Facebook Open-Sources Artificial Intelligence Hardware Design For The First Time

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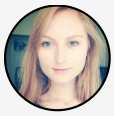

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A view of Big Sur, an artificial intelligence hardware design for large-scale computing that Facebook is open-sourcing. (Courtesy of Facebook)

Facebook FB +0.95% artificial intelligence, or AI, research unit has already open-sourced most of its code and research. Now for the first time, Facebook is sharing its own AI hardware design.

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The Menlo Park, Calif.-based company is open-sourcing the design of its newest server for large-scale artificial intelligence (AI) computing, which it plans to submit to the Open Compute Project, which shares designs of data center products among a number of large companies. The server, called "Big Sur," incorporates graphics processing units, or GPUs, the horsepower for handling large data sets. Big Sur is built for training neural networks, key to nearly any type of modern AI research, for example, projects related to language, text or video. The company said the move is noteworthy because more powerful computers, especially those powered by GPUs, have been critical to most of the recent significant advances in machine learning and AI.

"We've developed software that can read stories, answer questions about scenes, play games and even learn unspecified tasks through observing some examples," Kevin Lee and Serkan Piantino of Facebook AI Research (FAIR) said in a post. "But we realized that truly tackling these problems at scale required us to design our own systems. Today, we're unveiling our next-generation GPU-

based systems for training neural networks, which we've code-named 'Big Sur.'"

Facebook said it has a culture of support for open-source hardware and software and that it has benefited from hardware designs other companies have shared with Open Compute. A company spokesperson said the design could benefit startups or academics who need to build AI hardware, but who lack Facebook's resources. The company also said it is more than tripling its investment in GPU hardware and is increasingly focusing on research as Facebook uses AI more broadly across its services. The social media giant's decision to share Big Sur is expected to set a precedent of Facebook open-sourcing more AI hardware in the future, a company spokesperson said. Facebook has been testing Big Sur in its labs, but still also

uses its previous version of the hardware, the spokesperson said. Facebook built Big Sur with Quanta and Nvidia.

“We want to make it a lot easier for AI researchers to share techniques and technologies,” Lee and Piantino said. “As with all hardware systems that are released to the Open Compute Project, it’s our hope that others will be able to work with us to improve it. We believe that this open collaboration helps to foster innovation for future designs, and puts us all one step closer to building complex AI systems that bring this kind of innovation to our users.”

Big Sur is twice as fast as Facebook’s previous generation of AI hardware, meaning it can train twice as quickly and explore networks that are twice as large, Facebook said. The social media company also said Big Sur is more power- and cost-efficient than many high-performance computing systems, which tend to be expensive to maintain and use. While

many servers require cooling, Big Sur can run in free-air cooled data centers. Big Sur's design should also reduce production and manufacturing costs. It is built to be simple to fix and take apart, which can be done almost completely without tools. Components that tend to fail, such as hard drives, can be removed and replaced in seconds, Facebook said. Components that didn't get used often in the previous version were also removed, Facebook said.

Companies such as Microsoft, Intel and Cisco are also part of the Open Compute Project. Facebook's announcement coincides with the Neural Information Processing Systems conference in Montreal, Canada.

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