

INVENT a CHIP 2025: Young talents develop microchips with AI

- **VDE and BMFTR announce winners of INVENT a CHIP 2025**
- **Final held as part of the MicroSystemTechnology Congress in Duisburg**
- **Around 1,100 school students from all over Germany took part**
- **Promoting young talent in STEM for AI and microelectronics innovations**

(Duisburg/Frankfurt am Main, October 28, 2025) The winners of the nationwide INVENT a CHIP competition organized by the Federal Ministry of Research, Technology, and Space (BMFTR) and the VDE Association for Electrical, Electronic & Information Technologies have been announced. They were honored in Duisburg as part of the MicroSystemTechnology Congress. As part of the student competition, the award-winning young people designed microchips that recognize specified words – known as wake words – as quickly and accurately as possible using a neural network. The students used a development board (FPGA) to implement and improve their AI speech recognition system.

First place, with a prize of 2,000 euros, went to Emil Kroisandt (16) from the Gymnasium an der Stadtmauer Gymnasium in Bad Kreuznach. "The best thing for me was seeing how the FPGA board was able to classify the words correctly," recalls the INVENT a CHIP winner. Second place and prize money of 1,500 euros went to Ben Kleefuß (17) from the Städtisches Gymnasium Rheinbach. "I am proud of my optimizations in training, which reduced the runtime and dramatically increased accuracy," he says. Third place, with prize money of 1,000 euros, went to Magnus Schlinsog (17) from Humboldt Gymnasium in Potsdam. "I was able to watch how the AI became more accurate in its task step by step and how that was reflected on my chip," he says.

Germany seeks young talent in technology

The goal of INVENT a CHIP is to ensure that Germany can continue to rely on its own young

talent for future technologies. "In this competition, we see students developing STEM skills at an early age, understanding AI technologies, and designing complex hardware solutions themselves. It's a perfect introduction to the technologies of the future," says Dorothee Bär, Federal Minister for Research, Technology, and Space (BMFTR).

From challenge to chip design

The competition, which took place for the 24th time this year, is aimed at students in grades 9 to 13. Around 1,100 participants from all over Germany competed against each other in three stages: They solved an IaC quiz and mastered the IaC challenge with step-by-step online tasks that led them from logic gates to their own hardware programs with AI applications. The 25 best participants finally went to the IaC Camp, a four-day workshop at Leibniz University Hannover. Anton Wagner (16) from Gymnasium Borbeck in Essen praised the exchange: "I enjoyed networking with other tech-savvy people and learning from professionals how to use FPGAs myself," he said.

Practical, digital, future-oriented

"Our INVENT a CHIP competition shows young people how exciting working with microelectronics and AI can be. They learn how to go from initial logic circuits to complete chips – an area that is otherwise often only taught at university. At the same time, they discover how STEM subjects form the basis for innovative technologies that change our lives," says VDE President Alf Henryk Wulf.

Chip design is highly complex – and is not normally on the school curriculum. But at INVENT a CHIP, students are already venturing into this challenging technology. Instead of writing software commands, as in computer science classes, they design functions directly in the hardware: as circuits made up of electrical signals and logic components. With the help of so-called FPGA boards – programmable electronic construction kits – they bring their own speech recognition circuits directly onto the chip. This is an opportunity that winner Emil Kroisandt seized: "I wanted to use this competition to learn about an area that goes beyond computer science," he says. He can now well imagine studying electrical engineering, computer science, or cybersecurity in the near future.

Tomorrow's technical talents

"Artificial intelligence and microelectronics are key technologies of our time. We need bright minds to develop these technologies responsibly. INVENT a CHIP offers young people the opportunity to implement their own AI projects and learn about career prospects in chip development," explains VDE President Wulf.

The ideas of the students in fourth to tenth place were also honored. They each receive 500 euros in prize money from INVENT a CHIP, and all prize winners also receive contacts to

industry and universities, are nominated for the German National Academic Foundation, and can complete a multi-day internship at Bosch in Reutlingen.

INVENT a CHIP is funded by the Federal Ministry of Research, Technology, and Space (BMFTR). Numerous sponsors also support the competition: Bosch, Cologne Chip, GlobalFoundries, Infineon, and Siemens.

The winners of INVENT a CHIP 2025 at a glance

Emil Kroisandt (16), Gymnasium an der Stadtmauer in Bad Kreuznach, 1st place (2,000 euros)

Ben Kleefuß (17), Städtisches Gymnasium Rheinbach, 2nd place (1,500 euros)

Magnus Schlinsog (17), Humboldt-Gymnasium in Potsdam, 3rd place (1,000 euros)

Nils Mathis Laube (18), Georg-Büchner-Gymnasium in Bad Vilbel, 4th place (500 euros)

Leon Delong (17), Louisenlund High School in Güby, 5th place (500 euros)

Kilian Becker (16), Kurfürst-Friedrich-Gymnasium in Heidelberg, 6th place (500 euros)

Jonas Stein (17), Gymnasium Bad Königshofen, 7th place (500 euros)

Carlo Böttger (18), Humboldtschule in Leipzig, 8th place (500 euros)

Anton Wagner (16), Borbeck High School in Essen, 9th place (500 euros)

Linus Buda (19), Hans-Purmann-Gymnasium in Speyer, 10th place (500 euros)

About VDE:

VDE, one of the largest technology organizations in Europe, has been regarded as a synonym for innovation and technological progress for more than 130 years. VDE is the only organization in the world that combines science, standardization, testing, certification, and application consulting under one umbrella. The VDE mark has been synonymous with the highest safety standards and consumer protection for more than 100 years.

Our passion is the advancement of technology, the next generation of engineers and technologists, and lifelong learning and career development “on the job”. Within the VDE network more than 2,000 employees at over 60 locations worldwide, more than 100,000 honorary experts, and around 1,500 companies are dedicated to ensuring a future worth living: networked, digital, electrical.

Shaping the e-dialistic future.

The VDE (VDE Association for Electrical, Electronic & Information Technologies) is headquartered in Frankfurt am Main. For more information, visit www.vde.com

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