

GIST and Nepes Co., Ltd. sign MOU for AI semiconductor collaboration... Heterojunction advanced packaging R&D and talent development

- On Monday, December 1st, President Kichul Lim and CEO Byung-koo Lee attended a meeting at GIST to discuss strategic collaborations aimed at strengthening regional semiconductor competitiveness, including the development of advanced heterojunction packaging processes for on-device AI, the establishment of research branches, joint R&D, and the cultivation of talented individuals

- The GIST Advanced AI Semiconductor Fab Center, built on a collaborative ecosystem between industry, academia, and research, will support advanced processes extending to on-device AI, mobility, and defense AI semiconductors, and will establish itself as a key hub for heterojunction processes



▲ Key officials from GIST and Nepes Co., Ltd. pose for a commemorative photo after signing the MOU at the MOU signing ceremony held in the GIST Administration Building conference room on Monday, December 1.

The Gwangju Institute of Science and Technology (GIST, President Kichul Lim) announced on Monday, December 1, in the GIST Administration Building conference room that it signed a Memorandum of Understanding (MOU) with Nepes Co., Ltd. (CEO Byung-koo Lee), a semiconductor advanced packaging company, to strengthen the competitiveness of heterojunction advanced packaging.

Starting in 1990 as a chemical company, Nepes has grown into a mid-sized company with a business portfolio spanning national strategic industries, including semiconductors, advanced materials, and battery materials. Recently, the company is attempting another round of innovation by incorporating AI and cloud technologies across the manufacturing industry.

This agreement combines GIST's advanced materials, processes, devices, and circuits-based AI semiconductor research capabilities with Nepes' advanced semiconductor packaging technology and

industrial expertise. This agreement aims to build a heterogeneous advanced packaging ecosystem essential for the future era of on-device AI semiconductors* and strengthen the competitiveness of the regional semiconductor industry.

The signing ceremony was attended by GIST President Kichul Lim, Vice President for Public Affairs Yonghwa Chung, International and Public Affairs Dean Jae Gwan Kim, Director of the Advanced AI Semiconductor Fab Center Hyeon-Jin Shin, and Professor Dong-Seon Lee of the Department of Semiconductor Engineering. Nepes CEO Byung-koo Lee, Executive Director In-soo Kang, and Senior Vice President Hyun-sik Kim also attended to discuss future cooperation.

* on-device AI semiconductors: These next-generation semiconductors are designed to perform AI computations directly within devices such as smartphones, autonomous vehicles, robots, and Internet of Things (IoT) devices. They feature low latency and high security because they process data on-device rather than sending it to an external server. By reducing network dependency, they reduce power consumption and ensure cost efficiency, making them increasingly important with the proliferation of generative AI and the rise of hyper-connected devices.

Based on this agreement, the two organizations will pursue the establishment of a research branch within the GIST Advanced AI Semiconductor Fab Center and expand joint research and talent development programs.

First, they will establish a mid- to long-term strategy and information sharing system for the establishment of the Advanced AI Semiconductor Fab Center to strengthen the foundation for semiconductor industry growth. They plan to link GIST's research infrastructure with Nepes' industrial expertise to establish a collaborative model that fosters a cyclical relationship between research, education, and industry.

Furthermore, they will fully launch joint research and development (R&D) to strengthen AI semiconductor competitiveness and foster an integrated research ecosystem that connects basic research to industrialization.

They also plan to continue fostering specialized talent and disseminating research results by jointly operating education and training programs, regularizing technology exchanges, and expanding industry-academia networks.

GIST President Kichul Lim stated, "GIST is expanding its core research capabilities in the fields of AI and semiconductors, continuously pursuing technological innovation and fostering talent who will lead future strategic industries." He added, "In particular, in the era of AI transformation, AI semiconductors are a key field that determines national security and new growth engines. Therefore, we anticipate that this agreement will combine Nepes' next-generation semiconductor technology with GIST's advanced research capabilities to produce technological achievements applicable to industrial settings."

Nepes CEO Byung-koo Lee stated, "With the full-fledged arrival of the AI era, the importance of AI semiconductors is growing. The on-device AI market, particularly after 2028, will open up significant opportunities for the domestic industry. We are deeply honored to be developing Nepes' advanced packaging technology with GIST and pursuing research collaborations."



▲ (From right) GIST President Kichul Lim and Nepes CEO Byung-koo Lee exchange pleasantries and take a commemorative photo in the GIST President's Office prior to the signing ceremony on Monday, December 1.

Meanwhile, the GIST Advanced AI Semiconductor Fab Center, officially launched in June of this year, is expanding its scope of collaboration with the goal of establishing a one-stop next-generation packaging ecosystem.

The center has signed an agreement with the Chonnam National University Semiconductor Research Institute to strengthen process and equipment integration. It is also working with ArtLab, Inc., a company with high-precision analysis and reliability assessment capabilities, to build an integrated packaging testbed that encompasses process, analysis, reliability assessment, and prototype production. Furthermore, the center plans to expand its industrial ecosystem to include on-device AI, mobility, defense, and autonomous driving semiconductors through collaborations with local driving simulator infrastructure and mobility industrial complexes.

Based on this foundation of cooperation, the GIST Advanced AI Semiconductor Fab Center is expected to lead the advanced post-processing ecosystem and become a key hub driving the competitiveness of next-generation AI semiconductors.