



## Himax Technologies, Inc. Q4 and FY 2017

### Unaudited Financials and Investor Update Call

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**Operator:** Opening and standard introduction.

**Greg Falesnik:** Thank you, operator. Welcome everyone to Himax’s fourth quarter 2017 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 [greg.falesnik@mzgroup.us](mailto:greg.falesnik@mzgroup.us), or access the press release on financial portals, or download a copy from Himax's website at [www.himax.com.tw](http://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, 2016 filed with SEC in April, 2017.

Except for the Company's full year of 2016 financials, which were provided in the Company's 20-F and filed with the SEC on April 12, 2017, the financial information included in this conference call is unaudited and consolidated, and prepared in accordance with US GAAP 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 & FY 2017 Results**

**Ms. Jackie Chang:** Thank you Greg and thank you everybody for joining us. Our outline for today's call is: first, I will review Himax's consolidated financial performance for the quarter and full year 2017 on both GAAP and non-GAAP basis. The non-GAAP financials exclude share-based compensation and acquisition-related charges. I will conclude with the first quarter 2018 outlook. Jordan will then provide an update on the status of our business, after which we will take questions.

Our 2017 fourth quarter revenues, gross margin, GAAP and non-GAAP earnings per diluted ADS all met our guidance. For the fourth quarter, we reported net revenues of \$181.1 million, a decrease of 8.1% sequentially and a decrease of 11.0% year-over-year. Gross margin was 24.6%, down 0.9% sequentially. GAAP earnings per diluted ADS were 13.7 cents, compared to the guidance range of 13.0 to 15.0 cents. Non-GAAP earnings per diluted ADS were 13.8 cents, compared to the guidance range of 13.2 to 15.2 cents.

Revenue from large display drivers was \$58.4 million, up 6.3% sequentially but down 13.7% year-over-year. Large panel driver ICs accounted for 32.3% of our total revenues

for the fourth quarter, compared to 27.9% in the third quarter of 2017 and 33.3% a year ago. Our large panel driver business grew mid-single-digit sequentially, in line with guidance, driven by ramping of new LCD fabs in China and strong TV demand ahead of the Chinese New Year holidays. The year-over-year decline was caused by phase-out of certain customers' old models and the misses in certain customers' new design-in projects as we reported in previous earnings calls. We have overcome the engineering hiccup and business has started to be back on track since the third quarter. We are pleased with our current engineering collaboration and 4K TV design-in activities in the pipeline. Such activities will lead to further rebound in future sales.

Revenue for small and medium-sized display drivers came in at \$81.3 million, down 6.8% sequentially and down 18.5% year-over-year. The product segment accounted for 44.9% of total sales for the fourth quarter, as compared to 44.2% in the third quarter of 2017 and 49.0% a year ago. As opposed to original guidance of flattish sequential growth, our small and medium-sized panel driver business declined mid-single digit because of lower-than-expected smartphone driver IC sales. Sales into smartphones were down 11.5% sequentially and declined more than 35% year-over-year. The less than satisfactory result in the fourth quarter was caused mainly by weak sentiment in the China market as new products failed to attract consumers and therefore OEMs turned cautious in building inventory. In addition, our sales were affected by the shrinking addressable market for pure TFT-LCD driver ICs, a significant portion of which is being replaced by TDDI and AMOLED technologies as we indicated in previous earnings calls. The good news is that our TDDI solutions have started shipping in the fourth quarter. Jordan will elaborate on this a bit later.

Our small and medium-sized driver IC revenue for automotive application went up more than 10% sequentially and more than 25% year-over-year. The quarterly revenue now reached close to \$25 million, a historical high and accounting for over 15% of the total driver IC revenue. Driver IC sales for tablets were down 17.2% sequentially and declining 24.7% year-over-year due to weak overall market demand in this product segment.

Revenues from our non-driver businesses were \$41.4 million, down 24.7% sequentially but up 14.8% versus last year. Non-driver products accounted for 22.8% of total revenues, as compared to 27.9% in the third quarter of 2017 and 17.7% a year ago. The sequential decline was due primarily to certain one-off customer reimbursements related to our AR goggles business in the preceding quarter. Excluding the one-off reimbursements, which totaled \$13.3 million, the sequential decrease would have been less than 1% as compared to the original guidance of 10% growth. Lower than expected WLO shipment and NRE income contributed to the sequential sales decline. The year-over-year increase was driven mainly by WLO product shipment to a leading customer and, to a lesser extent, increased sales of timing controllers and CMOS image sensors. The revenue increase was offset by the discontinuation of LCOS and WLO shipments to one of our major AR device customers who decided to end the product's production as we reported before. We remain positive on the growth prospect of our WLO and LCOS product lines, judging by the expanding customer list that covers some of the world's biggest tech names and the busy engineering activities going on with such customers right now. Jordan will elaborate on this a bit later.

Our GAAP gross margin for the fourth quarter was 24.6%, down 90 basis points from 25.5% in the third quarter of 2017 but up 550 basis points from 19.1% for the same

period last year. The sequential margin decline was due mainly to certain one-off customer reimbursements in Q3 as I mentioned earlier. Excluding the above-mentioned one-off reimbursements in the third quarter, which knocked down \$5.7 million in gross profit, our fourth quarter gross margin would have been an increase of 30 basis points versus the third quarter. The year-over-year increase was due to an additional inventory write-down totaling \$12 million in the fourth quarter 2016. Excluding the additional inventory write-down, the gross margin for the fourth quarter of 2016 would have been 25.0%.

Our GAAP operating expenses were \$40.5 million in the fourth quarter, down 13.9% from the preceding quarter but up 26.2% from a year ago. The significant year-over-year increase was primarily the result of rising R&D expenses in the areas of 3D sensing, WLO, TDDI, and high-end TV as well as the annual merit increase. In addition, NT dollar appreciation against the US dollar caused our salary expense to increase around \$1.0 million as we pay the bulk of our employee salaries in NT dollars. The sequential expense decrease was primarily the result of the difference in RSU charge. In accordance with our protocol, we grant annual RSUs to our staff at the end of September each year, which, given all other things equal, leads to higher third quarter GAAP operating expenses compared to the other quarters of the year. The fourth quarter RSU expense was only \$0.1 million while it was \$6.5 million in the third quarter. Excluding the RSU expense, operating expenses decreased 0.4% from the third quarter and increased 26.7% year-over-year.

GAAP operating margin for the fourth quarter was 2.3%, down from 3.4% for the same period last year and up from 1.7% in the previous quarter. The GAAP operating income

increased 21.3% sequentially and decreased 39.9% year-over-year. The sequential increase was primarily a result of lower RSU expense, offset by the one-time reimbursement from our AR customer in the third quarter. The year-over-year decline was, however, a result of higher operating expenses and lower sales, offset by the one-time inventory write-down in the previous year.

Fourth quarter non-GAAP operating income was \$4.5 million, or 2.5% of sales, down from 3.6% for the same period last year and down from 5.2% a quarter ago. The non-GAAP operating income decreased 55.9% sequentially and 38.7% from the same quarter in 2016.

GAAP net income for the fourth quarter was \$23.5 million, or 13.7 cents per diluted ADS, compared to \$3.7 million, or 2.1 cents per diluted ADS, in the previous quarter and \$4.4 million, or 2.6 cents per diluted ADS, a year ago. The increase was mainly the result of an investment gain of \$20.7 million in the fourth quarter as we disposed of a direct investment in September. The transaction was already closed in Q4. Excluding this one-time gain, GAAP net income for the fourth quarter was \$2.8 million, or 1.6 cents per diluted ADS, a decrease of 36.6% year-over-year and 23.6% from the previous quarter. The sequential decline was caused by the non-recurrence of the one-time reimbursement from our AR customer in the third quarter as discussed earlier.

Fourth quarter non-GAAP net income was \$23.8 million, or 13.8 cents per diluted ADS, compared to \$9.0 million, or 5.2 cents per diluted ADS, in the previous quarter and \$4.8 million, or 2.8 cents per diluted ADS, a year ago. Again, the increase was mainly due to the investment gain of \$20.7 million in the quarter.

## **2017 Full Year Summary**

Let's have a quick overview of the 2017 full year financial performance. Revenues totaled \$685.2 million in 2017, representing a 14.7% decrease over 2016.

Revenues from large panel display drivers decreased 17.6% year-over-year, representing 32.8% of our total revenues, as compared to 34.0% in 2016. Our large panel driver sales totaled \$224.8 million for the year.

Small and medium-sized driver sales decreased 17.3% year-over-year, representing 44.5% of our total revenues, as compared to 46.0% in 2016.

Non-driver products decreased 3.6% year-over-year, representing 22.7% of our total sales, as compared to 20.0% a year ago. We'd like to highlight that our WLO business hit inflection in the middle of the year when we began mass shipment to an anchor customer.

Gross margin in 2017 was 24.4%, a 20 basis-point increase from 24.2% in 2016.

GAAP operating expenses were \$158.9 million, up \$23.8 million or 17.6% compared to last year. The increase was primarily the result of rising R&D expenses in the areas of 3D sensing, WLO, TDDI, and high-end TV as well as the annual merit increases and additional headcount. In addition, NT dollar appreciation against the US dollar caused our salary expense to increase around \$3.7 million.



2017 GAAP operating income of \$8.2 million represented an 86.2% decrease versus 2016 for lower sales and higher operating expenses.

Our GAAP net income for the year was \$28.0 million, or 16.2 cents per diluted ADS, a decline of 45.1% from last year.

Non-GAAP net income for 2017 was \$34.3 million, or 19.9 cents per diluted ADS, down 42.7% year-over-year.

Turning to our balance sheet, we had \$148.9 million of cash, cash equivalents and marketable securities as of the end of December 2017, compared to \$194.6 million at the same time last year and \$151.6 million a quarter ago. In addition to the cash position, restricted cash was \$147.0 million at the end of the quarter, little changed from \$147.2 million in the preceding quarter and up from \$138.2 million a year ago. The restricted cash is mainly used to guarantee the Company's short-term loan for the same amount. We continue to maintain a very strong balance sheet and operate as a debt-free company.

Our year-end inventories were \$135.2 million, up from \$130.1 million a quarter ago but down from \$149.7 million at the same time last year. Accounts receivable at the end of December 2017 were \$187.6 million as compared to \$191.0 million a year ago and \$181.7 million last quarter. DSO was 100 days, as compared to 87 days a year ago and 98 days at end of the last quarter.

Net cash inflow from operating activities for the fourth quarter was \$8.3 million as compared to an inflow of \$47.2 million for the same period last year and an inflow of \$16.9 million last quarter. Cash inflow from operations in 2017 was \$29.4 million as compared to \$84.7 million in 2016. The decrease in operating cash flow is mainly due to lower net profit.

Capital expenditures were on track with the plan at \$15.7 million in the fourth quarter of 2017, versus \$2.2 million a year ago and \$10.2 million last quarter. The fourth quarter capex consisted mainly of ongoing payments for the new building's construction, WLO capacity expansion for certain anchor customer, and another WLO capacity expansion and installation of active alignment capacity to support our 3D sensing business. Total capital expenditure for the year was \$39.8M versus \$7.9M a year ago.

As of December 31, 2017, Himax had 172.1 million ADS outstanding, unchanged from last quarter. On a fully diluted basis, the total ADS outstanding are 172.5 million.

**Q1 2018 Guidance:**

Beginning January 1, 2018, we adopted International Financial Reporting Standards ("IFRS") issued by the International Accounting Standard Board ("IASB") to prepare our consolidated financial statements. We don't expect the transition from US GAAP to IFRS to have any significant impact on our financial results.

The first quarter is traditionally the bottom of the year in terms of sales because it has fewer working days due to Chinese Lunar New Year. We expect the first quarter revenue to decrease around 9% to 14% sequentially, representing a low to mid-single-digit year-

over-year growth. Gross margin is expected to be around 22%, depending on our final product mix. The decline in gross margin is mainly caused by anticipated WLO shipment decline in Q118. GAAP loss attributable to shareholders is expected to be in the range of 2.0 to 3.0 cents per diluted ADS based on 172.5 million outstanding ADSs.

I will now turn the call over to Jordan.

**Mr. Jordan Wu:**

**Q1 2018 Outlook**

Thank you, Jackie.

We delivered much improved results in the second half versus the first half last year. Looking into 2018, our major growth engines will be, for large panel segment, China panel makers' increase in capacity, for small panel segment, in-cell TDDI for smartphone and driver ICs for automotive applications, and last but not the least for non-driver areas, increasing WLO revenue, and commencement of 3D sensing total solution shipment. 3D sensing will be our biggest long term growth engine and, for this year, a major contributor to both revenues and profit, consequently creating a more favorable product mix for Himax starting the second half of the year.

With that, now let me give you some insights behind our guidance and trends that we see developing in our businesses.

**Display Driver IC Business**

## **LDDIC**

Our large display driver IC business experienced a strong growth momentum in the second half of 2017 as 4K TV penetration was still on the rise globally and China continued to ramp brand new advanced generation LCD fabs. In fact, BOE has just launched the world's first Gen 10.5 fab a few weeks ago, while CEC-CHOT's Gen 8.6 fab and CEC-Panda's Gen 8.6+ fab will also go into operation this year. Being a market leader in large display driver IC business, we will benefit from such capacity expansion. However, the whole market is currently facing a capacity shortage of 8" foundry where vast majority of large panel driver ICs are fabricated. While the growth of our large panel driver business may be limited by the tight 8" foundry capacity during this year, we are starting the early ramp of a newly built 12" fab in China. Adding the 12" fab into the pool of our foundry capacity will greatly alleviate the shortage issue of our customers. However, the ultimate ramping schedule will depend on how fast our customers can go through their customer qualification, something all our major customers are working very hard on. For the first quarter, we expect a low-single-digit sequential revenue growth for large display driver ICs.

With the 2020 Tokyo Olympics approaching, the ecosystem for super-high-resolution TV is being established, hoping to catch the business opportunity arising from the 8K program broadcast at the event. At this year's CES, major TV manufacturers have unveiled their 8K TV with Himax solutions inside. We will continue working with major panel makers for the development of next generation 8K TVs.

## **SMDDIC**

Turning to the small and medium display driver business, our first quarter sales for smartphone are likely to decline by approximately 30% sequentially on product transition, weak market demand and seasonality. We have numerous TDDI design-wins for HD+ and FHD+ projects with top-tier names, yet shipment has been hindered by the weak overall smartphone market sentiment. In spite of the short term headwinds, we are confident that our TDDI solutions and display driver IC business will accelerate starting the second quarter as smartphone makers begin to replenish inventory for their new product launches in the second half. On the high side, our new generation FHD+ TDDI with COF (chip on film) package is in design-in stage with a number of leading Chinese smartphone brands and panel makers. TDDI with COF package can enable super-slim bezel design for premium smartphone models. We expect small volume shipment in the first half with accelerating volume in the second half. Our driver IC business is also expanding into new areas such as smart home assistant segment. Such activities will help future rebound in sales momentum.

On AMOLED product line, we have been collaborating closely with leading panel makers across China for product development. We believe AMOLED driver ICs will be one of the long-term growth engines for our small panel driver IC business.

As to automotive application, we continue to have further design-wins from prior years going into mass production this year. We expect Q1 revenue to grow around 10% sequentially and more than 50% year-over-year. We have engaged all of the major automotive panel manufacturers worldwide for long-term partnerships and secured many of their key projects pipelined for the next few years.

Going into the first quarter, due to seasonality and overall weak smartphone market, we expect small and medium-sized driver IC revenue to be down around 10% sequentially.

### **Non-Driver Product Categories**

Now let me share some of the business progress on our non-driver IC businesses.

### **3D Sensing Total Solution**

First, I will touch on our 3D sensing total solution. At present, our target market is primarily the Android based smartphone. SLiM™, our structured light based 3D sensing total solutions, which we announced jointly with Qualcomm last August, brings together Qualcomm's industry leading 3D algorithm with Himax's cutting-edge design and manufacturing capabilities in optics and NIR sensors as well as our unique know-how in 3D sensing system integration.

The majority of the key technologies inside the SLiM™ total solution is developed and supplied by Himax ourselves. These critical technologies include, on the projector end, DOE and collimator utilizing our world leading WLO technology, a tailor-made laser driver IC, and high precision active alignment for the projector assembly; and on the receiver end, a high efficiency near-infrared CMOS image sensor. Last but not least, Himax also developed an ASIC by incorporating Qualcomm's algorithm for 3D depth map generation. The fact that all of these critical components are developed in-house puts us in a unique leading position. It represents a very high barrier of entry for any potential competition and a much higher ASP and profit margin for us.

The Qualcomm/Himax solution is by far the highest quality 3D sensing total solution available for the Android market right now. It has the industry's best performance in all of dimension, 3D depth accuracy, indoor/outdoor sensitivity and power consumption. It passes the toughest eye safety standards with a proprietary glass broken detection mechanism to safeguard the user from any potential harm. Furthermore, we are the only solution to offer face recognition for secure online payment, a must-have feature for high end smartphones of the future. We are working with multiple tier-1 smartphone makers, aiming to launch 3D sensing on their premium smartphones starting the first half of 2018.

Our SLiM™ solution will be ready for mass production and shipment by the end of the first quarter, 2018 with an initial capacity of 2 million units per month following some ramping period. The initial capacity is part of our Phase I expansion of \$80M. We have already achieved pretty satisfactory production yields in our internal pilot production. Given that SLiM is a highly integrated solution with ASPs much higher than those of individual components, by the time we start making shipment, it will be a major growth contributor to our top and bottom lines.

In an attempt to accelerate the adoption of 3D sensing for Android phones, in addition to SLiM™, we are also working on stereoscopic type 3D sensing as a lower cost alternative. Unlike SLiM™ which utilizes structure light to generate 3D, stereoscopic type uses two cameras to replicate 3D vision in nature, augmented by coded light for image depth enhancement. Both types of solutions offered by Himax operate on active NIR light source with high sensitivity NIR sensors, thus working well even under extreme brightness or total darkness. For 3D sensing purposes, structure light approach offers better depth precision than stereoscopic type but the cost is also higher. By introducing

stereoscopic 3D sensing, we aim to bring down the cost of 3D sensing so that it can be afforded by mass market smartphone models. We are pleased to report that development of stereoscopic 3D sensing total solution for face recognition and 3D features has been under way. We are aiming to be mass production and shipment ready by Q4 of this year. Similar to our experience in SLiM™, we are working with some of the most prominent ecosystem partners in developing our stereoscopic 3D total solution. We will update progress in due course. While lower cost compared to structure light, stereoscopic 3D will still represent a much higher ASP and better gross margin potential for us.

**Last but not least**, at this year's CES, many of our customers and partners demonstrated 3D sensing applications in IoT, automotive, AR/VR, and robotic related products with Himax SLiM™ inside and received very positive feedback. As I mentioned before, 3D sensing can have a broad range of applications that go beyond smartphone. We are very excited about the growth prospects it represents and believe 3D sensing will be our biggest long term growth engine.

## **WLO**

In the last earnings call, we reported that we have started mass shipment of a highly customized WLO product to an anchor customer during the third quarter. The production has been going well as we deliver consistent product quality, production ramp and high yields. Shipment volume to the customer for the fourth quarter accelerated sequentially. However, lower volume in the first quarter of 2018 is expected as per the customer's demand forecast. The much reduced shipment will negatively impact our Q1 gross margin as lower utilization will lead to much higher equipment depreciation and factory



overhead on a per unit basis. Despite the short term order adjustment, we expect strong rebound in the second half and are more optimistic than ever about the partnership and growth opportunities we have with the customer. The R&D projects with the said customer for their future generation products center around our exceptional design know-how and mass production expertise in WLO technology for optical devices.

Now, another major update for our WLO business. We recently announced the acquisition of certain advanced nano 3D masters manufacturing assets and related intellectual property and business. The advanced nano 3D manufacturing masters are primarily used in imprinting or stamping replication process to fabricate devices such as DOE, diffuser, collimator lens and micro lens array. This acquisition demonstrates our commitment and confidence in the long-term growth prospects for our WLO and 3D sensing businesses.

### **New Building**

Now let me give you an update on the construction of the new building, one of the major capex projects for 2017. I am pleased to report that the construction has been completed on schedule. The new building, located near our current headquarters, will house additional 8" glass WLO capacity and the new active alignment equipment needed for our SLiM™ 3D sensing solutions. It will also provide extra office space. We have started moving in equipment in the past few weeks.

### **Phase I Capex Update**

Next on our capital expenditure. Let me start with a recap of our current capex plan. We announced a capex plan of \$80M during 2017 which is on top of our regular capex - an

unprecedented move in our history given our fabless nature. We call this the Phase I capital expansion, which includes the construction of a new building, an increase of our WLO capacity for the anchor customer I just mentioned and an initial monthly capacity of 2 million units for our SLiM solution. We are now increasing the Phase I budget from \$80 million to \$105 million. The addition of \$25 million is primarily for enhanced manufacturing automation and CIM infrastructure to achieve higher product yields and better production efficiency, an extra land of 1 hectare and more clean room and office space for future expansion. Some of these items are not necessarily required immediately. But we decided that it is far more economical to implement them now than future. The Phase I is being executed as scheduled. Of the \$105 million budget, \$33 million has been paid out in 2017 with the remaining \$72 million to be paid in 2018.

We believe a Phase II capex will soon be required for additional capacity. The Phase II capacity will still be located in the same new building, using some of the clean rooms and office spaces built during the Phase I. In fact, the new building has sufficient room to house capacity much in excess of the Phase I and II combined. We are still gathering customers' input and finalizing technical details and will formally announce the Phase II expansion as soon as the plan is finalized.

As we mentioned in the previous earnings calls, the capex budget for both phases of expansion will be funded through our internal resources and banking facilities, if so needed.

## **CMOS Image Sensor**

Now onto our CMOS image sensor business update. We continue to make great progress with our two machine vision sensor product lines, namely, near infrared (“NIR”) sensor and Always-on-Sensor (“AoS<sup>TM</sup>”). NIR sensor is a critical part of our SLiM<sup>TM</sup> total solution. Our NIR sensors’ overall performance, measured primarily by way of quantum efficiency, is far ahead of those of our peers for 3D sensing. We currently offer low noise HD, or 1 megapixel, and 5.5 megapixel NIR sensors and are planning to add more to further enrich our product portfolio. We are also developing the next generation NIR sensors with quantum efficiency further elevated to the next level.

On the AoS product line, we announced the launch of the WiseEye<sup>TM</sup> IoT sensors together with Emza and DSP Group, both Isreal-based, in early January. It is the industry’s first ultra-low power, always-on, fully trainable, AI-based machine-vision intelligent visual sensor, adding human presence awareness for consumer appliances and industrial IoT applications. Emza demonstrated the WiseEye<sup>TM</sup> IoT sensors at this year’s CES and successfully generated high interest from key market players, including smart buildings and security OEMs and makers of home assistants and home appliances. We expect to kick off some joint product development projects with heavy weight industry leaders in the second half of the year. Himax owns 45.1% equity in Emza with an option to acquire the remaining 54.9% and all outstanding options.

For the traditional human vision segments, we see strong demands in laptops and increasing shipments for multimedia applications such as car recorders, surveillance, drones, home appliances, and consumer electronics, among others.

## **LCOS**

I will now give an update on the LCOS business where our main focus areas are AR goggle devices and head-up-displays (HUD) for automotives and motorcycles. While AR will take a few years to fully realize its market potential, the wealth of announcements at CES 2018 say a lot about the industry's current momentum. Many companies, be the top name multinationals or new start-ups, are investing heavily to develop the ecosystem -- applications, software, operating system, system electronics, and optics. With all these investments, we believe the AR goggle market will be back in an accelerating mode again. In addition to AR goggle applications, we are pleased to report that we continue to make great progress in developing high-end head-up display for automotives. We and our partners together have secured a few design wins with certain big names. Timing and major revenue contribution would be 2019 the earliest. Our technology leadership in this space has little competition. LCOS represents a significant long term growth opportunity for us.

For non-driver IC business, we expect a sequential revenue decline of around 20% in the first quarter. However, it will still be an increase of close to mid-teens from the same period last year.

In summary, we are seeing weak seasonality and soft smartphone market demand, which will lead to sequential revenue decline in the first quarter. However, the revenue of all three major product categories will increase from the same period last year. We also expect our gross margin to be under pressure in the first quarter caused by anticipated WLO shipment reduction as per the customer's demand forecast. Nevertheless, we believe shipment of TDDI ICs and WLO will accelerate in the second half 2018. We also

expect significant business growth in our 3D sensing business to contribute to both top and bottom lines as early as the second half of 2018.

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!