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Axell and Intel collaborate on fast AI inference using the ailia SDK
~ Supports high-speed inference using Intel XMX with ailia SDK 1.5 ~

TOKYO (December 24, 2024) – Axell Corporation (Headquarters: Chiyoda-ku, Tokyo; Representative: Akihiro Saito; hereinafter "Axell") and Intel Corporation (2200 Mission College Blvd., Santa Clara, CA 95054; hereinafter "Intel") have announced a collaboration on fast AI inference using the AI framework ailia SDK independently developed by Axell and its group company ax Inc. (Headquarters: Shibuya-ku, Tokyo; Representative: Takehiko Terada; hereinafter "ax").

The ailia SDK is a cross-platform framework developed by Axell and ax for fast AI inference. By using the ailia SDK, AI can be executed on edge devices, improving stability by not relying on communication environments or servers, achieving low latency through edge processing, and reducing API costs.

With the cooperation of Intel, ailia SDK now supports high-speed inference using Intel® Xe Matrix Extensions (XMX) for Intel® Arc™ discrete GPUs and Intel® Core™ Ultra Processors (series 2). XMX AI engines built within the GPU's Xe-cores provide dedicated acceleration for inferencing workloads to the Vulkan backend of ailia SDK, for a significant performance improvement.

When evaluated for document registration in RAG (Retrieval-Augmented Generation), which is increasingly used as generative AI, the Intel® Arc™ A770 GPU takes 304.5 msec when XMX is disabled, whereas enabling XMX allows processing in 184.25 msec, a 40% performance improvement.（Measured by Axell）
In addition, by supporting XMX, applications using ailia SDK will also be accelerated.

Axell's and ax's DX-focused application, ailia DX Insight, also uses the ailia SDK for its backend and is planned to support XMX in future releases.

Comments from Executive Director and CTO Kazuki Kyakuno of Axell
XMX can compute matrix multiplications very quickly, enabling the acceleration of modern Transformer models. By using XMX, AI models that were previously difficult to execute due to processing speed issues can now be run on Intel platforms.
Our company aims to contribute to the realization of new applications in the AI era through XMX support for the ailia SDK.

Comment from Carla Rodriguez, VP and GM Client Software Enabling at Intel Corporation
"We are excited to partner with Axell to bring XMX technology on Intel® Arc™ GPUs on their new release of ailia SDK and ailia DX Insight. As a result of our collaboration, Axell business users can

now experience enhanced performance when running AI workloads on Intel-powered AI PCs. We look forward to delivering more end user benefits by unlocking the power of Intel AI PCs and Axell technologies through our future collaboration."

In the future, Axell will contribute to the practical application of AI by optimizing the ailia SDK for the Intel platform with the cooperation of Intel.

About Axell

Axell is a cutting-edge technology company that maintains an integrated development system from advanced algorithm development to product commercialization in software and hardware development. In addition to designing and developing large-scale LSIs, the company contributes to business innovation through digital technology by implementing advanced technologies such as AI, cryptography, and blockchain technology in society.

https://www.axell.co.jp/

About ax

ax was established in May 2019 as a company promoting the AI business of the Axell Group (Headquarters: Chiyoda-ku, Tokyo, Representative: Akihiro Saito). In addition to providing the independently developed AI framework ailia SDK, it offers practical AI solutions to meet the diverse needs of clients, such as AI implementation consulting, learning support, and porting to various platforms.

https://axinc.jp/

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