AI edge accelerators using 22FDX™ FD-SOI and 12LP+/12LP FinFET

More power efficiency with 22FDX than current industry offerings.*

More leverage with AI optimized performance and power with 12LP/12LP+.

Performance and power-optimized edge SoC solutions

Explosive data growth and real-time data analysis drive the need for increased performance and power efficiency for such edge devices such as home security cameras, wearables and smart appliances. Purpose-built AI accelerators handle these challenges, significantly speeding up AI applications, such as inferencing at the edge, by enabling local processing instead of sending data to the cloud for analysis and response.

GlobalFoundries® (GF®) AI accelerator edge solutions are optimized to reduce latency and actionable response times, while enabling enhanced security and data privacy by managing data at the edge.

AI accelerator edge solutions at a glance‡

Solution	Platform	Key Features
12LP+ and 12LP	12 nm FinFET	• Excellent thermal performance for better overall quality and battery life • Same global routing capability as 7 nm • 12LP+ extends platform power and performance capabilities, and features a next-generation SC library and low-voltage SRAM
22FDX™	22FDX (planar FD-SOI)	• Highest digital performance, lowest dynamic power and best-in-class leakage power • Automotive grade 1 qualified

12LP+ and 12LP edge AI accelerator solutions

GF 12LP+ and 12LP solutions offer best-in-class performance, power and area for performance-driven (> 1 GHz) edge AI accelerator applications such as AC-powered devices with discrete AI chips. The 12LP+ solution builds upon GF's established 14LPP/12LP FinFET solutions, of which GF has shipped more than one million wafers.

Boost performance while minimizing power consumption:

12LP offers a superior combination of AI performance, power and area benefits, while 12LP+ takes those advantages to the next level with a 0.5 V Vmin SRAM bitcell for a 2X lower power at 1 GHz and a dual-work function FET that enables >20% faster logic performance or >40% lower poer compared to 12LP.

Optimize for AI acceleration:

12LP+/12LP offers more flexibility to leverage a design technology co-optimization business engagement to optimize for performance, power and area, offering an AI accelerator reference package to simplify and streamline chip design for faster time to market.

Leverage scaling and routing advantages:

12LP and 12LP+ deliver the same global routing capability of 7 nm solutions, reducing the need for smaller, costlier geometries. 12LP+ features a 10% improvement in logic area scaling over 12LP.

22FDX edge AI accelerator solutions

GF 22FDX solutions, in volume production since 2017, deliver the highest level of integration◊ and ultra-low power for low to mid-range (≤ 1 GHz) inference applications at the edge in battery-powered devices with embedded AI chips.

Tap into performance and power advantages:

22FDX is designed to deliver best-in-class digital performance, dynamic power and leakage power. Designers can take advantage of 0.5 V logic operation and an ultra low-power SRAM (1 pA/cell) to further reduce power consumption for power-sensitive edge applications.

Differentiate with confidence:

22FDX is auto grade 1 qualified and gives designers access to the industry's only body-bias ecosystem to help improve performance, latency and AI core energy efficiency. It also offers an eMRAM AI storage core that enables instant-on capability and that can reduce bitcell area by more than 2X compared to SRAM.

LEARN MORE

Contact Us

GF® AI accelerator solutions

12LP	12LP+	22FDX
Proven and robust offering with outstanding performance and area for cloud and edge AI inference.	A >20% increase in performance or a >40% decrease in power plus a 10% improvement in logic area scaling over base 12LP platform for cloud and edge AI inference.	Power-performance with highest level of integration◊ & ultra-low power (1 pA/cell) with 0.5 V logic operation for edge AI inference.

GF knows AI. Learn how GF's extensive AI accelerator solutions portfolio strengthens customers' leadership position at **gf.com/contact-us**

* Assumes typical power consumption of edge device is ten to hundreds of watts. 22FDX can achieve 20 milliwatts power consumption.

‡ For more information about platform availability and IP readiness, contact us at globalfoundries.com/contact-us.

◊ Compared to equivalent competitor nodes that use planar CMOS process technology.