What's New: At the Microsoft Build conference today, Microsoft debuted Azure Machine Learning Hardware Accelerated Models powered by Project Brainwave integrated with the Microsoft Azure Machine Learning SDK for preview. Customers gain access to industry-leading artificial intelligence (AI) inferencing performance for their models using Azure's large-scale deployments of Intel® FPGA (field programmable gate array) technology.

“We are an integral technology provider for enabling AI through our deep collaboration with Microsoft. AI has the potential for a wide range of usage scenarios from training to inference, language recognition to image analysis, and Intel has the widest portfolio of hardware, software and tools to enable this full spectrum of workloads.”
– Daniel McNamara, corporate vice president and general manager of the Programmable Solutions Group at Intel Corporation

What It Means: Data scientists and developers can easily use deep neural networks (DNN) for a variety of real-time workloads, including those in manufacturing, retail and healthcare, across the world's largest accelerated cloud. They can train a model, then deploy it on Project Brainwave, leveraging Intel FPGAs, either in the cloud or on the edge.
**Why It's Important:** Project Brainwave unlocks the future of AI by unleashing programmable hardware using Intel FPGAs to deliver real-time AI. The FPGA-fueled architecture is economical and power-efficient, with a very high throughput that can run ResNet 50, an industry-standard DNN requiring almost 8 billion calculations, without batching. AI customers do not need to choose between high performance or low cost.

**How It Works:** Using the Azure Machine Learning SDK for Python, customers will be able to specialize image-recognition tasks by retraining ResNet 50-based models with their data. For real-time AI workloads, the compute intensity requires a dedicated hardware accelerator. Intel FPGAs allow Azure to configure the hardware exactly for the task to deliver peak performance.

"With today’s announcement, customers can now utilize Intel's FPGA and Intel Xeon technologies to use Microsoft’s stream of AI breakthroughs on both the cloud and the edge," said Doug Burger, distinguished engineer, Microsoft Corp. "These new capabilities will allow the integration of AI into real-time processes to transform businesses with the power of Microsoft Azure and Microsoft AI."

FPGAs can be further refined or completely repurposed based on the specific requirements of the Azure workload. Azure's architecture developed with Intel FPGA and Intel® Xeon® processors enables innovation with accelerated AI on the user's terms for custom software and hardware configuration. Customers can access the [Project Brainwave public preview](#).

A limited preview of Project Brainwave is available, enabling users to access Microsoft-designed Intel FPGA-based systems on-premises, acting as an Azure IOT Edge device and connecting into Azure IoT Hub.

**More on Intel and Microsoft:** To learn more about Intel's activities with Microsoft, come to [Microsoft Build](#), May 7-9 in Seattle, Washington and [Intel AI DevCon](#), May 23-24 in San Francisco.

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**Tags:** Field Programmable Gate Arrays, FPGA, machine learning

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  - SD Supercomputer Center Selects Habana, Intel for Efficient AI

- **April 6, 2021**
  - Intel Launches Its Most Advanced Performance Data Center Platform

- **April 1, 2021**
  - At John Deere, ‘Hard Iron Meets Artificial Intelligence’

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