# Himax Launches HM0360 1/6” VGA Ultra Low Power CMOS Image Sensor for AIoT and Computer Vision Applications

**TAINAN, Taiwan – January 22, 2020** – Himax Imaging, Inc., a provider of ultra-low power image sensor and a subsidiary of Himax Technologies, Inc. (Nasdaq: HIMX) (“Himax” or the “Company”), a leading supplier and fabless manufacturer of display drivers and other semiconductor, announced today the commercial availability for HM0360, an industry-first ultra-low power and low latency Back-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 like smart home, smart building, healthcare, smartphone and AR/VR devices. Himax is currently working with leading AI framework provider such as Google and industry partners to develop reference design that can enable low power hardware and platform options to reduce time to market for intelligent edge vision solutions.

“Many devices today, such as smartphones, integrate very low power, always on sensing like acoustic, motion and ambient light level to enhance user experience and save power. However, one of the key challenges to 2-dimensional image sensing for computer vision is the high power consumption and data bandwidth of the sensor and processing,” said Amit Mittra, CTO of Himax Imaging. “The HM0360 addresses this opportunity by delivering a very low power image sensor that achieves excellent image quality with high signal-to-noise ratio and dynamic range, which allows algorithms to operate under challenging lighting conditions, from bright sunlight to moonlight. The VGA resolution can double the range of detection over Himax’s HM01B0 QVGA sensor, especially to support greater than 90-degree wide field of view lens. Additionally, the HM0360 introduces several new features to reduce camera latency, system overhead and power consumption.”

“Smart sensors that can run on batteries or energy harvesting for years will enable a massive number of new applications over the next decade,” said Pete Warden, Technical Lead of TensorFlow Lite for Microcontrollers at Google. “TensorFlow Lite's microcontroller software can supply the brains behind these products but having low-power sensors is essential. Himax’s camera can operate at less than one milliwatt, which allows us to create a complete sensing system that's able to run continuously on battery power alone.”

Himax’s new HM0360 sensor builds on the success of HM01B0 that had led the market in enabling devices with new visual context awareness, such as Smart TV with human presence detection, to enhance user experience and increase energy efficiency. Unique features of HM0360 include:

- Several autonomous modes of operation
- Pre-metering function to ensure exposure quality for every event frame
- Short sensor initialization time
- Extremely low <2ms wake up time
- Fast context switching and frame configuration update
- Multi-camera synchronization
- 150 parallel addressable regions of interests
- Event sensing modes with programmable interrupts to allow the host processor to be placed in low power sleep until notified by the sensor
- Operating up to VGA resolution of 60 frames per second sensor at 14.5mW and consumes less than 500µW using binning mode readout at 3FPS
- Supporting multiple power supply configurations with minimal passive components to enable a highly compact camera module design for next generation smart camera devices.

“We are very excited about working with Google’s platform and industry partners to support new visual sensing use cases that can enable new and exciting features and products,” added Amit Mittra. “Himax has developed solutions and partnerships that leverages the convergence of a new generation of low power AI processors, highly efficient and trainable machine learning algorithms, and our Always-On CMOS image sensor products to push the limits of intelligent visual sensing with lower power and latency benchmarks. Having invested heavily in the ultra-low power smart sensing space for many years, we believe we will have the first-mover’s advantage to capitalize on this emerging market. HM0360 is currently available for sampling and will be ready for mass production in the second quarter of 2020.”

**About Himax Technologies, Inc.**

Himax Technologies, Inc. (NASDAQ: HIMX) is a fabless semiconductor solution provider dedicated to display imaging processing technologies. Himax is a worldwide market leader in display driver ICs and timing controllers used in TVs, laptops, monitors, mobile phones, tablets, digital cameras, car navigation, virtual reality (VR) devices and many other consumer electronics devices. Additionally, Himax designs and provides controllers for touch sensor displays, in-cell Touch and Display Driver Integration (TDDI) single-chip solutions, LED driver ICs, power management ICs, scaler products for monitors and projectors, tailor-made video processing IC solutions, silicon IPs and LCOS micro-displays for augmented reality (AR) devices and heads-up displays (HUD) for automotive. The Company also offers digital camera solutions, including CMOS image sensors and wafer level optics for AR devices, 3D sensing and machine vision, which are used in a wide variety of applications such as mobile phone, tablet, laptop, TV, PC camera, automobile, security, medical devices, home appliance and Internet of Things. Founded in 2001 and headquartered in Tainan, Taiwan, Himax currently employs around 2,000 people from three Taiwan-based offices in Tainan, Hsinchu and Taipei and country offices in China, Korea, Japan, Israel, and the US. Himax has 2,922 patents granted and 575 patents pending approval worldwide as of December 31$^{st}$, 2019. Himax has retained its position as the leading display imaging processing semiconductor solution provider to consumer electronics brands worldwide.

http://www.himax.com.tw

**Forward Looking Statements**

Factors that could cause actual events or results to differ materially include, but not limited to, general business and economic conditions and the state of the semiconductor industry; market acceptance and competitiveness of the driver and non-driver products developed by the Company; demand for end-use applications products; reliance on a small group of principal customers; the uncertainty of continued success in technological innovations; our ability to develop and protect our intellectual property; pricing pressures including declines in average selling prices; changes in customer order patterns; changes in estimated full-year effective tax rate; shortages in supply of key components; changes in environmental laws and regulations; exchange rate fluctuations; regulatory approvals for further investments in our subsidiaries; our ability to collect accounts receivable and manage inventory 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, as may be amended.

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