



GLOBALFOUNDRIES and Mentor Collaborate to Launch New Semiconductor Verification Solution Embedded with Advanced Machine Learning Capabilities

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New industry-leading ML-enhanced DFM solution for designing on GF 12LP+ platform can provide customers with a more efficient experience and contribute to a faster time to market

Santa Clara, Calif., September 24, 2020 – GLOBALFOUNDRIES® (GF®), the world's leading specialty foundry, today announced at its annual Global Technology Conference (GTC) a significantly enhanced design for manufacturability (DFM) kit embedded with advanced machine learning (ML) capabilities. Developed in collaboration with Mentor, a Siemens business, the new industry-leading ML-enhanced DFM solution, built on Mentor's Calibre® nmDRC platform, can provide customers with a more effective design and development experience and, ultimately, contribute to a faster time to market.

The new ML-enhanced DFM kit is launching as an update to the process design kit (PDK) for GF's 12LP+ differentiated semiconductor solution. Built on a proven platform with a robust production ecosystem, 12LP+ is optimized for artificial intelligence (AI) training and inference applications, and is currently ready for production at GF's Fab 8 in Malta, New York.

GF's new ML-enhanced DFM solution is among the first of its kind in the industry. GF plans to roll out the capability to the PDKs of its 12LP and 22FDX® semiconductor platforms in Q4 2020.

"We are excited to launch this new enhancement, infused with advanced machine learning models, and provide our customers with a quicker overall DFM verification and an even more effective design experience – all toward the goal of successful prototyping and a faster time to market," said Jim Blatchford, vice president of Technology Enablement at GF. "Our close partnership with Mentor helped enable the new enhancement to be seamlessly integrated into our 12LP+ PDK, and we look forward to rolling out additional machine learning-infused capabilities in the PDKs for our other specialty semiconductor solutions."

"We are pleased to partner with GLOBALFOUNDRIES to incorporate machine learning based models into Calibre nmDRC for GF's 12LP+ platform," said Michael White, director of Physical Verification Product Management, Calibre Design Solutions, at Mentor. "Working together with GLOBALFOUNDRIES, we have incorporated machine learning into the design flow to help create a seamless transition for our mutual customers."

Following its founding in 2009, GF has pioneered a DFM checking platform, called DRC+, which combines pattern-matching tools from electronic design automation (EDA) software suited with a proprietary library of yield detractor patterns. DRC+ enables chip designers to preventively detect defective patterns, or hotspots, in early designs that could lead to manufacturing defects.

GF and Mentor have partnered to integrate GF-developed ML models into DRC+, to help amplify the ability of DRC+ to recognize new and previously unseen hotspot patterns and improve production yield. Trained by GF on silicon data collected during its manufacturing operations, the new ML-enhanced DFM kit has been validated and qualified to enable chip designers to more successfully discover and mitigate potential problems early in the design process.

Catching and addressing these hotspots in the development phase is critical for designers as they progress toward successful prototyping and scale manufacturing.

GF 12LP+ Ready for Production

Engineered to meet the specific needs of the fast-growing AI market, GF's 12LP+ offers best-in-class combination of performance, power, and area. Contributing to this are new features including an updated standard cell library, an interposer for 2.5D packaging, and a low-power 0.5V V_{min} SRAM bitcell that supports the low latency and power-efficient shuttling of data between the AI processors and memory.

12LP+ builds upon GF's established 14nm/ [12LP platform](#), of which GF has shipped more than one million wafers. By partnering closely and learning from AI customers, GF developed 12LP+ to provide greater differentiation and increased value for designers in the AI space while minimizing their development and production costs.

Driving the enhanced performance of 12LP+ are features including a 20-percent SoC-level logic performance boost over 12LP, and a 10-percent improvement in logic area scaling. These advancements are achieved in 12LP+ through its next-generation standard cell library with performance-driven area optimized components, single Fin cells, a new low-voltage SRAM bitcell, and improved analog layout design rules.

[Click here](#) to learn more about GF's 12LP+ specialized application solution.

About GF

GLOBALFOUNDRIES (GF) is the world's leading specialty foundry. GF delivers differentiated feature-rich solutions that enable its customers to develop innovative products for high-growth market segments. GF provides a broad range of platforms and features with a unique mix of design, development and fabrication services. With an at-scale manufacturing footprint spanning the U.S., Europe and Asia, GF has the flexibility and agility to meet the dynamic needs of customers across the globe. GF is owned by Mubadala Investment Company. For more information, visit www.globalfoundries.com.

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