

# Himax Technologies, Inc. Q4 and Full Year 2020

# **Unaudited Financials and Investor Update Call**

Conference Details: Conference Topic: Himax Technologies, Inc. Fourth Quarter and Full Year 2020 Earnings Conference Call Conference ID: 1057208 Date of call: 2/04/2021 Time of call: 08:00 a.m. EST Pre-Record Message: No Moderator: Mark Schwalenberg	Participant Dial-In Numbers: TOLL-FREE: (866) 444-9147 TOLL/INTERNATIONAL: (678) 509-7569 CONFERENCE ID: 1057208
Moderator/Speaker Dial-In Numbers (for Mark Schwalenberg, Jordan Wu, Eric Li, Jessica Pan and Karen Tiao): Leader Dial in (toll free) (855) 842-5904 Leader Dial in (international) (720) 634-2980 Conference ID number: 1057208 Direct URL to Live Call Console <u>https://edge.media-server.com/mmc/p/ohjq6sbd</u> Conference ID number: 1057208 Web PIN: 1069	Replay Dial-In Numbers:   TOLL-FREE: (855) 859-2056   TOLL/INTERNATIONAL: (404) 537-3406   From: 2/04/2021 at 11:30 am EST   To: 2/12/2021 at 11:30 am EST   Replay Pin Number: 1057208

**Operator:** Opening and standard introduction.

**Mark Schwalenberg:** Welcome everyone to Himax's Fourth Quarter 2020 Earnings Call. Joining us from the Company are Mr. Jordan Wu, President and Chief Executive Officer; Ms. Jessica Pan, Chief Financial Officer and Mr. Eric Li, Chief IR/PR Officer. After the Company's prepared comments, we have allocated time for questions in a Q&A session. If you have not yet received a copy of today's

results release, please email HIMX@mzgroup.us, access the press release on financial portals or download a copy from Himax's website at <u>www.himax.com.tw</u>.

Before we begin the formal remarks, I'd like to remind everyone that some of the statements in this conference call, including statements regarding expected future financial results and industry growth, are forward-looking statements that involve a number of risks and uncertainties that could cause actual events or results to differ materially from those described in this conference call. Factors that could cause actual events or results to differ materially from those described in this conference call include, but are not limited to, general business and economic conditions, the state of the semiconductor industry; market acceptance and competitiveness of the driver and non-driver products developed by Himax; demand for end-use application products; the uncertainty of continued success in technological innovations; as well as other operational and market challenges and other risks described from time to time in the Company's SEC filings, including those risks identified in the section entitled "Risk Factors" in its Form 20-F for the year ended December 31, 2019 filed with the SEC in March, 2020.

Except for the Company's full year of 2019 financials, which were provided in the Company's 20-F and filed with the SEC on March 25, 2020, the financial information included in this conference call is unaudited and consolidated and prepared in accordance with IFRS accounting. Such financial information is generated internally and has not been subjected to the same review and scrutiny, including internal auditing procedures and external audits by an independent auditor, to which we subject our annual consolidated financial statements, and may vary materially from the audited consolidated financial information for the same period. The Company undertakes no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

I will now turn the call over to Mr. Eric Li. The floor is yours.

# **Q4 Results**

**Mr. Eric Li:** Thank you Mark and thank you everybody for joining us. My name is Eric Li and I am the Chief IR/PR Officer. Joining me are Jordan Wu, our CEO, and Jessica Pan, our CFO. On today's call, I will first review the Himax consolidated financial performance for the fourth quarter and full year 2020, followed by the first quarter 2021 outlook. Jordan will then give an update on the status of our business, after which we will take questions. We will review our financials on both IFRS and non-IFRS basis. The non-IFRS financials exclude share-based compensation and acquisition-related charges.

The impact of Covid-19 has persisted globally. New lifestyles, social activities and economic practices all are dynamically evolving. One of these influences is the unexpected, long lasting strong demand for electronics devices and components, which is broadening capacity shortage in semiconductor foundry and backends. In such a favorable but challenging business environment, we continue to steadily implement prudent execution and deliver strong business performance along the way.

We pre-announced preliminary key financial results for the fourth quarter on January 7 with revenues, gross margin and EPS all exceeding the guidance issued on November 12, 2020. Today, our reported results for revenues, gross margin and EPS are all in line with the pre-announced results. Both revenues and gross margin hit record highs in the fourth quarter of 2020.

For the fourth quarter, we recorded net revenues of \$275.8 million, an increase of 14.9% sequentially and an increase of 57.6% compared to the same period last year. The 14.9% sequential increase of revenues exceeded our guidance of an increase of around 10% quarter-over-quarter, thanks to strong

momentum across all major business segments. TV, monitor, automotive driver ICs and CMOS image sensor contributed more to the better-than-guided sales than other segments. Gross margin of 31.2% exceeded the prior guidance of around 29% and significantly improved from the 22.3% of the third quarter 2020. IFRS profit per diluted ADS was 19.5 cents, exceeding our guidance of around 15.0 cents to 16.0 cents. Strong sales and improved gross margin contributed to the better-than-expected earnings results. Non-IFRS profit per diluted ADS was 19.7 cents, exceeding our guidance of around 15.1 cents to 16.1 cents.

Revenue from large display drivers was \$64.2 million, up 15.2% sequentially and up 11.0% year-overyear. The sequential growth was driven by continuous strong demand for IT products, including notebook and monitor, derived from the ongoing remote working and distance education. TV revenue was up slightly quarter-over-quarter and outperformed our previous guidance of a mid-single-digit sequential decline due to better home entertainment demand from the stay-at-home economy. Large panel driver ICs accounted for 23.3% of total revenues for the quarter, compared to 23.2% in the third guarter of 2020 and 33.1% a year ago.

Small and medium-sized display drivers continued to grow in the fourth quarter as guided, with revenue of \$177.9 million, up 17.3% sequentially and up 119.4% year-over-year. Smartphone and tablet display TDDIs grew robustly in the fourth quarter but was offset by decline of DDICs. From a year-over-year perspective, both smartphone and tablet demonstrated extraordinary sales growth, yet growth was constrained by the severe foundry capacity shortage. Small and medium-sized segment accounted for 64.5% of total sales for the quarter, compared to 63.2% in the third quarter of 2020 and 46.4% a year ago.

Smartphone sales continued growing in the fourth quarter, with revenue reaching \$66.6 million, up 5.1% sequentially and 173.1% year-over-year. It represented more than 24% of our total sales in Q4. Our smartphone TDDI sales were up around 10% sequentially and up more than 300% compared to the same period last year. The sequential growth was due to favorable mix of both product and clientele. In consideration of capacity limitation, our strategy is to prioritize our support to those customers with whom we are the major supplier or have long-term business relationships. Sales of traditional smartphone DDICs fell by around 10% sequentially and were up around 20% from same period last year. As we have repeatedly indicated, traditional smartphone DDICs are quickly being replaced by TDDI and AMOLED.

Our tablet revenue, one of our top sales contributors throughout 2020, reached \$67.4 million for the fourth quarter, another record high. The Q4 sales grew 25.3% sequentially and 291.5% year-overyear. The tablet revenue accounted for more than 24% of our total sales in the fourth quarter, slightly higher than that of smartphone. Despite smartphone having a much bigger market size than tablet, sales of our smartphone and tablet were equally weighted for the fourth quarter, indicating our favorable capacity allocation toward the tablet segment, a reflection of our leading position in that market.

For tablet TDDI, the sequential revenue increased significantly by over 80%. This marked the third consecutive strong quarterly increase since the initial mass production in the first quarter of 2020. It reflects the robust customer demand from the Android tablet market where we are the main or sole source supplier to all leading end customers. Improved product mix with increasing shipments in high-end products with active stylus also ascribed to the satisfactory sales growth and helped our overall margin improvement. Revenue of traditional discrete driver ICs for tablet decreased 12.3% sequentially but increased 68.8% year-over-year in the fourth quarter.

Our fourth quarter driver IC revenue for automotive amounted to \$37.5 million, up 32.4% sequentially and up 11.9% year-over-year as car makers resumed production in response to a recovery of global automotive demand from Q3 2020. However, we were unable to scale up fast enough to meet this surging demand for all customers due to capacity shortage. Automotive driver IC accounted for more than 13% of total revenues. During 2021, we expect to further our automotive display driver IC market share from the current level of more than 30%. Jordan will elaborate on this in a few minutes.

Fourth quarter revenue from our non-driver businesses was \$33.7 million, up 3.3% sequentially but down 6.4% year-over-year. The sequential increase was mainly a result of increased shipments of Tcon ICs for high frame rate and high-resolution displays as well as CMOS image sensor products with strong demands coming from notebook and web camera applications. However, the increase in sales was offset by a decrease in WLO shipments to an anchor customer. The year-over-year reduction in sales was due to a decrease in WLO shipments. Non-driver products accounted for 12.2% of total revenue, as compared to 13.6% in the third quarter of 2020 and 20.5% a year ago.

Gross margin for the fourth quarter was 31.2%, up 890 basis points sequentially and up 1,060 basis points from the same period last year. The much-improved gross margin can be ascribed to two main reasons: favorable product mix and industry capacity shortage. The growth of higher margin products, notably tablet TDDI, Tcon and automotive drivers, outpaced that of other product categories during the quarter, thereby enhancing our corporate gross margin. The leap of gross margin for the fourth quarter also reflected strong overall demands and better product pricing on rising material costs across foundry, assembly and testing, all undergoing severe capacity shortage. Not meeting all demands, we were able to allocate the limited capacity to the products with better margins.

Our IFRS operating expenses were \$43.8 million in the fourth quarter, down 0.8% from the preceding quarter but up 17.0% from a year ago. The sequential decrease was caused by negative difference in RSU expenses, offset by increased cash bonus, as we reported in the last earnings call, to further reward employees for the better-than-expected financial results and higher R&D expenses. The year-over-year increase was a result of increased salary and cash bonus along with higher R&D expenses. Despite a year-over-year increase in operating expenses, the operating expense ratio was reduced from 21.4% in Q4 2019 to 15.9% in Q4 2020, reflecting our careful management over operating expenses. Non-IFRS operating expenses for the fourth quarter were \$43.5 million, up 11.8% from the previous quarter and up 18.1% from the same quarter in 2019.

Reflecting higher sales and better gross margin, IFRS operating profit was \$42.2 million for the fourth quarter with operating margin of 15.3%, up from 3.9% in the prior quarter and up from -0.8% in the same period last year. Fourth quarter non-IFRS operating profit was \$42.5 million, or 15.4% of sales, higher from \$14.7 million, or 6.1% of sales last quarter and up from -0.4% for the same period last year.

IFRS profit for the fourth quarter was \$34.0 million, or 19.5 cents per diluted ADS, compared to \$8.5 million, or 4.9 cents per diluted ADS, in the previous quarter and \$1.0 million, or 0.6 cents per diluted ADS, a year ago.

Fourth quarter non-IFRS profit was \$34.2 million, or 19.7 cents per diluted ADS, compared to non-IFRS profit of \$12.6 million, or 7.3 cents per diluted ADS last quarter and non-IFRS profit of \$1.5 million, or 0.9 cents per diluted ADS for the same period last year.

## 2020 Full Year Summary

Now let's have a quick overview on the 2020 full year financial performance. Revenues totaled \$887.3 million in 2020, a 32.1% growth over 2019. In the first half of the year, Covid-19 and US sanctions on China brought turbulence to the market. However, our business rebounded strongly throughout the second half with fresh demands brought by the new stay-at-home economy. Among our three major product categories, small and medium-sized display drivers posted the highest growth of 67.7% year-over-year in 2020 with sales totaling \$515.7 million. As leading Android tablet brands all adopted our TDDI solutions and global smartphone sales rebounded, we saw extraordinary business momentum for both product areas in 2020.

Revenue from large panel display drivers totaled \$240.8 million in 2020, a mild increase of 1.5% yearover-year. During the pandemic, the surge in IT demand boosted our sales of monitor display drivers up by high-teens and notebook display drivers up around 60% respectively. TV sales, however, declined by high-single digit year-over-year due to weakness in the global TV market which was negatively impacted by the Covid-19 outbreak. Non-driver products sales totaled \$130.8 million, an increase of 2.9% year-over-year. The year-over-year increase was mainly from Tcon amidst the growing need for high frame rate and high-resolution displays, and CIS due to the continuous strong demand in notebook and web camera for work-from-home and online education. This increase was offset by WLO, as the legacy product of an anchor customer gradually decreased.

Gross margin in 2020 was 24.9%, up from 20.5% in 2019. The year-over-year improvement was mainly due to strong sales in the second half and a more favorable product mix. As previously mentioned, robust demand pushed foundry capacity constraints to a more severe level which in turn enabled better pricing.

IFRS operating expenses were \$162.9 million, up \$6.6 million, or 4.2%, compared to last year. The increase came from higher expenses in share-based compensation, cash bonus, R&D expenses as well as salary, but offset by lower travelling fees. Notably, the stronger NT Dollar against the U.S. Dollar in 2020 contributed to around \$3.9 million of operating expenses increase because, while our accounting was US Dollar denominated, we paid the bulk of our employee salaries as well as much of the Taiwan locally incurred expenses in NT Dollar. However, the operating expense ratio of 2020 was reduced to 18.4% from 23.2% in 2019, indicating our consistent management of operating expenses.

IFRS operating income was \$57.9 million, in contrast to a loss of \$18.3 million from 2019, due to higher sales and higher gross margin. For the same reason non-IFRS operating income was \$64.6 million, an increase of \$80.9 million from a loss of \$16.3 million in 2019.

Our IFRS profit for the year was \$47.1 million, or 27.2 cents, versus a loss of \$13.6 million or 7.9 cents per diluted ADS. Non-IFRS profit for 2020 was \$52.3 million, or 30.2 cents per diluted ADS, up \$64.4 million year-over-year from a loss of \$12.1 million last year. The upswing in income was a result of better sales and higher gross margin along with well-managed operating expenses.

Turning to the balance sheet, we had \$201.4 million of cash, cash equivalents and other financial assets as of December 31<sup>st</sup>, 2020, compared to \$112.1 million at the same time last year and \$142.9 million a quarter ago. The higher cash balance was mainly a result of an operating cash inflow of \$67.7 million during the quarter. Restricted cash was \$104 million at the end of Q4, the same as the preceding quarter, compared to \$164 million a year ago. The restricted cash was used to guarantee

the short-term secured borrowings for the same amount. We had \$58.5 million of long-term unsecured loans as of the end of Q4, of which \$6 million was current portion.

Our year-end inventories as of December 31, 2020 were \$108.7 million, down from \$125.7 million last quarter and \$143.8 million a year ago. Accounts receivable at the end of December 2020 was \$243.6 million, up from \$221.1 million last quarter and up from \$164.9 million a year ago. DSO was 100 days at the year end, as compared to 90 days a year ago and 99 days at the end of the last quarter. As highlighted in the last earnings calls, given the foundry and backend capacity shortage, our inventory level will stay at a relative low level in the quarters to come. Net cash inflow from operating activities for the fourth quarter was \$67.7 million as compared to an inflow of \$33.5 million last quarter and an inflow of \$23.4 million for the same period last year. Cash inflow from operations in 2020 was \$102.6 million as compared to \$7.7 million in 2019.

Fourth quarter capital expenditures amounted to \$0.8 million, versus \$1.2 million last quarter and \$2.7 million a year ago. The fourth quarter capex was for R&D related equipment. Total capital expenditures for the year was \$5.8 million, mainly for design tools and R&D related equipment. In comparison, the capex for 2019 was \$45.9 million, of which the vast majority was for the purchase of land, the construction of a new building and WLO capacity expansion.

As of December 31, 2020, Himax had 173.8 million ADS outstanding, little changed from last quarter. On a fully diluted basis, the total number of ADS outstanding is 174.1 million.

#### Q1 2021 Guidance:

Now, turning to our first quarter 2021 guidance. For the first quarter, we expect further revenue growth from the already high level of Q4 2020 in most of our business sectors. Gross margin shall see another uptick and could reach another quarterly high.

For the first quarter, we expect revenues to increase by 5% to 10% sequentially. Gross margin is expected to be 37% to 38%, depending on the final product mix.

With the increase of both revenue and margin, net income shall increase substantially in the first quarter. IFRS profit attributable to shareholders is expected to be in the range of 30 to 34 cents per fully diluted ADS. Non-IFRS profit attributable to shareholders is expected to be in the range of 30.1 to 34.1 cents per fully diluted ADS.

Revenues, gross margin and EPS will all likely reach quarterly highs during this quarter. With that, I will now turn the call over to Jordan. Jordan, the floor is yours.

#### Q1 2021 Outlook:

**Mr. Jordan Wu:** Thank you, Eric. As we highlighted before on previous earnings calls, capacity shortage appears to be a long-term phenomenon. As we entered the year 2021, the shortage has become even more severe and has extended to backend facilities that include assembly and testing. As a leading industry player with superior resources and engineering capability to diversify and enlarge the vendor pool, along with long term business relationships with both foundry and backend suppliers, we engaged early and have succeeded in securing more capacity for 2021 as compared to the level of Q4 2020 when we reached the recent peak quarterly shipment. In addition, we are also optimizing capacity allocation among our diversified foundry suppliers by making the right products at

the right fabs with an aim to fully utilize the capacity accessible to us. Among the product areas for which we have secured a meaningful capacity increase is automobile where the global shortage for semiconductor supply is overwhelming. We expect the total capacity available to us to increase quarter by quarter in 2021 and will continue our efforts in securing further capacity.

As far as we can see, the overall semiconductor industry supply will not have any significant increase any time soon while strong demand is likely to persist longer than expected. In such an environment, Himax is a preferred supplier to work with for our sizable scale, diversified vendor pool and extensive product offerings. Our strength in a number of high margin businesses will also help our ongoing margin improvement efforts. For example, with strong demand for tablet expected to remain, our being the preferred vendor for major Android names will ensure the high margin contribution continues. Likewise, our leading position in automotive display represents a solid support for our margins as we anticipate robust sales growth in this high margin business for the upcoming years. Moreover, gross margin improvement can also come from new non-driver products, notably our high end Tcon, WiseEye ultralow power AI, and 3D sensing.

Again, gross margin expansion will always be one of our major business goals for this year and beyond.

# **Display Driver IC Businesses**

#### LDDIC

Now let us start with an update on the large-panel driver IC business. For the first quarter, we expect large display driver IC revenue to increase by low teens sequentially. For notebook IC segment, we

anticipate another impressive quarter of high growth in Q1, a continuation from previous quarters, increasing substantially from the previous quarter due to the extension of strong demand derived from persisting remote working and e-learning. As for monitor IC sales, on the other hand, we expect a sequential decline in the first quarter due to the capacity shortage as we are unable to meet all the demand.

As TV sell-through remains strong and TV panel shortage increases, our TV segment looks set to end the first quarter with a better than seasonal momentum of around 10% sequential growth. Recently, we saw customers proceeding with aggressive promotion in high-resolution models, that require high end drivers and Tcons, in anticipation of sustained strong demand for home entertainment during the pandemic. However, our display driver IC and Tcon shipments are still capped by supply shortage in foundry and packaging, despite firm demand from customers.

#### SMDDIC

Now let's turn to the small and medium-sized display driver IC business. In the first quarter, we see continuous strong TDDI sales for both smartphone and tablet, with demand still surpassing supply. Foundry capacity remains a major issue that adversely impacts our shipping capability. With smartphone and tablet sharing the same foundry pool, we strategically allocate capacity in favor of tablet as we are the dominant supplier in the Android tablet market. For Q1 tablet sales, we expect another high-single-digit sequential growth fueled by consumer demand for home working and remote learning needs as well as higher TDDI penetration. We expect Q1 smartphone sales to slightly

increase by mid-single digit, in which smartphone TDDI revenue is projected to have consecutive midteens growth and smartphone DDIC would continue its declining trend.

Tablet was one of our top sales contributors in 2020 thanks largely to the fast rising TDDI penetration for Android names and the strong demand driven by the stay-at-home economy. To further broaden our product offering and solidify our market position, our tablet TDDI has moved toward higher frame rate, higher resolution and larger screen sized solutions. We have also enhanced touch accuracy through our leading active stylus design for better-quality handwriting and drawing.

As stated before, Himax is highly committed to AMOLED technology. Our development started from smartphone, and has extended to wearable, tablet and automotive. We have some encouraging progresses with leading Chinese panel makers and will report in due course. We believe AMOLED driver IC will soon become one of the major growth drivers for our small and medium panel driver IC business in 2021.

Turning to the automotive sector. The global shortage of semiconductor components has brought great challenges to the world's automotive industry. As most of the world's lockdown periods end, tightening foundry capacity, combined with the sudden surge in orders due to pent-up demand, have left the industry facing an even more severe shortage compared to other sectors. Customers now rely on "just in time" delivery of IC components to preserve production and some reportedly already suspended production for days or even weeks. In consideration of unceasing sales demand amidst tight capacity shortage, we worked strategically with panel makers, tier-1 and end customers, across different continents, and have secured an enlarged volume of foundry capacity while managing swift

production adjustments to meet customers' production schedules. By offering supportive logistics, we hope to further our relationship with customers, who can in return help accelerate our new technology into their new models going forward. Limited by largescale supply shortages, our automotive ICs segment is expected to deliver a mid-teens sequential increase in the first quarter.

With electric vehicles quickly emerging as the "next big thing", we see the car market embracing new display technologies and shifting towards larger, more sophisticated and higher performing displays like never before. Already the market leader in automotive display driver business, we foresee further market share gains in the coming years in this fast-growing market. We continue to sustain our competitive position with a comprehensive product offering for advanced new features such as TDDI for in-cell touch, local dimming, cascade-topology connection, P2P high-speed interface bridging functions, and LTDI for larger in-cell display. As a reminder, we launched the world's first TDDI design for automotive displays technology which started shipping in 2019 with meaningful volume anticipated starting 2021. As EV grows in popularity and autonomous driving develops, our technological prowess continues to separate us from peers for the next generation display for automotive.

For the first quarter, revenue for the small and medium-sized driver IC business is expected to increase by around high-single digit with demand continuing to surpass supply. Capacity shortage, again, remains a major factor as our production has been unable to respond quickly enough to the unexpectedly rapid growth.

## **Non-Driver Product Categories**

Now let me share some of the progress we made on the non-driver IC businesses in the last quarter.

# TCON

First on timing controller. The aggressive promotion by major TV brands that I mentioned earlier will benefit our high end Tcon business as our 8K TV timing controllers, as well as display drivers, have been widely adopted by multiple leading end customers. Our Tcon technology not only provides higher resolution, higher frame rate and better image quality, it can also enable lower power in products where power consumption is critical. Already over 5% of our total sales, timing controller products enjoy better margin and ASP than those of display drivers, and we expect this segment to be an extensive long-term growth area. Our Tcon revenue in the first quarter, while limited by capacity shortage in IC packaging, is expected to increase by high teens sequentially.

#### WLO

Next is a quick update on WLO. The fourth quarter WLO revenue decline that Eric reported earlier was a result of lower shipments to an anchor customer. However, in the first quarter of 2021, sales are expected to increase substantially thanks to resumed shipments to fulfill the anchor customer's higher demand. The sequential shipment increase and a higher capacity utilization in our WLO factory will positively contribute to our Q1 gross margin.

Meanwhile, with our leading nanoimprinting technologies and diffraction optics design capability, we continue to engage and collaborate with key customers and partners for their next generation products, with focuses on ToF 3D sensing, AR/VR gadgets, biomedical devices and others. Notably, we are seeing more ToF camera design activities among Android smartphone makers for 3D sensing and are making good progress by offering our leading ToF optical components including diffractive DOEs,

micro-lens arrays and diffusers to meet diversified demand from a wide variety of customers/partners including VCSEL suppliers, ToF sensor vendors, ToF module makers and smartphone OEMs.

# **3D Sensing**

Next let me give you an update on 3D sensing for non-smartphone segment. As mentioned before, we provide customers who wish to design their own structured light-based 3D sensing solution with our proprietary 3D decoder IC. Our 3D decoder can accelerate local image processing for face recognition and offer best-in-class security authentication. It was already certified by the leading Chinese electronic payment standard with requirements of accurate data decoding, timely operation and strict privacy. We have started volume shipment in the last quarter with decent order pipeline throughout this year and further new design-in sockets on the way.

On the other hand, for our structured light 3D sensing total solution, small volume shipments are expected for business access control and biomedical inspection devices in the first quarter. More design-ins and engagements are progressing and we continue to receive numerous inquiries with new ideas of applications that never occurred to us.

#### Ultralow power smart sensing

Now switching gears to the WiseEye smart sensing solution. As I mentioned several times on previous earnings calls, in order for our WiseEye technology to maximize market visibility and satisfy demand for emerging applications, two business models are adopted, namely total solution and discrete component.

For total solution, we are currently aiming at notebook, TV and air conditioner applications, and have received positive feedbacks. We expect to start a solid production ramp-up by the end of 2021. With joint efforts with our subsidiary EMZA and other algorithm partners, further engagements are on the way for more applications such as doorbell, door lock, automotive and various IoT devices for industrial and commercial uses. We are thrilled about the business progress achieved.

For the other business model where we provide key components, as reported before, our WE-I Plus AI processor adopted Google TensorFlow Lite for Microcontrollers framework and has successfully demonstrated our unrivaled computing capability with ultralow power. In December 2020, we partnered with SparkFun, an online retail store, to distribute Himax WE-I Plus Edge AI evaluation board and AoS sensor modules. Developers can now access our technologies easily from SparkFun and transform their AI-enabling concept which call for ultralow power and computer vision AI into real products. Furthermore, we teamed up with Edge Impulse who provides a leading end-to-end AI developer platform offering intuitive user interface. On Edge Impulse' platform, with a single button press and within seconds, developers can now generate the latest neural network AI model and export it directly onto the WE-I Plus evaluation board. The high technical obstacles developers usually face can therefore be dramatically lowered.

Together with our partners, we are carrying out a wide range of promotional activities to broaden WiseEye's market reach and establish direct contacts with more AI developers. As an illustration, recently Himax and Edge Impulse jointly hosted a webinar discussing ways to help developers get started with the world's most powerful platform that aims enabling embedded machine learning everywhere at extremely low power consumption. We will continue to aggressively pursue such online marketing campaigns going forward.

We believe the WiseEye offerings will start contributing to our top and bottom lines later this year. We aim to make it a major contributor to our long-term business growth.

## **CMOS Image Sensor**

Now turning to our CMOS image sensor business update. We see continuous surging demands for our CMOS image sensors for web camera and notebook as the new norm of virtual conferences shows no signs of receding. However, our actual shipment has been badly capped by the foundry capacity available to us.

Separately, our industry-first 2-in-1 CMOS image sensor that supports RGB mode for video conferencing and ultralow power AI mode for facial recognition has penetrated the laptop market for the most stylish super slim bezel designs. We have shipped small quantity in the fourth quarter and expect to ship more during 2021.

Regarding ultralow power always-on CMOS image sensor, which targets in-battery powered or always-on applications, we are getting promising feedback and design adoptions from customers in various markets, such as car recorders, surveillance, smart electric meters, drones, home appliances, and consumer electronics. In Q1, the CIS revenue is expected to be up mid-single digit sequentially although we still cannot fulfill all the demand due to foundry capacity constraint.

For non-driver IC business, we expect revenue to increase by low teens sequentially in the first quarter.

That concludes my report for this quarter. Thank you for your interest in Himax. We appreciate you joining today's call and are now ready to take questions.

# **OPERATOR TO QUEUE QUESTIONS**

# Jordan's closing remarks

As a final note, Eric Li, our Chief IR/PR Officer, will maintain investor marketing activities and continue to attend investor conferences. We will announce the details as they come about. Thank you and have a nice day!