



## **Morpho Announces Collaboration with Synopsys to Develop and Optimize Machine Learning Technology**

**~ Offering an Innovative Solution with Increased Image Processing Speed and Improved Functionality ~**

**Tokyo, Japan** – August 9, 2017 Morpho, Inc. (hereinafter, “Morpho”), a global leader in image processing solutions, today announced an agreement on collaborative development for optimization of Morpho’s scene recognition technology 『Morpho Scene Classifier™』, which implements Deep Learning capabilities using DesignWare® EV6x Embedded Vision Processor IP” offered by Synopsys, Inc. (headquarters: Mountain View, California; hereinafter, “Synopsys”), for accurate and high-speed vision processing.

This collaboration will help mutual customers achieve increased processing speed and improved functionality compared to image processing using a conventional GPU. Morpho will also take steps to expand its share of the smartphone and monitoring camera markets through its collaboration with Synopsys.

Masayuki Urushiyama, Executive Vice President of Morpho, said, “In recent years, there have been growing needs for a neutral network configuration that is suitable for edge processing using Deep Learning technology in the embedded system industry, and demand for a reduction in computing load has also been increasing. By optimizing Morpho’s image recognition engine for Synopsys’ DesignWare EV6x Embedded Vision Processors, we will realize high performance and real-time image processing in system-on-chip products. Power consumption will be lower than that for processing using the conventional GPU approach and we expect an innovative embedded vision system to be realized.”

### **About DesignWare EV6x Embedded Vision Processors**

DesignWare EV6x Embedded Vision Processors are a family of highly integrated and scalable processor IP optimized for a broad range of embedded vision applications including advanced driver assist systems (ADAS), video surveillance, augmented and virtual reality, and simultaneous localization and mapping (SLAM). The EV6x processors integrate a high-performance 32-bit scalar core with a 512-bit vector DSP, and a high-efficiency convolution neural network (CNN) engine for fast, accurate object detection, classification and scene segmentation. The processors deliver up to 4.5 TeraMACs/sec in 16-nm process technologies and support multiple camera input with resolutions up to 4K. The fully programmable and configurable processors combine the flexibility of software solutions with the high performance and low power consumption of dedicated hardware. The EV6x processor family supports any CNN graph, including popular networks such as AlexNet, VGG16, GoogLeNet, Yolo, Faster R-CNN, SqueezeNet, and ResNet.

**About 『Morpho Scene Classifier™』**

『Morpho Scene Classifier™』 is an embedded software program for classifying images. The software uses a deep convolutional neural network. "Deep Learning" is a method for learning a neural network, which is based loosely on the biological neural networks. Unlike conventional machine learning algorithms, deep neural networks with deep learning can learn both the representation of the data and a non-linear classification system jointly in a unified framework. As a result, our software achieves an incredible classification performance with a low memory footprint and light computational resources. GPUs are not even required.

**About Morpho, Inc.**

Established in 2004, Morpho, Inc. has built substantial brand recognition in the field of software image processing for mobile devices. Our mission is to provide an environment where a creative group of individuals can develop new imaging technologies, and to introduce innovative technologies in a practical form that contributes to technological development and cultural enrichment. For more information, visit <http://www.morphoinc.com/en/> or contact [m-info-pr@morphoinc.com](mailto:m-info-pr@morphoinc.com).

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