Synopsys and Kudan Collaborate to Accelerate Development of Intelligent Computer Vision Processing SoCs

Combination of Synopsys' ARC EV6x Vision Processor IP and KudanSLAM Software Delivers Efficient and Accurate Machine Vision to AI, Automotive, and IoT Applications

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Highlights:

- KudanSLAM software algorithms optimized for Synopsys DesignWare ARC EV6x Embedded Vision Processor IP deliver efficient and accurate computer vision to AI, automotive, and IoT applications
- The DesignWare EV6x Embedded Vision Processor includes up to four 512-bit vector DSPs and a fully programmable CNN engine to deliver maximum throughput for a broad range of high-performance embedded vision applications
- KudanSLAM's software algorithm executes simultaneous localization and mapping with high speed, low power consumption, and high accuracy

Synopsys, Inc. (Nasdaq: SNPS) and Kudan, a leading simultaneous localization and mapping (SLAM) software algorithms licensor, today announced a collaboration to optimize Kudan's SLAM computer software algorithms for Synopsys' DesignWare® ARC® EV6x Embedded Vision Processor IP. Kudan's KudanSLAM software algorithms create and expand a map of an environment while simultaneously keeping track of the camera's location within it. SLAM is used in autonomous vehicles, drones, robots, and augmented reality applications for concurrent scene mapping and device localization.

Kudan is optimizing its software to offload and accelerate algorithms by taking advantage of the Synopsys DesignWare ARC EV6x Embedded Vision Processors' scalable hardware architecture, which includes up to four 512-bit vector DSPs and a fully programmable convolutional neural network (CNN) engine. The combined hardware-software solution enables designers to accelerate the SLAM tasks of tracking and mapping that take input from LiDAR, Time of Flight (TOF) cameras, inertial measurement units (IMUs), or odometry data while consuming significantly less power and memory resources than alternative implementations.

"Solutions that increase the efficiency and accuracy of computer vision devices will form the foundation of mass-market SLAM applications," said Tomo Ohno, founder and managing director at Kudan. "The combination of the ARC EV6x Embedded Vision Processor and KudanSLAM will deliver the best performance and power efficiencies in the market and provide the software infrastructures by which product builders can develop revolutionary applications for automotive ADAS, robotics, and AR/VR."

The fully programmable and configurable DesignWare ARC EV6x Embedded Vision Processor IP cores are optimized for embedded vision applications, combining the flexibility of software solutions with the low cost and low power consumption of hardware. The ARC EV6x Embedded Vision Processor family is supported by Synopsys' MetaWare EV Development Toolkit, a comprehensive software programming environment based on common embedded vision standards including OpenCV, OpenVX™, and OpenCL™ C.

"Performance, power consumption, and high accuracy are critical requirements for computer vision applications," said John Koeter, vice president of marketing for IP at Synopsys. "By collaborating with Kudan to optimize their software for Synopsys' ARC EV6x Embedded Vision Processor, we are providing designers with a highly efficient and accurate hardware-software solution to accelerate the development of SoCs implementing SLAM functionality."

Availability
The DesignWare EV6x Embedded Vision Processors are available now. KudanSLAM software optimized for EV6x Vision Processors is planned to be available in the second half of 2019.

About Kudan
Kudan (TYO: 4425) is a leading Deep Tech firm developing versatile Simultaneous Localization and Mapping (SLAM) and Artificial Perception (AP) algorithms for embedded systems, providing the eyes for the machines, complementary working with Artificial Intelligence (AI) as the brain for the machines. On top of its proprietary tech IP, Kudan is developing integration of AP with AI and IoT, based on its unique milestone approach to measure the maturity of technology specialised for Deep Tech. As a leading Deep Tech firm, Kudan spans across many technological areas and impacts diverse applications through its tangible engineering innovations. Learn more at https://www.kudan.io/.

About Synopsys

Synopsys, Inc. (Nasdaq: SNPS) is the Silicon to Software™ partner for innovative companies developing the electronic products and software applications we rely on every day. As the world's 15th largest software company, Synopsys has a long history of being a global leader in electronic design automation (EDA) and semiconductor IP and is also growing its leadership in software security and quality solutions. Whether you're a system-on-chip (SoC) designer creating advanced semiconductors, or a software developer writing applications that require the highest security and quality, Synopsys has the solutions needed to deliver innovative, high-quality, secure products. Learn more at www.synopsys.com.

Editorial Contact:
Norma Sengstock
Synopsys, Inc.
650-584-4084
norma@synopsys.com

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