give us more capacity for the growth.

And this will continue because they're going to be this -- their demand is going to go down, and we'll continue ramping up. At the same time, if we still need more than that, we can. They still have enough capacity. We can bring that capacity -- or bring that loading even higher. Because the time we bought that, we said they are fully loaded. But in the wafer fab definition, when we say fully loaded, it's 80%. And if you look at some of our wafer fab, it's already loaded up to 100% or 95%. So we still have more room in the GFAB to give us additional growth. Then we -- our supplier, other external fab, with our relationship, we still can continue asking for a little bit more every quarter or here or there to get a little bit more. So we still believe we have enough capacity to support our growth in this year and next year. And then when the demand starts to loosen up, we can take that opportunity to continue our growth base.

Emily Yang - *Diodes Incorporated - SVP of Worldwide Sales & Marketing*

Right. And then on top of that, Matt, we also will continue to drive the product mix improvement. So we want to focus to better utilize available capacity to support better business as well.

Matthew D. Ramsay - *Cowen and Company, LLC, Research Division - MD & Senior Technology Analyst*

Got it. As my follow-up question, I guess I'd be remiss to not mention that you're bumping right up against your long-term 40% gross margin target. I think your run rate of revenue is slightly under \$2 billion, and you were planning to hit 40% at \$2.5 billion in revenue. So if you could just kind of walk me through the puts and takes on gross margin as we go forward. Is it kind of a new floor of margin and sustainable? And what are the incremental margin drivers as you add that additional \$500 million in revenue towards the target model?

Keh-Shew Lu - *Diodes Incorporated - Chairman, CEO & President*

Well, really, what we're looking for is \$1 billion gross profit, okay? And when I said that, it really is the goal, \$1 billion gross profit, because that flows through to the EPS. So that is really the goal.

Now when I said \$1 billion gross profit, then we said how do we make it? Then we say, \$2.5 billion revenue, 40% GP to make up that \$1 billion. And if our gross margin can be better than 40%, we are not going to -- we just continue to improve our gross margin, and we get there with our \$2.5 billion. So achieve that goal earlier. Then after that, then we will start to get to our next target. But I'm not ready to announce the next target yet, but we are quite close to the target of \$1 billion gross profit.

Matthew D. Ramsay - *Cowen and Company, LLC, Research Division - MD & Senior Technology Analyst*

Got it. Congratulations on the progress.

Keh-Shew Lu - *Diodes Incorporated - Chairman, CEO & President*

Thank you.

Operator

I show our next question comes from the line of William Stein from Truist Securities.

William Stein - *Truist Securities, Inc., Research Division - MD*

I'll add my congratulations, especially to the outlook. But both the results and outlook are great. I have a question about the guidance by end market. Normally, Q1 is down a little bit. And I think the end markets that tend to do that are the, I think, what you call the 3Cs, right, consumer, comps and communications. I think those are typically down sequentially while industrial and automotive are typically up a little bit. So if we think about the delta or therefore, the difference in this Q1, is it more spread across all end markets that they're all going to do a little better than typically? Or is it more that you're going to see sequential growth a little bit in each of the end markets? Or is there some different explanation?

Emily Yang - *Diodes Incorporated - SVP of Worldwide Sales & Marketing*

Okay. William, this is Emily. So I think overall what we're seeing is actually strength across all the end markets. I think all in all, we have really strong demand. And if we look down to the specific segments, so for example, automotive, we actually have a full year growth of 59%. We see that momentum continues. And for the industrial, we're also seeing a lot of growth, like 46% for the full year. And again, a lot of design-in pipeline continue to grow. On the computer side where we talk about the low-end PC, there is definitely a little bit softness, but we're also seeing strength on the cloud computing and servers, so it's kind of balanced itself.

On the consumer side, you're right, absolutely, Q1 usually is not a super strong quarter. And we definitely see a little bit of softness, I would say, more from the China consumer side. But again, we have a lot of overall other demands, whether it's home care or some other consumer applications that we continue to see the strength, right?

On the communication side, I think there's a lot of news about the smartphone softness a little bit there in China. But since we are very well diversified into all the Tier 1 smartphone manufacturer that we're actually seeing not that much of the impact to the overall DIODES. So I would say all in all, 5G continue to drive a lot of momentum not just on the base station but 5G-related applications. So yes, I would say all in all, still very, very strong.

William Stein - *Truist Securities, Inc., Research Division - MD*

And my follow-up, if I can. I think I saw an announcement recently about DIODES dipping its toe into silicon carbide development. Can you maybe clarify what you envisioned? Well, first, what capabilities you're developing and what market or opportunity you believe you'll be able to address.

Gary Yu - *Diodes Incorporated - SVP of Business Groups*

Okay. This is Gary, and Will, nice to talk to you. And actually, the silicon carbide development, we've been starting for this kind of project probably a year ago, and we see that's a very strong trend from the market. And we have our design team in-house, and we do our wafer design and we use our design using outside fabrication to the wafer. And particularly, the silicon carbide we are using is for the automotive-related part like the OBC, on-board charger, like micro EV and the inverter. And especially, if you see the news, we have for the DIODES, that's a JV, joint venture activity that we have with your silicon carbide MOS with the technology that we have within the module, module go to the inverter. And those inverters are going to the electronic vehicles motor. And that's every area we're kind of focused on.

William Stein - *Truist Securities, Inc., Research Division - MD*

Any revenue to discuss in that area yet? Or is it all...

Gary Yu - *Diodes Incorporated - SVP of Business Groups*

No, not yet. Not yet. No, not yet. Our engineering samples should be delivered by end of this year. And we are looking forward because of automotive related probably 1 year or a little bit longer, and we're looking for probably the first revenue going to come in probably the middle of next year.

William Stein - *Truist Securities, Inc., Research Division - MD*

Great. Congrats again.

Gary Yu - *Diodes Incorporated - SVP of Business Groups*

No problem.

Operator

I show our next question comes from the line of Gary Mobley from Wells Fargo Securities.

Gary Wade Mobley - Wells Fargo Securities, LLC, Research Division - Senior Analyst

Congrats to the strong 2021 and a good start to the current calendar year. I wanted to ask about your manufacturing footprint in China. I realize the majority of your employees are based in China. So have you seen any impact on your production facilities past or present or maybe in the future from China's COVID zero policy?

Keh-Shew Lu - Diodes Incorporated - Chairman, CEO & President

Well, let me answer this one. Actually, our wafer fab, majority of wafer fab internally is not in China, okay? And we have external. But internal, we, in the GFAB and OFAB in Europe, and the LSC have the wafer fab in Taiwan. So today, in China, we only have SFAB 2, okay? So we don't have majorities now there. Now for assembly, yes, but virtually, we -- the 2 major sites is in Shanghai, which don't have the big problem on COVID-19; and Chengdu, again, in Yangzhou. The China government is very, very careful, too. So we don't see the problem due to COVID-19. And actually, it's helping us because, for example, typically, every year, during the Chinese New Year, we're going to have shutdown because a lot of the workers going to go home for the Chinese New Year. So during the Chinese New Year that month, our productivity or our production is actually slowed down. That's why one of the reasons we have the seasonality in 1Q, we cannot get enough output.

But this year, like last year, the China government actually "encouraged", quote by quote, "encouraged" the people to more stay in the local and either take off or continue working, okay? So because of that, this year, our output, affected by Chinese New Year, is not that great or that critical. And therefore, if we are able to support our demand, still not enough, but we are able to support it. So therefore, we have guide our 1Q revenue flat from 4Q because our output is not really going to slow down that much. At the same time, we do build some inventory in 4Q, try to get support on 1Q. So overall, we do not really affect, manufacturing-wise, by COVID-19 effect in China. But actually, we are better than in the past is due to the order to not really go home.

Gary Wade Mobley - Wells Fargo Securities, LLC, Research Division - Senior Analyst

Got it. Appreciate the color there, Dr. Lu. I have a couple of follow-ups for Emily perhaps. Normally, Q1 is down 5%, but I presume that you're going to have a better than seasonal Q1 because perhaps you're having a -- getting an opportunity to replenish distributor inventory. And related to that, would you expect to be back up in the normal 11- to 13-week range? And is there any way to quantify the impact of your competitors, one in particular that is exiting a few hundred million dollars last year and the next year in some product categories that you directly compete in?

Emily Yang - Diodes Incorporated - SVP of Worldwide Sales & Marketing

Right. So I think, Gary, with the -- like Dr. Lu mentioned, better than -- maybe a little bit better than expected output in Q1. That's the reason we provided a slight guidance, which you are absolutely right, this is usually about 5% down quarter, right? So what we do, we still aggressively working with all the customers closely and review all the opportunities in front of us, right? So if this is the right fit for the overall DIODES growth and fit into our overall strategy, we aggressively pursue.

And like I mentioned earlier, any time there's a strategic change from my peers or a merger and acquisition always create more opportunity for DIODES to pursue after, right? But again, we are not just blindly going after every business. We really more focus on strategic good business that will continue to drive our product mix improvement as well as total solution sales strategy that we initiated a few years ago, right?

Gary Wade Mobley - Wells Fargo Securities, LLC, Research Division - Senior Analyst

Got it. And the impact from one of your competitors exiting the market?

Emily Yang - *Diodes Incorporated - SVP of Worldwide Sales & Marketing*

I think it's really hard to really say how big or how small the impact. I also think one of my peer public -- published a lot of statements, but there's also others maybe didn't really that vocal but also making changes. So again, we monitor all this very closely. As long as fit into our long-term plan, as long as that's going to help us to achieve the \$1 billion gross profit Dr. Lu mentioned earlier, we're definitely aggressively going after it.

Operator

I show our next question comes from the line of Tristan Gerra from Baird.

Tristan Gerra - *Robert W. Baird & Co. Incorporated, Research Division - Senior Research Analyst*

A quick question on the gross margin trajectory for the next few quarters for this year. What's going to be the mix component versus further fixed cost absorption? It sounds like you have room to further expand utilization rates. So how should we put that in the mix in terms of margin expanding this year?

Emily Yang - *Diodes Incorporated - SVP of Worldwide Sales & Marketing*

Well, I think -- yes, so maybe let me make a comment, and Dr. Lu and some others maybe can add some more. I think the margin improvement really consists of a few things, and they're all very important, right? One of the biggest one is product mix improvement. And we've been talking about this for a while. So we will continue to drive. This is really more from the total solution sales replacing some of the legacy stuff with some of the newer products with better margin, better ASP as well. And we believe this is actually just the beginning of this whole initiative. And this is actually something we established probably about 2, 3 years ago, and we continue to drive for improvement.

I think manufacturing efficiency improvement has always been the strength for DIODES. And like Dr. Lu mentioned, we continue to add additional capacities. This can be even adding more equipment within existing lines or replacing some of the old equipment with the new ones, expanding to 4-inch to 6-inch or stuff like that. So that will continue to drive some of the capacity improvement. And in result, that will continue to drive our manufacturing efficiency and continue to improve our cost, right?

And then we also have LITE-ON Semiconductor synergies that I talked about. So we start seeing the benefit of the manufacturing synergy, but there's still customer synergy and market synergy and end market synergy and product synergy that we can actually continue to see benefit over the next few years. So I would say, all in all, this is few areas will continue to help us to drive the margin. And just like Dr. Lu mentioned, we're definitely not going to stop at 39.7% or 40% and just continue the direction. And we definitely want to continue to deliver the results to you guys as well.

Tristan Gerra - *Robert W. Baird & Co. Incorporated, Research Division - Senior Research Analyst*

Okay. Great. And then for my follow-up, it's going to be about inventories in the channel. So you've mentioned that you -- or you mentioned the well-advertised slowdown in China smartphone but that you're also very diversified. So are you seeing any pockets of inventories in the supply chain outside of this space that you could point out despite that diversification? And then also, are you seeing inventory rebalancing because of the high level of work-in-process inventories? So are you seeing some customers basically choosing and picking what they're going to order because they can't close the buck, so they're kind of waiting for that last component?

Emily Yang - *Diodes Incorporated - SVP of Worldwide Sales & Marketing*

Yes. I think, Tristan, overall, we're still seeing the channel inventory very lean. So even we see a very slight increase in our channel inventory end of Q4, that's actually driven by some of the support for the Chinese New Year customers and also the timing of the shipments. But all in all, still

extremely lean. I think Gary asked the question, I probably didn't address it, is actually do we expect back to the 11 to the 13 weeks or 14 weeks that we define as a normal range. We don't really expect return to that normal range in a short period of time. So we believe that with all the visibility that we have, with all the customers that we actually have a direct communication with, so far, no one has the opportunity to build up a lot of inventory on the shelf at this moment.

So I believe that, that will continue for a few quarters to come, and we'll continue monitor very closely. That's pretty much applied to all the Tier 1s, Tier 2s that we have a direct contact. And then with the Tier 3, Tier 4 customers, we actually monitor very closely with each of our distributor partners, and they also monitor very closely. And so we definitely don't see that as an issue at this moment.

Operator

(Operator Instructions) I show our next question comes from the line of David Williams from Benchmark.

David Neil Williams - *The Benchmark Company, LLC, Research Division - Senior Equity Analyst*

I apologize, I jumped on a little bit late. But Dr. Lu, I wanted to ask, you've been through a lot of these cycles, and we've talked about it in the past. But just kind of curious how you're seeing the landscape today. And how do you think maybe the -- it seems like that the channel inventory still remain extremely lean, but it always tends to be that we've got excesses through the supply chain. Do you think -- do you feel pretty comfortable today that there really isn't maybe some excesses that are kind of building up within that channel that just maybe aren't being seen or aren't as visible? And do you think there's even an opportunity for that to happen, I guess, kind of given the demand and where that -- the level that it's been?

Keh-Shew Lu - *Diodes Incorporated - Chairman, CEO & President*

Well, yes, you are right. I've been in semiconductor business for a long time, and I go through 1970, '80, 1990 up and down cycles. So I'm familiar with that. But I'm going to say this year, this cycle is really different from the previous cycles, okay? In previous, always demand continue and expansion for the capacity behind. And then all of a sudden, you get a shortage. Then people -- the people wait there until they cannot stand, then they go to existing capacity. Then the problem is the lead time of the equipment takes a long time. So the time they get capacity there, everybody gets it at same time that, all of a sudden, you get overcapacity. Then everything goes down, then we go to the down cycle.

So if you look at, it's a timing issue of the capacity improvement. And that's why if you remember several years ago, what we -- our strategy is putting capacity ahead of the demand. So during the downtime, you actually exit the capacity because of the lead time, each equipment lead time issue.

Now this time, that's why we're able to grow this year or 2021 much better than 2020, it's because we ramped up SFAB 2 at that time, we get LSC ahead of time and then we get GFAB even 1 or 2 years before the shortage. So we prepared for all this one and all this shortage, and that's why we are able to take advantage of business. But now if you're talking about move forward, I think the move forward still have shown -- because you don't see that many of people hitting capacity that crazy, okay? Everybody is very close to hitting the capacity. So we -- I don't -- I think this shortage will be -- continued this year.

Now you're going to start to loosen up but electronics demand actually continue increase ahead of more than in the past and so on. I would see that demand going to continue very strong, and then the capacity increase will gradually catch up with the demand.

David Neil Williams - *The Benchmark Company, LLC, Research Division - Senior Equity Analyst*

Okay. Definitely great insight. I certainly appreciate it. And then maybe one other one here for Emily. But you've had some really nice growth in the automotive side, and that's been a fairly diversified, I guess, application area across the different areas of the vehicle. But when you think about

your maybe ICE or traditional vehicle versus the EV, how do you think that split looks like maybe this year or even in '21? Are you seeing much adoption within the EV space now? Or is that primarily still driven by the traditional? And then how do you think that mix kind of shakes out as we go into maybe the next 12 to 18 months? Are you seeing the demand in EV in kind of that pull-through? And does it happen fairly quickly for you all in terms of seeing that reflected within your revenue base?

Emily Yang - *Diodes Incorporated - SVP of Worldwide Sales & Marketing*

Right. So I think the EV volume increase is definitely real, right? I think there's a lot of data and public company that we can refer to, their output unit increase and expectations for 2020 growth -- 2022 growth as well as 2023. So there's also a lot of new start-ups or any of the Tier 1 traditional manufacturing are all working on some sort of EV applications. So we think that's real. There's a lot of opportunity for DIODES continuing to expand and continue to grow in this area. So this is actually volume increase as well as content expansion increase for us.

On the traditional side, what we really focus on, there's also a lot of comfort, style, safety. We're talking about the number of lighting, the number of cameras. I talk about brushless DC motors. And all these are additional content expansion for us to go after. So we're really growing, I would say, both from, I mean, traditional vehicles as well as the EV vehicles, right?

So if you remember, the 3 areas we focus on is electrification. That covers the EV, the hybrids, right, or the battery management system. And then we also talk about the comfort, safety and style as well as connectivity. This is actually for the ADAS, the telematics and infotainment system. So I would say all in all, applies to both. And the good news for DIODES is we continue to have a lot of momentum and continue to have a lot of opportunity in front of us. And with our new product introduction, we are very confident that we'll continue to drive a very strong momentum in the automotive growth, which should be and we have been demonstrating stronger than the overall market, right? So if we look at the track record, from 2013 till 2021, we actually have a compounded annual growth rate of 30%, and that will continue to be the focus for DIODES. And so we're definitely ready.

Operator

I'm showing no further questions in the queue. At this time, I would like to turn the call back over to Dr. Lu for any closing remarks.

Keh-Shew Lu - *Diodes Incorporated - Chairman, CEO & President*

Thank you for your participation on today's call. Operator, you may now disconnect.

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