

# Google's Cloud TPUs Increase Samsung Electronics' Bixby's AI Model Training Speed by 18x

Google Cloud TPUs significantly improve the training speed of Samsung's voice-powered digital assistant to deliver an improved user experience across multiple languages

Sunnyvale, Calif., December 10, 2020 -- Google Cloud's custom-designed machine learning accelerators, [Cloud Tensor Processing Units \(Cloud TPUs\)](#), have enabled Samsung to enhance [Bixby's](#) artificial intelligence (AI) model voice-recognition training speed by 18x.

Bixby, Samsung Electronics' intelligent voice assistant, is available in nine languages and on more than 160 million devices globally. Earlier this year, Samsung Electronics developed a new end-to-end (E2E) automatic speech recognition (ASR) engine for Bixby. The new ASR engine, based on the [Transformer neural network architecture](#), simplified the training process, but also required more training data. Rapid training for the machine learning model became critical to maintaining Bixby as more languages were introduced to the service. To address this, Samsung Electronics chose to adopt Cloud TPUs to meet and exceed performance requirements for Bixby.

Cloud TPU systems are built around custom-designed, machine learning application-specific integrated circuits (ASICs) designed to run cutting-edge machine learning models with AI services on Google Cloud. By adopting Cloud TPUs, which are optimized for deep learning, Samsung Electronics could rapidly process an influx of voice recognition data which has surged as the company has expanded Bixby's language services. After deploying Bixby on Cloud TPUs, Samsung Electronics experienced an 18x improvement in model training speed. Google Cloud machine learning experts also closely supported and cooperated with Samsung Electronics to help them respond to the increase in data.

"We are pleased to offer Google Cloud services to assist in the advancement of Samsung Electronics' artificial intelligence service, Bixby," said Choi Ki-young, president of Google Cloud Korea. "Google Cloud will continue to provide industry-leading infrastructure, solutions, and expertise to help our customers accelerate their digital transformation."

"At Samsung Electronics, we benefit from Google Cloud Premium Support—in local languages—and regional Technical Account Managers. Working hand in hand with both Support and the TAMs, we were able to evolve our technologies while reducing processing times to just half a day" said KG Kyoung-Gu Woo, VP of AI Development Group, Mobile Communications Business, Samsung Electronics. "We believe collaboration is key to offering consumers new mobile experiences they will love."

Companies interested in a technical deep dive on how Samsung Electronics deployed Cloud TPUs can visit the [Google Cloud blog](#) to learn more.

## About Google Cloud

Google Cloud provides enterprises with industry-leading infrastructure, platform capabilities, and industry-specific solutions. Enterprise-class cloud solutions leveraging Google's advanced technologies enable enterprises to run their businesses more efficiently and adapt to changing needs, enabling customers to build a foundation for the future. Customers in more than 150 countries turn to Google Cloud as their trusted partner to solve their most critical business problems.

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