

METI to invest 4 billion yen into EdgeCortex to develop AI semiconductors for open RAN



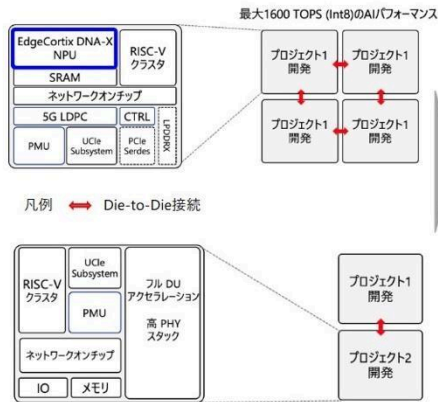
EdgeCortex's AI semiconductor "SAKURA-II." The company is developing a new "SAKURA-X" that combines chiplet integration (Source: EdgeCortex)

EdgeCortex, an AI (Artificial Intelligence) semiconductor startup based in Chuo, Tokyo, has received a 4 billion yen grant from the New Energy and Industrial Technology Development Organization (NEDO). The company will develop AI semiconductors with improved power efficiency for next generation 5G (fifth generation mobile communication system). The company plans to develop the semiconductors using Taiwan Semiconductor Manufacturing Company (TSMC) process technology and outsource production to the TSMC Kumamoto plant.

The company was selected for the "Post-5G Information and Communications System Infrastructure Strengthening Research and Development Project" by the Ministry of Economy, Trade and Industry, which oversees NEDO. The project will run for five years from December 2024 and will develop accelerators (dedicated processing circuits) for AI-RAN (radio access network) that will efficiently utilize communication base stations with AI. The aim is to resolve issues with the introduction of AI-RAN, such as power consumption and costs.

Using the AI semiconductors and RAN accelerator IP (Intellectual Property) that EdgeCortex is developing, the company will develop a chiplet-integrated semiconductor called "SAKURA-X." Chiplet integration refers to a performance improvement technology in which a semiconductor is designed by dividing it into multiple chips (chiplets) and making them function as if they were a single chip.

【プロジェクト1：SAKURA-X AIおよび部分DUアクセラレーター開発】



【プロジェクト2：SAKURA-X 完全DU (High PHY) アクセラレーターの開発】

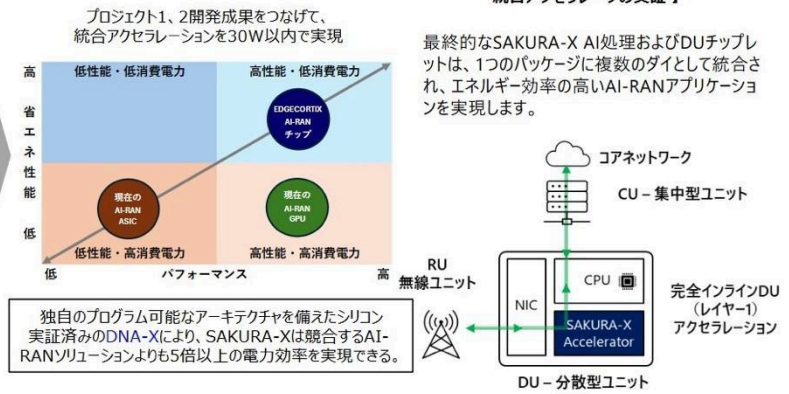
Chiplet integrated semiconductors for next generation 5G will be developed in three stages (Source: Ministry of Economy, Trade and Industry)

SAKURA-X aims to increase computing efficiency by more than five times compared to conventional semiconductors for AI-RAN. EdgeCortex's AI semiconductors are characterized by their ability to reconfigure data paths for each certain calculation, making them more power-efficient than GPUs (graphics processing units). By combining this accelerator technology with advanced AI-RAN functionality using chiplet integration, chip specifications can be optimized according to the function, further reducing power consumption.

It is expected to be used in Open RAN, which combines base stations from various vendors based on open specifications. The system is made up of radio units (RU), distributed units (DU), and centralized units (CU). Chiplet integrated semiconductors will be developed for the DU. EdgeCortex plans to use TSMC's 7nm generation and beyond process technology. TSMC's manufacturing subsidiary Japan Advanced Semiconductor Manufacturing (JASM, Kikuyo-machi, Kumamoto Prefecture) is considering outsourcing production to JASM's No. 2 Factory, which is scheduled to start operation in 2027.

EdgeCortex was founded in Japan in 2019 by Sakyasingha Dasgupta, a former engineer at IBM and Microsoft. In 2023, the company announced that it had developed accelerator technology for wireless communications in collaboration with SoftBank.

【プロジェクト3：O-RANシステム内のSAKURA-X AI-DU統合アクセラレータの実証】



最終的なSAKURA-X AI処理およびDUチップレットは、1つのパッケージに複数のダイとして統合され、エネルギー効率の高いAI-RANアプリケーションを実現します。

独自のプログラム可能なアーキテクチャを備えたシリコン実証済みのDNA-Xにより、SAKURA-Xは競合するAI-RANソリューションよりも5倍以上の電力効率を実現できる。

- Translation prepared by EdgeCortix.
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