# National Yang Ming Chiao Tung University Students Win Diamond Award at 22nd Macronix Golden Silicon Awards

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Macronix Golden Silicon Award – The Semiconductor Design and Application Competition is the country's largest and oldest competition with the highest amount of prize money for students in the semiconductor field. This year marks the 22nd year of the competition, which was participated by 275 teams from 38 colleges and universities. The award ceremony was held on July 30. Of the 17 award-winning works, nine were submitted by NYCU students. Furthermore, one of the NYCU teams won the most prestigious prize, the Diamond Award (Design Category), and the Best Creativity Award, making NYCU the biggest winner at the competition again (the university won two Golden Awards, one Bronze Award, one Best Creativity Award [Design Category], and one Golden Award [Application Category] at the 21st Macronix Golden Silicon Awards).

The Diamond Award winners in the Design Category were Yi-Xuan Zhong and Cheng-Long Li, who jointly developed "A Phase-Noise Measurement Circuit Without a Reference Clock and with Self-Referencing Background Correction" under the guidance of Professor Wei-Ren Chen. Their work was a response to the 5G era of high-speed data transmission, the miniaturization of manufacturing processes, and the growing demand for faster system operation and data throughput; the work also provides solutions for noise-related problems due to the high-speed transmission of electrical signals. The built-in on-chip phase-noise measurement circuit, which has a self-debugging function, was developed by the team and won both the Diamond Award, the most prestigious award in the Design Category, and the Best Creativity Award.


*"A Phase-Noise Measurement Circuit Without A Reference Clock and with Self-referencing Background Correction" wins the Diamond Award (Design Category) and the Best Creativity Award.*

The Silver Award in the Design Category went to "A 400-V to 48-V DC Converter Designed with GaN Single Chips that Incorporate the Latest Fast Charging Technology for Electric Vehicles and USBs," which was developed jointly by Zi-Wen Wang (the team leader), Si-Yi Li, Ya-Ting Xu, and Yu-Chen Guo under the guidance of Professor Ke-Hong Chen. Wang won an Honorable Mention at the Macronix Science Awards during his high school years. As a senior student, he worked with his graduate school peers to win the Silver Award at Macronix Gold Silicon Awards, setting yet another record of winning a Macronix Science Award and subsequently the most prestigious prize at the Macronix Gold Silicon Awards. Therefore, he is a model example of the intergenerational transmission of scientific knowledge and skills promoted by the Macronix Education Foundation.


*"A 400-V to 48-V DC Converter Designed with GaN Single Chips that Incorporate the Latest Fast Charging Technology for Electric Vehicles and USBs" wins the Silver Award in the Design Category.*

The Bronze Jury Award for the Design Category went to "A Double-Loop Nested Receiver with A High Frequency Bandwidth (103fJ/b/Db10-26 Gbps) and High Noise Tolerance," which was developed by Yu-Ping Huang and Yao-Jia Liu, who were led by Professor Wei-Ren Chen. The Bronze Jury Award for the Application Category went to "AI-based Intelligent Solid-State LiDAR Sensing System," which was developed by Guan-Zhou Chen, An-Tai Xiao, Wei-Chi Wang, and Han-Chun Chen, who were led by Professor Jun-Yin Guo and Professor Jia-Ming Tsai.