



## Fact sheet

# How EUV lithography will change our day-to-day lives

Smart connected factories, cities and homes. Automated cars. Intelligent pocket-sized assistants. Increasingly advanced use cases such as these are demanding a great deal from tech – and above all, more computing power. The engine room of the digital world, the computer chip, will have to do a lot more with a lot less to handle increasing amounts of data at faster speeds and provide more functions while consuming minimum energy. EUV lithography puts these scenarios within reach. Some of this tech is already at our fingertips, for example, in smartphones. Other applications such as fully autonomous cars may seem like the stuff of a distant future, but they are edging closer with each passing year.

### Three applications that benefit from EUV lithography:

#### 1. Smartphones:

State-of-the-art smartphones and their remarkable functions would hardly be producible without EUV lasers. For example, many devices on the market today feature automatic face recognition. This type of smartphone uses its front camera to determine various features of the owner's face, such as the distance between the eyes. When a person picks up the phone, a program compares the detected information with stored data. If the phone recognizes its owner, it automatically unlocks itself. Increasingly powerful microchips have enabled researchers to make enormous strides in improving automatic facial recognition in recent years. Today, these programs run reliably not only on smartphones. They also figure prominently at airports, for example.

#### 2. AI-powered virtual assistants:

Voice-actuated assistants and chat bots are making working life easier for many, particularly customer service staff. Integrated into websites, they are usually able to answer our questions. A human service rep has to intercede only when we want something these virtual assistants cannot do for us. Chat bots are increasingly working with artificial intelligence, an improvement that comes courtesy of EUV. For example, AI can help these virtual assistants properly interpret ambiguous and misspelled words. Chat bots learn from their mistakes and our feedback, so the longer they are in use, the better they will get. We need tremendous computing power to process all this data in scant seconds. EUV lithography can help us create the memory chips required to store this constantly growing dataset and elevate chat bots to a new level of performance.

#### 3. Automated cars:

Traffic is not always predictable. This is why a self-driving car has to do more than merely brake and steer. It must be able to assess and anticipate situations



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independently and correctly, and drive with foresight. That level of automated driving has yet to be achieved in the real world, but EUV is putting it within reach. The many sensors and cameras that capture detailed ambient data are among the most important components of automated driving. They provide information about the situation and environment. The system compares it to knowledge stored in the database to ensure the car responds properly. It learns with every new situation. High-performance microchips produced with EUV are able to deliver the necessary data to the system at the required speed.



### About TRUMPF

TRUMPF is a high-tech company offering manufacturing solutions in the fields of machine tools and laser technology. The Company drives 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 2019/20, the company employed some 14,300 people and generated sales of about 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](http://www.trumpf.com)

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