Ambarella Introduces CV25 SoC with CVflow™ Computer Vision to Enable the Next Generation of Mainstream Intelligent Cameras

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New CV25 SoC delivers advanced AI features at the edge in home security, professional surveillance, and aftermarket automotive cameras

SANTA CLARA, Calif.--(BUSINESS WIRE)--Jan. 7, 2019-- Ambarella, Inc. (NASDAQ: AMBA) a leading developer of high-resolution video processing and computer vision semiconductors, today introduced the CV25 camera System-on-Chip (SoC), the latest in the CVflow family, combining advanced image processing, high-resolution video encoding and CVflow computer vision processing in a single, extremely low power design. The CV25's CVflow architecture provides the Deep Neural Network (DNN) processing required for the next generation of affordable and intelligent home monitoring, professional surveillance, and aftermarket automotive solutions, including smart dash-cameras, Driver Monitoring Systems (DMS), and electronic mirrors.

"CV25 brings computer vision at the edge into the mainstream," said Fermi Wang, President and CEO of Ambarella. "With this new SoC, we are sharply focused on reducing our customer's overall system cost for delivery of significant computer vision performance, high-quality image processing and advanced cyber-security features at very low power. CV25-based cameras are capable of performing Artificial Intelligence (AI) at the edge, allowing features like facial recognition to happen in real-time on the device, rather than in the cloud."

AI applications enabled at the edge include person recognition and the ability to distinguish between pets, persons, and vehicles. In smart video doorbells, CV25 can automatically recognize familiar faces approaching the front door, flag unknown persons, and alert the homeowner when a package is delivered. In driver monitoring systems, it can detect a driver's drowsiness or level of distraction by monitoring their eyes and facial expressions.

CV25 delivers efficient video encoding in both AVC and HEVC formats with very low bitrates to minimize cloud storage costs. A high-performance Image Signal Processor (ISP) delivers outstanding imaging in low light conditions, and High Dynamic Range (HDR) processing extracts maximum image detail in high-contrast scenes. It includes a full suite of advanced cyber-security features to protect against hacking including secure boot, TrustZone™, and I/O virtualization. Based on 10nm ultra-low power process technology, the CV25 chip is optimized for wire-free camera applications that require long battery life and small form factors.

As part of the CVflow family, the CV25 chip shares a common SDK, Computer Vision (CV) tools, ISP, and cyber-security features with the existing CV22 and CV2 SoCs, allowing multiple price-performance options. Ambarella's complete set of CV tools helps customers easily port their own neural networks onto CV25. The set includes a compiler, debugger, and support for industry-standard machine learning frameworks such as Caffe™ and TensorFlow™, with extensive guidelines for Convolutional Neural Networks (CNN) performance optimizations.

CV25 SoC Key Features:

- CVflow architecture with CNN/deep learning support
- 4Kp30 AVC and HEVC encoding with multi-stream support
- Quad-core 1 GHz Arm®Cortex®-A53 processor with NEON DSP extensions and FPU
- Advanced security features including OTP for secure boot, Trust Zone, and IO virtualization
- Real-time hardware-accelerated 360-degree dewarping and Lens Distortion Correction (LDC)
- Multi-channel ISP with up to 480 MPixels/s input pixel rate
- Multi-exposure HDR and Wide Dynamic Range (WDR) processing, with LED flicker mitigation
- SmartAVC™ and SmartHEVC™ intelligent rate control for lowest bitrates in security applications
- Triple-sensor video input with high-speed SLVS/MIPI CSI-2/LVCMOS interfaces
- Rich set of interfaces includes Gigabit Ethernet, USB 2.0 host and device, dual SD card controllers with SDXC support, HDMI v2.0, and MIPI DSI/CSI-2 output
- Support for DDR4/LPDDR4/LPDDR4x
- 10nm process technology
- 13x13mm 0.65-pitch BGA

The URL for this news release is www.ambarella.com/about/news-events.html.
The URL for the related image is https://www.ambarella.com/about/news-events/press-images/CV25-press-image.

CV25 will be demonstrated during CES 2019. To book an appointment for a demonstration, please contact Ambarella.

About Ambarella

Ambarella's products are used in a wide variety of human and computer vision applications, including surveillance, Advanced Driver Assistance

Systems (ADAS), electronic mirror, drive recorder, driver/cabin monitoring, autonomous driving, and robotic applications. Ambarella's low-power and high-resolution video compression, image processing, and deep neural network processors and software enable cameras to become more intelligent by extracting valuable data from high-resolution video streams. For more information, please visit www.ambarella.com

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