GIST Changhwan Kim, Ph.D. candidate in the Department of Electrical Engineering and Computer Science, wins the 'Top 5% Excellent Paper Award' at the world's top academic conference in the field of display

- Department of Electrical Engineering and Computer Science student Changhwan Kim (advised by Professor Minjae Lee) proposes next-generation driving chip circuit structure for mobile displays and wins SID Display Week 2025 'Best Paper Award'

- Display accuracy and image quality drastically improved through precision signal correction technology and high-speed driving circuit development

▲ (From left) GIST Professor Minjae Lee and PhD student Changhwan Kim

The Gwangju Institute of Science and Technology (GIST, President Kichul Lim) announced that Changhwan Kim, a doctoral student in the Department of Electrical Engineering and Computer Science (advisor Professor Minjae Lee), won the 'Distinguished Paper Award' at 'SID Display Week 2025' hosted by SID (Society for Information Display), the world's most prestigious international academic society in the display field.

The 'Distinguished Paper Award' is awarded by SID to papers with outstanding technical achievements within the top 5% among hundreds of papers published each year, and is only given to research with high academic contribution and industrial impact.

Through this paper (Paper title: Effective 10-bit OLED Driver IC with 11-bit DAC, Double Capacitor-Coupled Adder, and Offset Calibration for Enhanced Panel Driving), student Changhwan Kim proposed a new circuit structure that can significantly improve the performance of display driver ICs for mobile displays.

To reduce errors that occur during display operation, a circuit structure (Double Capacitor-Coupled Adder) that calculates signals more accurately using two capacitors was introduced, and a technology (Offset Calibration) that automatically corrects minute errors in the circuit was implemented.

This greatly improved the display's expression accuracy and image quality, and also improved the product's performance.

In addition, the new circuit (Source Driver IC) developed by student Changhwan Kim is a structure that can simultaneously perform input signal sampling and output processing, so it can operate accurately even in slow screen switching situations and respond immediately to signal changes.

Accordingly, the screen operation time was improved to 2.0 microseconds (μs), the signal transmission speed was improved to 9.9 volts per microsecond (V/μs), and the power efficiency was increased and the screen uniformity was improved.

Student Changhwan Kim said, "It is a great honor to have my research achievements recognized by a world-renowned academic society," and added, "I would like to continue to contribute to the advancement of next-generation display technology through the development of precise compensation technology and high-performance circuit structures."

Meanwhile, SID Display Week 2025 is an international academic conference recognized as the world's most prestigious in the display field, and was held from May 11 to 16 this year at the McEnery Convention Center in San Jose, California, USA. This event was attended by over 7,000 experts and industry insiders from around the world, sharing the latest technologies and research results.

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