



TRUMPF ups investment in quantum start-up

Q.ANT

Company embarks on development of quantum computer chips, plans to fabricate chips in Ulm // New process enables quantum computers to be used under everyday conditions // “This investment paves the way for German-made quantum computer chips,” says TRUMPF CTO Leibinger

Ditzingen, Germany, September 16, 2021 – High-tech company TRUMPF is boosting its support for its wholly owned subsidiary Q.ANT with a new eight-figure investment. The new funding will allow the start-up to venture into the development and production of quantum computer chips. Q.ANT has developed a photonic chip process that is able to create highly specialized optical channels on conventional silicon chips. This process will enable today’s established electronic mainframe computers to be equipped with processors that use cutting-edge quantum technology.

“Q.ANT developers have succeeded in linking the electronic world to the realm of quantum optics. This new investment is the logical next step on our journey toward developing and fabricating German-made quantum computer chips. Only by taking quick, bold and decisive action now to promote quantum technologies can we ensure that Germany is able to exploit its potential as a major industrial hub and stay ahead of its international competitors,” says Peter Leibinger, Chief Technology Officer at TRUMPF. The goal is to develop a fully functional quantum chip in five years or less that will enhance today's computers and make them more powerful.

Deployable in conventional computer centers

“The various test scenarios we’ve run show that our technology will enable quantum computer chips to be used in conventional computer centers in the future, because they require neither particularly complex cooling nor a vibration-free environment. Our fabrication process is simple compared to that of other quantum computer platforms, and it allows us to generate a large number of quantum bits. Quantum computers need large numbers of these elementary logical units to deliver truly high-performance computing power, so this new process gives us a major competitive advantage on the technology side. We’re



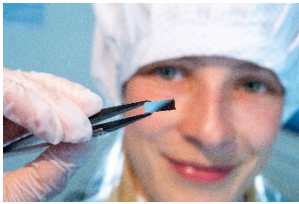
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currently talking to strategic partners from various industries to get real-world applications in the pipeline as quickly as possible,” says Q.ANT CEO Michael Förtsch. Headquartered in Stuttgart-Vaihingen, the start-up works with chipmakers, IT equipment suppliers and international industrial corporations. Q.ANT currently employs 20 people but expects this figure to rise to 120 by the end of next year.

Plans to fabricate chips at TRUMPF Photonic Components

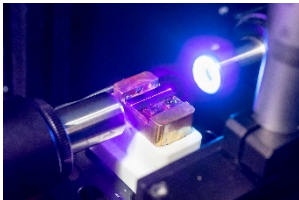
TRUMPF is also planning further investments in its wholly owned subsidiary TRUMPF Photonic Components, based in Ulm. This is where Q.ANT’s quantum computer chips will ultimately be fabricated. TRUMPF is already planning to expand the Ulm site’s existing cleanroom fabrication facilities for diode lasers by adding machines and equipment for the fabrication of quantum computer chips. “As an established manufacturer of components for the semiconductor industry, we offer solid expertise, a strong network of partners and cutting-edge production facilities. That’s the perfect set-up for fabricating quantum computer chips,” says Berthold Schmidt, managing director of TRUMPF Photonic Components. Q.ANT is on track to develop chip components for quantum computers by the end of the fiscal year in June 2022. These components will be capable of creating, controlling and manipulating quanta. This is an important step on the path toward creating the first prototype of a quantum computer chip.

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QANT_Chips

Q.ANT has succeeded in integrating highly specialized light channels into silicon chips. The photonic chips are to be used in the future for data transmission in quantum computers.



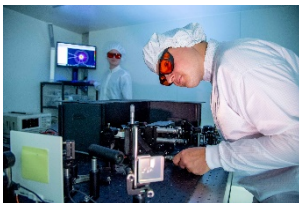
QANT_Lichtknaele__light_channels

The light channels of a photonic chip are tested in a Q.ANT test bench. The light channels are intended to ensure high computing power in quantum computers in the future.



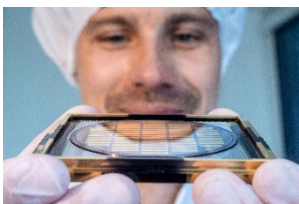
QANT_Photonischer_Chip__photonic_chip

A Q.ANT engineer prepares a photonic chip for the next step in the process.



QANT_Qualitaetskontrolle__quality_control

A Q.ANT employee checks the quality of the light-guiding paths of a photonic chip on a system.



QANT_Wafer

A Q.ANT employee shows a wafer from which photonic chips are cut.





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About TRUMPF

TRUMPF is a high-tech company offering manufacturing solutions in the fields of machine tools and laser technology. We drive digital connectivity in manufacturing through consulting, platform products and software. TRUMPF is a technology and market leader in highly versatile machine tools for sheet metal processing and in the field of industrial lasers.

In 2020/21, the company employed some 14,800 people and generated sales of 3.5 billion euros (preliminary figures). With over 70 subsidiaries, the TRUMPF Group is represented in nearly every European country as well as in North America, South America and Asia. The company has production facilities in Austria, China, the Czech Republic, France, Germany, Italy, Japan, Mexico, Poland, Switzerland, the United Kingdom and the United States.

Find out more about TRUMPF at: www.trumpf.com

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