



Himax Technologies, Inc. Q4 2019 and FY 2019 Unaudited Financials and Investor Update Call

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<p>Moderator/Speaker Dial-In Numbers (for Maili Bergman, Jordan Wu, Jackie Chang and Ophelia Lin): Leader Dial in (toll free) (855) 842-5904 Leader Dial in (international) (720) 634-2980 Conference ID number: 8736988</p> <p>Direct URL to Live Call Console http://www.leaderview.com/leaderview/la.jsp Conference ID number: 8736988 Web PIN: 1069</p>	<p>Replay Dial-In Numbers: TOLL-FREE: (855) 859-2056 TOLL/INTERNATIONAL: (404) 537-3406 From: 2/13/2020 at 11:30 am EST To: 2/21/2020 at 11:30 am EST Replay Pin Number: 8736988</p>

Operator: Opening and standard introduction.

Maili Bergman: Welcome everyone to Himax’s Fourth Quarter 2019 Earnings Call. Joining us from the Company are Mr. Jordan Wu, President and Chief Executive Officer; and Ms. Jackie Chang, Chief Financial 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 or access the press release on financial portals or download a copy from Himax's website at www.himax.com.tw.

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, 2018 filed with the SEC in March, 2019.

Except for the Company's full year of 2018 financials, which were provided in the Company's 20-F and filed with the SEC on March 28, 2019, 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 Ms. Jackie Chang. The floor is yours.

Q4 Results

Ms. Jackie Chang: Thank you Maili and thank you everybody for joining us. In today's call, we will first review the Himax consolidated financial performance for the fourth quarter, followed by the first quarter 2020 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.

We pre-announced preliminary key financial results for the fourth quarter on January 7, 2020 as the revenues, gross margin and EPS of the quarter all exceeded our guidance issued on November 7, 2019. Revenues and gross margin were in line with the pre-announced results while EPS were at the high end of the range. For the fourth quarter, we recorded net revenues of \$174.9 million, an increase of 6.5% sequentially and a decrease of 8.4% compared to the same period last year. Revenues were better than our guidance of flat quarter-over-quarter. Both display driver and non-driver businesses contributed to the better-than-guided sales. Gross margin was 20.6%, exceeding the prior guidance of a slight increase compared to third quarter's 19.5%. A more favorable product mix among small display products, improved WLO factory utilization and higher-than-expected engineering fees from new project engagements enhanced the gross margin for the fourth quarter. IFRS profit per diluted ADS was 0.6 cents,

exceeding our guidance of a loss of 3.0 to 4.5 cents. Stronger sales and improved gross margin both contributed to the better-than-expected earnings. In addition, we booked a revaluation gain of \$3.8 million from an investment we made in an AI startup during November 2017. The revaluation gain was not included in the November guidance. Non-IFRS profit per diluted ADS was 0.9 cents, exceeding our guidance of a loss of 2.7 to 4.2 cents.

Revenue from large display drivers was \$57.9 million, up 15.6% sequentially, and down 22.0% year-over-year. The sequential growth was driven by Chinese panel customers' ramping of new LCD fabs and their building of inventories in anticipation of growing demand and price hike in 2020. The revenue was, however, lower than the level of the last quarter of 2018 when the production outputs of panel makers reached the peak. Since then, they have cut back their production every quarter to address the overall weak TV demand and industry-wide oversupply. Large panel driver ICs accounted for 33.1% of our total revenues for the quarter, compared to 30.5% in the third quarter and 38.9% a year ago.

Revenue for small and medium-sized display drivers was \$81.1 million, up 5.1% sequentially and up 1.6% year-over-year. The segment accounted for 46.4% of total sales for the quarter, compared to 46.9% in the third quarter and 41.8% a year ago. The sales growth, both sequentially and year-over-year, was primarily driven by higher automotive and tablet sales, offset by a decrease in TDDI sales for smartphone, although the decrease was less than we previously expected.

Sales into smartphones were down 22.5% sequentially and down 14.3% year-over-year. Both the sequential and year-over-year declines were caused mainly by lower TDDI shipments.

However, on a full-year basis, our 2019 TDDI shipments were close to double as our fulfillment was capped during 2018 due to capacity constraint. Starting Q4'19, our business started to see a major turnaround thanks to our penetration into more tier-1 smartphone OEMs, the industry's rapid roll-out of TDDI in mid to low-end smartphones and our aggressive move to develop new foundry for TDDI. Jordan will elaborate on this in a few moments. The fourth quarter sales of traditional DDICs declined by 20.2% sequentially but increased 14.3% from last year. Display drivers for tablet and other consumer products were up 26.5% sequentially, better than our prior guidance of a 20% increase. This was due to customers' inventory replenishment and strong demands from certain brand customers. The fourth quarter sales of tablet and consumer products were also up by 25.8% year-over-year.

Our driver IC revenue for the automotive application was up 23.2% sequentially, better than our guidance of more than 15% increase. It was up 1.9% from the same period last year.

Revenues from our non-driver businesses were \$35.9 million, down 3.0% sequentially and 2.6% year-over-year. Non-driver products accounted for 20.5% of total revenues, as compared to 22.6% in the third quarter of 2019 and 19.3% a year ago.

Gross margin for the fourth quarter was 20.6%, up 110 basis points sequentially but down 370 basis points from the same period last year. Gross margin outperformed our prior expectation of a slight increase compared to the 19.5% of the third quarter. A more favorable product mix among small and medium-sized display driver products, improved WLO factory utilization and higher engineering fees from project engagements were the factors behind the sequential increase. Increased shipments of the WLO product to an anchor customer led to higher

capacity utilization of our WLO fabs and therefore better gross margin compared to the same period last year. The year-over-year decline was largely due to smartphone TDDI ASP erosion arisen from increased competition as well as more TDDI shipments for lower-end market. Moreover, our large panel driver IC businesses faced headwinds during 2019 when the cost of our COF packaging material went up for capacity shortage and the display industry suffered from a severe capacity oversupply.

Our IFRS operating expenses were \$37.4 million in the fourth quarter, down 5.6% from the preceding quarter and down 8.8% from a year ago. The sequential decrease was caused by decreased salary and R&D expenses. The year-over-year decrease was also a result of decreased salary and R&D expenses, offset by the increase of depreciation expense. Non-IFRS operating expenses for the fourth quarter were \$36.8 million, down 6.2% from the previous quarter and down 9.5% from the same quarter in 2018.

IFRS operating margin for the fourth quarter was -0.8%, up from -4.7% in the prior quarter and down from 2.8% in the same period last year. The sequential improvement was primarily a result of higher sales, better gross margin and lower operating expenses. The year-over-year decline was a result of lower sales and gross margin, offset by lower operating expenses.

Fourth quarter non-IFRS operating loss was \$0.7 million, or -0.4% of sales, versus non-IFRS operating loss of \$7.3 million, or -4.4% of sales last quarter, and down from 3.0% for the same period last year. The sequential improvement and year-over-year declines were for the same reasons stated above.

IFRS profit for the fourth quarter was \$1.0 million, or 0.6 cents per diluted ADS, compared to loss of \$7.2 million, or 4.2 cents per diluted ADS, in the previous quarter and IFRS profit of \$8.5 million, or 4.9 cents per diluted ADS, a year ago. IFRS earnings per diluted ADS exceeded prior guidance of a per diluted ADS loss of around 3.0 to 4.5 cents. The better-than-expected earnings were due to stronger sales, improved gross margin, lower operating expenses and a revaluation gain of \$3.8 million, or 2.2 cents per diluted ADS, from a previous investment in an AI startup made during November of 2017. This was the second revaluation gain we booked for the same investment with the first such gain of \$2.9 million, or 1.7 cents per diluted ADS, booked in the same period last year. The year-over-year decline was a result of lower sales and gross margin, offset by lower operating expenses. Excluding the revaluation gain, our IFRS loss for the quarter was \$2.7 million, or 1.6 cents per diluted ADS, compared to loss of \$7.2 million, or 4.2 cents per diluted ADS, in the previous quarter and profit of \$5.6 million, or 3.2 cents per diluted ADS from the same period last year.

Fourth quarter non-IFRS profit was \$1.5 million, or 0.9 cents per diluted ADS, compared to non-IFRS loss of \$6.9 million, or 4.0 cents per diluted ADS last quarter and non-IFRS profit of \$8.7 million, or 5.0 cents per diluted ADS for the same period last year. Non-IFRS earnings per diluted ADS exceeded prior guidance of a loss per diluted ADS of around 2.7 to 4.2 cents. The better-than-expected earnings were due to the reasons mentioned above. Excluding the revaluation gain, our non-IFRS loss for the quarter was \$2.2 million, or 1.3 cents per diluted ADS, compared to non-IFRS loss of \$6.9 million, or 4.0 cents per diluted ADS last quarter and profit of \$5.8 million, or 3.3 cents per diluted ADS for the same period last year.

2019 Full Year Summary

Now let's have a quick overview on the 2019 full year financial performance. Revenues totaled \$671.8 million in 2019, a 7.2% decline over 2018.

Revenue from large panel display drivers totaled \$237.3 million, a decrease of 8.9% year-over-year, representing 35.3% of our total revenues, as compared to 36.0% in 2018.

Small and medium-sized driver sales totaled \$307.4 million, a decrease of 5.6% year-over-year, representing 45.8% of our total revenues, as compared to 45.0% in 2018.

Non-driver products sales totaled \$127.1 million, a decrease of 7.5% year-over-year, representing 18.9% of our total sales, as compared to 19.0% a year ago.

Gross margin in 2019 was 20.5%, down from 23.3% in 2018. The year-over-year decline can largely be attributed to smartphone TDDI ASP erosion due to increased competition and significantly more shipments of TDDI for lower-end market. Moreover, our large panel driver IC business was impacted by industry-wide TV panel oversupply and high material cost. On the positive side, more WLO shipments in 2019 led to improved capacity utilization of our WLO fabs and therefore better gross margin.

IFRS operating expenses were \$156.2 million, down \$9.3 million, or 5.6%, compared to last year. The decrease was primarily the result of lower salary, R&D expenses and share-based compensation, despite higher depreciation expenses out of our new building. As highlighted earlier, we did not issue RSUs in 2019 like we did in previous years but granted stock options

to employees instead. The fourth quarter stock option related compensation expense was \$0.33 million.

IFRS operating loss was \$18.3 million, a decline of \$21.7 million from 2018, due to lower sales and lower gross margin, offset by lower operating expenses. For the same reason non-IFRS operating loss was \$16.4 million, a decrease of \$25.4 million from 2018.

Our IFRS loss for the year was \$13.6 million, or 7.9 cents per diluted ADS, versus a profit of \$8.6 million or 5.0 cents per diluted ADS. Non-IFRS loss for 2019 was \$12.1 million, or 7.0 cents per diluted ADS, down \$25.0 million year-over-year.

Turning to the balance sheet, we had \$112.1 million of cash, cash equivalents and other financial assets as of the end of December 2019, compared to \$117.7 million at the same time last year and \$128.0 million a quarter ago. We made an operating cash inflow of \$23.4 million during the fourth quarter. The cash position was however reduced from the last quarter because we repaid \$33.4 million of unsecured borrowings and made a capex of \$2.7 million during the quarter. On top of the cash position, restricted cash was \$164.0 million at the end of the quarter, the same as the preceding quarter and a year ago. The restricted cash is mainly used to guarantee the secured short-term borrowing for the same amount. We had \$57.3 million of unsecured short-term loan at the end of Q4, substantially lower than the \$90.6 million a quarter ago.

Our year-end inventories as of December 31, 2019 were \$143.8 million, down from \$167.6 million last quarter and \$162.6 million a year ago. Account receivables at the end of December

2019 were \$164.9 million, up from \$157.3 million last quarter but down from \$189.3 million a year ago. DSO was 90 days at the year end, as compared to 95 days a year ago and 86 days at the end of the last quarter. As highlighted in the last earnings calls, in response to capacity shortage of foundry and certain packaging material, we had to keep the inventory level higher than usual in 2018. Given the unfavorable market conditions and easing of foundry capacity in 2019, we have started to control our inventory level since the first quarter of 2019. We believe inventory has reached a healthy level and given the prevailing uncertain market conditions, we will monitor our inventory situation carefully.

Net cash inflow from operating activities for the fourth quarter was \$23.4 million as compared to an inflow of \$2.3 million for the same period last year and an inflow of \$24.0 million last quarter. Cash inflow from operations in 2019 was \$7.7 million as compared to \$4.0 million in 2018.

Fourth quarter capital expenditures amounted to \$2.7 million, versus \$5.2 million a year ago and \$31.2 million last quarter. The vast majority of the third quarter capex was for the purchase of land, the construction of a new building and WLO capacity expansion. The investment project has been concluded with the final payment of \$1.5 million made in the fourth quarter. The investment in design tools and R&D related equipment for our traditional IC design business was \$1.2 million in Q4 versus \$2.0 million in Q3. Total capital expenditure for the year was \$45.9 million, of which \$7.3 million was design tools and R&D related equipment. In comparison, the capex for 2018 was \$49.7 million, of which \$7.6 million was for design tools and R&D related equipment.

As of December 31, 2019, Himax had 172.2 million ADS outstanding, no change from last quarter. On a fully diluted basis, the total number of ADS outstanding is 172.6 million.

Q1 2020 Guidance:

Historically, due to the Lunar New Year holidays, the first quarter has seasonally been the slowest period of the year in terms of sales, often down by more than 10% sequentially. At this time, however, based on our current pipeline, we are experiencing strong sales in the first quarter, brushing aside the seasonal factor. Jordan will elaborate later.

However, the coronavirus outbreak currently taking place in China and all over the world does represent a major uncertainty to our operations, especially for the short term. We are working extremely closely with both our customers and suppliers in our joint efforts to mitigate the risks. We have started to see some downward adjustments of Q1 forecast over the past week or two, mainly from certain China-based customers for small-sized display drivers and CMOS image sensors who are still scrambling to restore their operations into order. Our Q1 guidance below has taken into account those downward adjustments. In comparison, we are seeing relatively little impact of forecast from large display customers who are demanding that our supply be uninterrupted by the incident. With vast majority of operations located outside of China, our suppliers are largely unaffected by the coronavirus outbreak. The focus there is primarily the logistics management including the customs operations in various ports in China. It is worth pointing out that, we have very little short-term exposure, on both customer and supplier sides and in terms of our own operations, to Wuhan and the Hubei Province, the epicenter of the outbreak.

The situation is still evolving. On top of the downward adjustments of forecast we have seen, we have deliberately widened and reduced the low end of this quarter's guidance to reflect the risk associated with the coronavirus outbreak.

For the first quarter, we expect revenue to increase between 1.0% and 10.0% sequentially, an increase of 8.2% to 17.8% on a year-over-year basis. Gross margin is expected to increase by 1.0% to 2.0% sequentially, depending on our final product mix. IFRS profit attributable to shareholders are expected to be in the range of around -0.5 cents to 1.8 cents per fully diluted ADS. Non-IFRS profit attributable to shareholders are expected to be in the range of -0.2 cents to 2.1 cents per fully diluted ADS.

I will now turn the call over to Jordan. Jordan, the floor is yours.

Outlook:

Mr. Jordan Wu:

Thank you, Jackie.

When we hosted our third quarter earnings call this past November, we were facing trends in the marketplace that created headwinds for us. Specifically, at that time our performance and forecast reflected challenges we faced in our smartphone TDDI business. This was exacerbated by an oversupply of capacity in the LCD industry that negatively impacted our display driver IC sales and margin. As a result, our overall sales and outlook were weak. Since that time, we have started to see major turnaround in literally all aspects of our businesses. The strength we are seeing in Q1 is expected to extend into Q2 and throughout the rest of 2020. Notwithstanding the uncertainty arisen from the coronavirus, we are confident that we

will see decent growth across the board for all our major product categories in 2020. Now, let me take you through each of our major business areas.

Display Driver IC Business

LDDIC

Let us start with the large-panel driver IC business update. For the first quarter, we expect the large display driver IC segment revenue to increase by around 10% sequentially. Sensing strong signs of panel price recovery, panel makers began to replenish their inventory and increase production starting the end of Q4 2019. Our leading Chinese panel customers are particularly active in gaining further market share, taking advantage of Korean panel makers' ongoing fab restructuring. As the leading IC supplier, Himax is well positioned to benefit from increased demand coming out of the major Chinese large display players. These market trends, that began to emerge during Q4 2019, are expected to drive strong results in Q1 that will accelerate throughout 2020.

On the supply side, we reported during the last quarter's earnings call that Himax and some of our major panel customers were already seeing foundry capacity shortage of 8-inch silicon wafers for display driver ICs. In anticipation of this, we have strategically prepared to ready our 12-inch foundry, as well as associated backend packaging and testing, ahead of our peers to cover the potential 8-inch capacity shortfall. Our design project coverage is strong across all leading Chinese panel makers. We are very positive on the business outlook for our large display driver for 2020.

Looking at technology development, the upcoming 2020 Tokyo Olympics will be broadcast in 8K resolution. All top-tier TV brands have been trying to boost sales for 8K models ahead of the event. At CES last month, many of these brands showcased 8K TV's that contained Himax's technology. Although the penetration of 8K TV's is still low, we expect this to be a strategic opportunity for Himax as 8K TV sales will boost demand for not just our driver IC but also timing controller contents.

SMDDIC

Now let's turn to the small and medium-sized display driver IC business, beginning with an update on our smartphone segment. Our TDDI product roadmap as well as new design-wins with end customers and a foundry capacity advantage have positioned Himax to gain market share starting the first quarter and throughout 2020.

The smartphone market continues to embrace new technologies and are moving toward higher frame rate displays to enable smoother screen viewing and gaming experience. This will drive the adoption of next generation high frame rate TDDI solutions, for which Himax is a leading technology provider. Also, the demand for 5G in China is expected to drive worldwide smartphone growth in 2020 which will in turn stimulate the growth for TDDI. All these trends will benefit Himax. However, as indicated earlier, the small display business, among which smartphone TDDI is the major item, will be most impacted by the coronavirus outbreak in the short term. Again, we are working with our customers extremely closely, adjusting our operations to support their short term needs in combating the coronavirus outbreak. Regardless of the coronavirus, we are confident that our smartphone TDDI business will grow strongly from last year.

The price erosion of TDDI we have seen over the past year is expected to abate in 2020. This is not only because the new high frame rate products enjoy a higher ASP but also due to the industry-wide tightening of foundry capacity for TDDI. As a reminder, during 2018 the Himax TDDI business was negatively impacted by a severe foundry capacity shortage that resulted in our inability to meet customers' delivery requirements. Although the capacity constraint was resolved toward the end of 2018, the delay limited our ability to participate in major design-in opportunities that would have driven the business in 2019. The actions we took in 2018-2019 to develop and enable an additional qualified foundry partner ahead of our peers, combined with our superior technology and customer collaboration, now uniquely position Himax to benefit from a tightening of overall TDDI foundry capacity in 2020. We are well-prepared to meet TDDI production demands and continue to move forward with plans to enable additional capacity this year to capitalize on the strong opportunities for smartphone TDDI, as well as other TDDI applications such as tablet, in 2020. I will elaborate a bit later.

As expected, our traditional discrete driver IC sales into smartphones posted a sequential decline for the fourth quarter. This was primarily due to the traditional discrete driver ICs' addressable smartphone market is quickly being replaced by TDDI and AMOLED.

As discussed previously, a major development we are seeing in the marketplace is increased utilization of the OLED display for smartphone. This is due to expanded AMOLED capacity as well as increased demand for under-display fingerprint technology that is only available in the AMOLED display for the time being. We are encouraged by the progress we have made, collaborating closely with leading panel makers across China for AMOLED product

development. We believe AMOLED driver ICs will soon become one of the major growth engines for our small panel driver IC business.

In the automotive display segment, the number of displays per vehicle continues to rise as the overall automobile display market is set to increase from 2020 onward, despite that the global car sales are forecast to decline again this year. More importantly for Himax, the market is quickly shifting towards a number of new technologies including higher resolution, in-cell touch, slim border, giant pillar-to-pillar screen, local dimming for higher contrast, and plastic AMOLED for free form design, all of which are contributing to an increase in market size and demand for automotive display driver ICs. Himax commands more than 30% of the global automotive display driver IC market and is the primary partner for most of the world's automotive panel makers to enable the new technologies above. It's worth mentioning that Himax is also the dominant automotive TDDI technology provider, working as the sole supplier on numerous TDDI design-in projects across different leading panel makers. While we expect only small volume shipments in 2020, we anticipate meaningful volume of automotive TDDI as we move into 2021.

Turning to the tablet and consumer electronics businesses. We expect the tablet business to be a major growth area for Himax during 2020 with a significant volume of tablet TDDI shipment starting from Q1. The strong momentum will accelerate into Q2 and throughout 2020. The business growth will be driven primarily by leading non-iOS brands' rapid adoption of the newly developed in-cell TDDI solutions. In-cell TDDI is quickly becoming mainstream for tablets due to its lower cost and a simplified supply chain as well as faster and easier integration for display manufacturers. At the same time, consumer demand is expected to

accelerate for these cheaper, slimmer, lighter and more stylish tablets. Himax is the primary partner for all non-iOS tablet in-cell TDDI products right now and we are already making shipments of our new in-cell TDDI products for tablet to a number of leading end customers, some of which include active stylus. Additionally, we continue shipping our traditional display driver IC with CoF packaging for larger-sized tablets with slim bezel design to a leading Chinese brand customer and expect the momentum for these high-end designs to accelerate throughout 2020.

For the first quarter, revenue for the small and medium-sized driver IC business is expected to increase by around 10% to 20% sequentially.

Non-Driver Product Categories

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

WLO

First on our WLO business. The fourth quarter shipments were very strong, up by over 20% compared to the same period last year, despite a modest decline from the previous quarter. The momentum led to higher capacity utilization and, together with an improved production yield, helped enhance corporate gross margin for the quarter. According to our customer's shipment forecast, we expect another strong quarter with Q1's shipment volume to double compared with the same period last year, although the Q1 shipment volume is expected to decrease slightly from that of the last quarter. We continue to make progress with our ongoing

R&D projects for next generation products centered around our exceptional design know-how and mass production expertise in WLO technology.

3D Sensing

Next is an update on the 3D sensing business. In the smartphone segment, we have advanced our WLO optics solution to cover both structured light and time-of-flight (ToF) 3D sensing. We are seeing increasing ToF adoption by smartphone makers for world-facing cameras to enable advanced photography, distance/dimension measurement and 3D depth information generation for AR. In the past few months, we have been actively working with an industry leading ToF 3D camera vendor to develop a new and advanced ToF solution, targeting Android smartphones. Leveraging on our WLO technology, we have made great progress providing the partner with spot projector for their reference design which will be ready for leading Android smartphone makers' evaluation as soon as Q1 2020.

Our non-smartphone 3D-sensing engagements have focused on smart door lock and industrial automation segments where we provide structured light-based 3D sensing total solution. We have been collaborating closely mainly with two types of partners: those with industry-leading expertise in facial recognition algorithm and those offering application processors with strong AI capability. We have started design-in projects with several smart door lock end customers. Separately, as we previously mentioned, we are working with partners who wish to take advantage of our 3D sensing know-how to achieve efficiency improvement and cost reduction in traditional manufacturing. One market opportunity we are pursuing is shoe factory automation. I am pleased to report that prototypes of 3D sensing

enabled automatic robotic cementing system are available now for production optimization testing.

Ultra-low power smart sensing

Next on WiseEye, our AI-based ultra-low power smart sensing solution. The demand for battery-powered smart device with AI intelligent sensing is rapidly growing. Our total solution is built on Emza's unique AI-based algorithm, on top of Himax's proprietary computer vision processor and CMOS image sensor, all equipped with ultra-low power design. Currently laptop is the market of focus. Himax WiseEye 2.0 NB solution provides a 'laptop-ready' 3-in-1 RGB/IR/AI solution, respecting privacy while enhancing security for notebook users. At the CES 2020, a number of notebook OEMs and ODMs demonstrated our WiseEye NB solution in their next generation premium notebooks with positive feedback. In addition to notebook, we have also made progress in the displays and IoT markets. Innolux, one of the world's leading manufacturers of TFT-LCD displays, has integrated the Himax-Emza WiseEye solution into displays to enable consumer privacy protection in real time. Also, Chicony, one of the largest ODMs in the world, and Emza jointly announced a reference design of the world's first battery-powered human sensing solution for IoT in December 2019. Both Innolux and Chicony showcased their products at the CES.

Previously we mentioned that, in addition to total solution, Himax is also able to offer ultra-low power smart sensing on the basis of individual parts so as to address the market's different needs and maximize the potential opportunities for Himax. I will elaborate on this in the CMOS image sensor discussion below.

CMOS Image Sensor

On CMOS image sensor business update. CMOS image sensor is another critical part of the WiseEye 2.0 NB solution. To support the lean camera design and high-quality image needed for thin bezel laptops, we have made a 2-in-1 sensor that offers the duo capabilities of high quality HD image capturing and ultra-low-power, low resolution visual sensing in one single sensor, the industry's first with the innovative design. With this sensor, laptop makers can simplify their next generation product design and save costs by eliminating the need for an additional camera to provide context awareness for a better user experience. Our sensor has also incorporated an RGB-IR design to enable Windows Hello facial recognition. This new 2-in-1 CMOS sensor is currently available for our partners/customers.

In addition, we recently announced the commercial availability of an industry-first ultra-low power and low latency, backside-illuminated CMOS image sensor solution with autonomous modes of operations for always-on, intelligent visual sensing applications such as human presence detection and tracking, gaze detection, behavioral analysis, and pose estimation for growing markets such as smart home, smart building, healthcare, smartphone and AR/VR devices.

We are collaborating with leading partners within the ecosystem to reduce time to market for intelligent edge vision solutions. Notably, we are working closely with Google and have become the reference design for its world-leading TensorFlow Lite AI framework targeting low power edge devices.

For the traditional human vision segments, we see strong demand in notebooks, where we are one of the market leaders, and have experienced increased shipments for multimedia applications such as car recorders, surveillance, drones, home appliances, and consumer electronics, among others. Additionally, we have seen increased shipments and new design-wins in the automotive segment covering before-market solutions such as surround view and rear-view camera.

LCOS

Lastly, on LCOS. We continue to focus on AR goggle devices and head-up-displays (HUD) for automotive. Many of our industry-leading customers have demonstrated their state-of-the-art products, including holographic HUD, AR glasses and LiDAR system, with Himax LCOS technology inside at the 2020 CES with positive market feedbacks. Our technology leadership and proven manufacturing expertise have made us a preferred partner for customers in these emerging markets and their ongoing engineering projects in AR goggles and HUD for automotive applications.

For non-driver IC business, we expect revenue to decrease by single digit sequentially in the first quarter. Aside from the WLO sales which are expected to be down slightly, the CMOS image sensor sales for multimedia markets have been affected by the coronavirus incident as the operations of many of the customers here are still not back in order.

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, Jackie Chang, our CFO, 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!