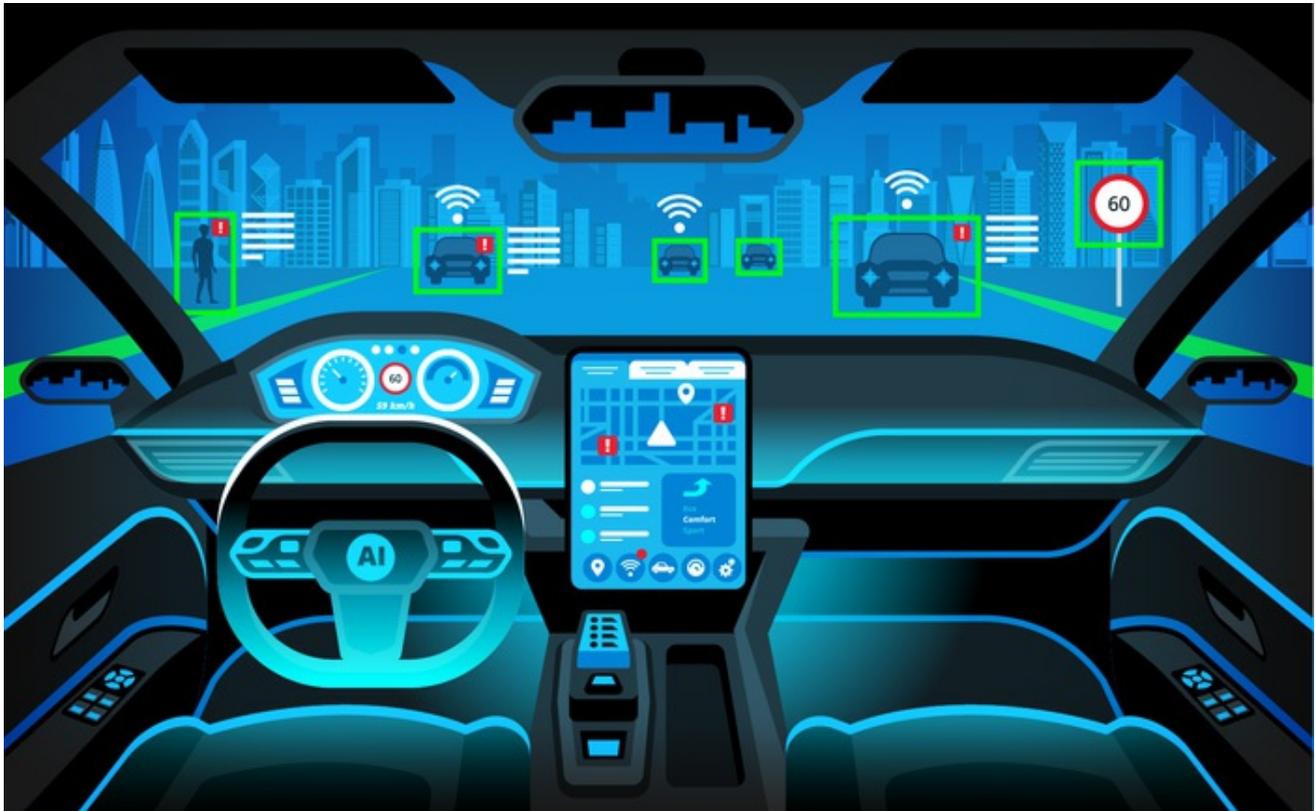


CAN Newsletter Online

CAMERA SOC

Chips come with CAN FD interface

The CV22FS and CV2FS system-on-chips (SoC) by Ambarella provide CAN FD connectivity. Additionally, the chips feature Gigabit Ethernet and USB interfaces.



The camera chips are dedicated for ADAS systems and autonomous driving vehicles (Source: Adobe Stock)

Ambarella, an artificial intelligence (AI) vision silicon company, has announced the CV22FS and CV2FS automotive camera system on chips (SoCs) with AI processing and ASIL-B compliance to enable safety-related applications. Both chips target forward-facing monocular and stereovision ADAS (advanced driver assistance system) cameras, as well as computer vision ECUs (electronic control units) for L2+ and higher levels of autonomy. The low-power consumption of these chips makes it possible for Tier-1s and carmakers to surpass the NCAP (New Car Assessment Program) performance requirements in a single-box, windshield-mounted forward cameras. Other potential applications for the processors include electronic mirrors with blind spot detection (BSD), interior driver and cabin monitoring cameras, and around view monitors (AVM) with parking assist.



The low-power SoCs include an OTP (one-time-programming) memory for secure booting (Source: Ambarella)

ZF, a German Tier-1, is working with Ambarella on viewing and sensing systems. "We are pleased to be working with Ambarella on the next generation of intelligent viewing platforms for surround view visualization, driver monitoring stand-alone vision processing, and e-mirror solutions for both passenger cars and commercial vehicle markets," said Aaron Jefferson from ZF.

Hella Aglaia, a developer of visual perception software, has worked with Ambarella's CVflow processors over the past year. "We chose Ambarella's CVflow SoCs due to their ability to deliver extremely high computer vision processing performance with very low power consumption," said Kay Talmi, managing director at Hella Aglaia. "With the introduction of the CV22FS and CV2FS ASIL SoCs, Ambarella now delivers the functional safety features required by automotive OEMs (original equipment manufacturers) for the mass production of safety-critical systems."

"Ambarella's CVFlow architecture delivers an unparalleled combination of AI performance and power efficiency," said Fermi Wang, president and CEO of Ambarella. The CV22FS and CV2FS's allow computer vision processing in 8-megapixel or higher resolution at 30 frames per second for object recognition over long distances. Both chips include a dense optical flow accelerator for simultaneous localization and mapping (Slam), as well as distance and depth estimation. Multi-channel high-speed sensor input and the image signal processing (ISP) pipeline provide the necessary camera input support, even in challenging lighting conditions. The CV2FS chip enables stereovision applications by adding a dense disparity engine.

The SoCs are based on a 1-GHz Cortex processor with Neon DSP (digital signal processor) and FPU (floating point unit) extensions. For functional safety, a R52 Arm processor targeting ASIL-C is on chip. The products support RGGB, RCCB, RCCC, RGB-IR, and monochrome sensor formats. Other features include multi-exposure high dynamic range (HDR) processing and LED flicker mitigation. They are AEC-Q100 grade 2 (-40 °C to +125 °C) qualified.

