



Robert Bosch Venture Capital completes investment in USD 20 million Series B of Ferroelectric Memory

Advanced next-generation memory technology to keep up with data explosion and bandwidth requirements

November 17, 2020
PI 11226

- ▶ Robert Bosch Venture Capital invests in the Series B funding round led by M Ventures and imec.xpand.
- ▶ FMC is introducing the most advanced ferroelectric hafnium oxide based memory technology to deliver leading-edge non-volatile memories.
- ▶ Managing Director Dr. Ingo Ramesohl "FMC's technology offers unrivaled potential and is strategically relevant for a variety of Bosch products, in particular for embedded AI applications."

Stuttgart, Germany – Robert Bosch Venture Capital GmbH (RBVC), the venture capital arm of the Bosch Group, has completed an investment in Dresden (Germany) based Ferroelectric Memory GmbH (FMC) in a USD 20 million Series B funding round. FMC is developing an entirely new ultra-low-power and high performance memory technology for embedded and stand-alone memory. Standard Complementary Metal Oxide Semiconductor (CMOS) process compatibility enables best ease-of-integration into existing manufacturing processes. The Series B funding round is led by M Ventures, the corporate venture arm of Merck, and imec.xpand together with RBVC, SK Hynix and TEL Ventures. "Embedded AI applications for automotive and industry 4.0 use cases require massive memory for huge amounts of data to be processed" says Managing Director Dr. Ingo Ramesohl. "With near-zero power consumption and fast access speed, FMC's technology has unrivaled potential to improve inference and training on the edge."

Accelerated adoption of emerging Non-Volatile Memory

Current memory technologies are facing limits to their continued improvement while the need for higher density, lower latency, and lower power consumption are the primary factors that are propelling the adoption of emerging non-volatile memory (NVM). Market Research Firm Yole expects the market for emerging NVM to grow fast and reach USD 6.2bn by 2025. Especially with AI moving constantly to the edge, power consumption becomes a decisive criteria. "The rise

of AI, Internet of Things (IoT), Big Data, and 5G demands advanced next-generation memories that enable high speed and ultra-low power consumption, while being compatible with leading-edge CMOS logic processes guaranteeing reduced manufacturing costs,” said Ali Pourkeramati, CEO of FMC.

The company has already made significant progress in the development of its non-volatile memory technology promising to offer superior performance compared with state-of-the-art and emerging memory solutions. It is currently working closely with major semiconductor companies, as well as with foundries in the US, Europe, and Asia. The funding will accelerate the commercialization of FMC’s ferroelectric field-effect transistor (FeFET) and capacitor (FeCAP) technology into exponentially increasing markets like AI, IoT and data centers.

Transforming standard transistors and capacitors into non-volatile memory

FMC’s patented technology makes it simple to transform hafnium-oxide (HfO₂) into a ferroelectric memory cell. In other words, every standard CMOS transistor and capacitor can be turned into a NVM cell - a FeFET or FeCAP. FMC’s memory technology uses the ferroelectric properties of crystalline HfO₂. HfO₂ in its amorphous form is already the gate isolator material of every CMOS transistor from planar to FinFET. In addition to its high speed, ultra-low power, CMOS logic compatibility, reduced manufacturing cost, and extreme temperature stability, FMC’s FeFET technology provides complete magnetic immunity and high radiation resistance. FeFETs and FeCAPs can be integrated into CMOS production lines using existing equipment without the need for extra capital expenditures.

World class team and investors

The leadership team has extensive experience in the semiconductor and memory industry and is recognized as one of the leading teams in ferroelectric storage. The new set of investors led by M Ventures and imec.xpand, followed by RBVC, SK Hynix, TEL Ventures and existing investor eCapital, aims to support FMC throughout the whole semiconductor value-chain and enable the company to bring its advanced ferroelectric memory technology to the market.

Press photos: #3294812, #3294814, #3294816

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About RBVC GmbH

Robert Bosch Venture Capital GmbH (RBVC) is the corporate venture capital company of the Bosch Group, a leading global supplier of technology and services. RBVC invests worldwide in innovative start-up companies at all stages of their development. Its investment activities focus on technology companies working in areas of business of current and future relevance for Bosch, above all, automation and electrification, energy efficiency, enabling technologies, and healthcare systems. RBVC also invests in services and business models that are relevant to the above-mentioned areas of business.

Additional information is available at: www.rbvc.com

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Additional information is available online at www.bosch.com, www.iot.bosch.com, www.bosch-press.com, [www.twitter.com/BoschPresse](https://twitter.com/BoschPresse)

About Ferroelectric Memory GmbH

FMC has developed the most advanced ferroelectric hafnium oxide memory technology to deliver leading-edge non-volatile memory for future electronics and computing innovation. The company emerged from stealth mode in July 2018 and is currently working with major semiconductor companies for its embedded and stand-alone memory solution. Its ferroelectric field-effect transistor (FeFET) and capacitor (FeCAP) technology is simple, fast, low-power, and scalable, and has high-endurance with decades of data retention, suitable for a broad range of AI, IoT, edge, data center, and embedded applications. Additional information is available at: www.ferroelectric-memory.com