



Ambarella Announces Breakthrough AI-Based Image Signal Processing

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New Neural Network Based ISP Enhances Low-Light and HDR Processing by Up to 100X Compared to State-of-the-Art Traditional ISPs

SANTA CLARA, Calif., Jan. 05, 2022 (GLOBE NEWSWIRE) -- [Ambarella, Inc.](https://www.ambarella.com) (NASDAQ: AMBA), an AI vision silicon company, today announced its new Artificial Intelligence Image Signal Processor (AISP). The company is showcasing this technology at its invitation-only event during CES 2022 in Las Vegas this week, running on its CV2 edge AI perception systems on chip (SoCs).

Drawing on its 17 years of experience in ISP processing and best-in-class CVflow[®] AI engine, Ambarella's new AI based ISP architecture uses neural networks to augment the image processing done by the hardware ISP integrated into its SoCs. This approach enables color imaging with low light at very low lux levels and minimal noise, a 10 to 100X improvement over state-of-the-art traditional ISPs, and new levels of high dynamic range (HDR) processing with more natural color reproduction and higher dynamic range.

Initially demonstrated on the CV2 SoCs during CES this week, the new AISP will become available across Ambarella's entire CVflow SoC portfolio at resolutions up to 4K. The applications of this technology encompass all of the company's target markets, where low-light and HDR processing are critical. This includes security and automotive cameras, where full-color night vision is a key operating point, and where better low-light and HDR enable reductions in external illumination, the use of lower cost sensors, and cleaner video for both human viewing and analytics processing.

"Being able to see clearly in low-light or high-contrast conditions is key to robust camera systems," said Les Kohn, Ambarella's CTO and co-founder. "Traditional camera systems have had to live with noisy or dark black and white video in low-light conditions, and dark shadows or blown-out highlights in high contrast conditions. Both of these cases result in the loss of details that are detrimental to both human viewing and AI applications. With our new AISP technology, we increase the useful range of camera systems while reducing the total system cost to build high quality cameras."

A good example of this new technology in action, which will be demonstrated during CES running on the CV2, is a typical security camera trying to identify a license plate at night. With noisy video, the text on the license plate would be unreadable, even to the best AI algorithm. And with black and white video, all color information on the car would be lost. By using Ambarella's AISP technology and restoring colors at the source before AI processing, the license plate can be clearly read and the color of the car identified.

The AISP processing happens in parallel on the silicon with other higher-level AI applications running on Ambarella's CVflow AI engine. This enables customers to build their next generation of cameras with both higher visual quality and more accurate AI algorithms, while staying within the low power budgets required by small embedded systems.

Other Key features of the AISP include:

- Support for mainstream sensors
- Seamless switching between different lighting conditions, including day, night, and HDR scenes
- A set of tuning tools for sharpening, CE, AE, AWB, etc.
- Ability to run in parallel with other AI algorithms on the CVflow engine
- Advanced operational modes to fit application-specific use cases

Availability

The new AISP is expected to be made available across Ambarella's entire CVflow SoC portfolio during 2022, with different price and performance options. For more information, contact Ambarella: <https://www.ambarella.com/contact-us/>.

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 robotics applications. Ambarella's low-power systems on chip (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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A photo accompanying this announcement is available at <https://www.globenewswire.com/NewsRoom/AttachmentNg/dffe51be-1ac4-4fc6-b352-d27941c5da15>



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