Ambarella Introduces CV28M SoC With CVflow® to Enable New Categories of Intelligent Sensing Devices

November 2, 2020

New CV28M SoC delivers fast and flexible AI processing at the edge

SANTA CLARA, Calif.--(BUSINESS WIRE)--Nov. 2, 2020-- Ambarella, Inc. (Nasdaq: AMBA), an AI vision silicon company, today introduced the CV28M 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, low-power design. The CV28M's highly efficient artificial intelligence (AI) processing architecture provides the flexibility required to enable a new class of smart edge devices for applications including smart home security, retail monitoring, consumer robotics, and occupancy monitoring.

This press release features multimedia. View the full release here: https://www.businesswire.com/news/home/20201102005225/en/

Ambarella today announces the CV28M CVflow® processor for artificial intelligence (AI) sensing at the edge in a new class of smart devices for a variety of applications including smart home security, retail monitoring, consumer robotics, and occupancy monitoring. (Photo: Business Wire)

"All around us, devices are becoming smarter, and with our newest CV28M SoC, our customers can develop a new generation of intelligent sensing cameras for a variety of new applications," said Chris Day, vice president of marketing and business development at Ambarella. "In privacy-sensitive applications—such as monitoring retail stores, workplaces, rental properties, or the elderly at home—edge-based AI processing can support intelligent monitoring and fast decision-making without the requirement to record or stream video to the cloud."

For new AI sensing applications, like retail monitoring or occupancy monitoring, CV28M provides the AI performance to make all decisions in the camera, preserving privacy and avoiding heavy video processing running on back-end servers. For IP security cameras, the CV28M features AI-based rate control to optimize image quality while reducing video storage and network bandwidth requirements. Additionally, Ambarella's AI Timelapse™ scene-aware recording avoids the time needed to scan through video timelines to retrieve moments of interest. In consumer robotics applications, the CV28M can be connected to a wide range of sensors such as visible, structured light, and time-of-flight (ToF) to capture, and then process, the data required for navigation.

The CV28M delivers efficient video encoding in both AVC and HEVC formats. 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. CV28M includes a full suite of advanced cybersecurity features to protect against hacking including secure boot, TrustZone™, and I/O virtualization. Fabricated in 10 nm ultralow-power process technology, the CV28M chip is optimized for wire-free camera applications that require long battery life and small form factors.

The CV28M chip shares a common SDK and computer vision (CV) tools with Ambarella's CV25, CV22, and CV2 CVflow SoC families, simplifying development of cameras with multiple price and performance options. A complete set of CV tools helps customers port their own neural networks onto CV28M and includes a compiler, debugger, and support for industry-standard machine learning frameworks such as Caffe™ and TensorFlow™, with extensive guidelines for convolutional neural network (CNN) performance optimizations.

Samples of CV28M are available now.

The URL for this release and related artwork is: https://www.ambarella.com/news-events/

CV28M SoC key features:

- CVflow architecture with CNN/deep learning support
- 4KP30 AVC and HEVC encoding with multi-stream support
- Dual-core 1 GHz Arm® Cortex®-A53 with NEON™ DSP extensions and FPU
- Advanced security features to implement on-device physical security, including secure boot with TrustZone®, TRNG, OTP, DRAM scrambling and virtualization
- Lens distortion correction (LDC)
- Multi-channel ISP with up to 320 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/LVCMOS interfaces
- Rich set of interfaces includes Gigabit Ethernet, USB 2.0 host and device, three SD card controllers with SDXC support, and MIPI-DSI/CSI output
- Support for DDR4/LPDDR4/LPDDR4x
- 10 nm process technology
- 11x12 mm 0.65-pitch BGA

About Ambarella

Ambarella's products are used in a wide variety of human and computer vision applications, including video security, advanced driver assistance systems (ADAS), electronic mirror, drive recorder, driver/cabin monitoring, autonomous driving, and robotic applications. Ambarella's low-power system on chips (SoCs) offer high-resolution video compression, advanced image processing, and powerful deep neural network processing to enable intelligent cameras to extract valuable data from high-resolution video streams. For more information, please visit www.ambarella.com

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Source: Ambarella, Inc.