



Xelera Technologies

TURBO FOR APPLICATIONS

Companies' demands on IT resources are constantly increasing: the performance of traditional processors is often not sufficient to perform complex calculations for real-time applications. For example, when it comes to controlling industrial robots without any delays, reacting immediately to customer behavior or calculating predictive models based on huge amounts of data in real time.

So what can be done to meet the growing demand for high-performance IT? Xelera Technologies has one answer: The start-up has specialized in Field Programmable Gate Arrays (FPGAs) – hardware cards whose functions are freely programmable. The Darmstadt-based company considerably accelerates enterprise applications.

In fact, Xelera's IT experts can accelerate applications by up to 100 times. This even works for applications that are not designed to work with FPGA cards, such as data analysis software like Apache Spark. FPGA flavors from the Open Telekom Cloud serve as the technical basis.

AT A GLANCE

The Task: The market demands ever more powerful IT resources to perform computing operations in real time. Conventional hardware is often too weak for this. However, most companies lack the necessary expertise for acceleration using Field Programmable Gate Arrays (FPGAs).

The Solution: Xelera middleware and IT resources from the Open Telekom Cloud. The start-up relies on the FPGA flavor fp1c.2xlarge and the large memory flavor e2.3xlarge from the Open Telekom Cloud's Elastic Cloud Server offering, which is hosted in highly secure data centers in Germany.

The Advantages: Using the resources from the Open Telekom Cloud, Xelera can spontaneously implement individual customer requirements at any time. Applications are accelerated by up to a factor of 100. Companies don't need explicit FPGA know-how and can use the Xelera solution as needed.



LIFE IS FOR SHARING.

THE CUSTOMER: XELERA

Technology always awakens new desires: Companies want to automate vehicles and robots, carry out market forecasts and risk calculations with huge amounts of data, and analyze their customers' behavior – preferably in real time. But how can such demands be implemented without a massive increase in costs and complexity? This was the question that a group of computer scientists at the Darmstadt Technical University (TU) asked themselves. They found a solution in freely programmable circuits, so-called Field Programmable Gate Arrays – or FPGAs for short – and in April 2018 they founded the Xelera start-up.

“Most companies don't have the necessary know-how to use FPGAs profitably. In addition, individual configuration costs time and money,” says Felix Winterstein. Together with his colleagues Andreas Duffner, Andrea Suardi and Alexander Lange, he developed a middleware that functions as a hardware-independent interface to FPGA platforms – and thus ignites the application turbo. Depending on the scenario, applications can be accelerated by up to 100 times.

THE CHALLENGE

However, FPGA hardware cards are expensive IT components. In order to benefit from hardware acceleration without having to purchase, maintain and service new hardware, Xelera wanted to implement its middleware not only as an on-premises solution but also as a cloud solution. In addition, the start-up wanted to use cloud FPGAs to further develop its own solution and to demonstrate its performance to potential customers.

THE SOLUTION

Xelera avails of FPGAs on-demand from the Open Telekom Cloud, which is hosted in highly secure data centers in the state of Saxony-Anhalt. The founders use the large memory flavor e2.3xlarge and the FPGA flavor fp1c.2xlarge from the Elastic Cloud Server range. Further flavors and Object Based Storage (OBS) will be added in the future.

THE CUSTOMER BENEFITS

The start-up regularly uses the virtual cloud resources for demo purposes in its talks with customers, allowing it to demonstrate its solution's potential any time and place that there's an Internet connection. Felix Winterstein and his colleagues configure the middleware according to the customer's application scenario. “We can also



A winner in the Economics Ministry's start-up competition: Andreas Duffner, Felix Winterstein, Alexander Lange and Andrea Suardi (from left to right) from FPGA start-up Xelera

show spontaneously during a customer visit how our solution can accelerate applications running on SAP HANA environments for example,” says Felix Winterstein. Companies book their Xelera solution as a service and operate it in the cloud or in their own data center. They have no need to procure new hardware to do this.

Xelera relies on Telekom's fast network for the connection. This gives the start-up the best possible connectivity with very low latency for business-critical real-time applications such as the control of industrial robots. Xelera middleware users not only benefit from significantly faster applications and significantly shorter process run-times, but also relieve the server's processors – with the useful side effect that energy consumption is reduced by around a third.

X E L E R A

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