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

## Performance and power-optimized edge SoC solutions

**Up to 1000x less power**

22FDX is dramatically more power efficient than current industry offerings.*

**Design smarter, not smaller**

Leverage AI-optimized performance and power advantages with 12LP/12LP+, without moving to a smaller node.



Explosive data growth and real-time data analysis drive the need for increased performance and power efficiency for 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<br>• Same global routing capability as 7 nm<br>• 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◊<br>• Automotive grade 1 qualified |

## 12LP+ and 12LP edge AI accelerator solutions

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+ can help you take those advantages to the next level with a 0.5 V $V_{min}$ 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 power compared to 12LP.

**Optimize for AI acceleration:** 12LP+/12LP give you the flexibility to leverage a design technology co-optimization business engagement to optimize for performance, power and area and offer an AI accelerator reference package to simplify and streamline chip design for faster time to market.

**Leverage scaling and routing advantages:** 12LP and 12LP+ offer 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

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, and 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**

## AI accelerator solutions from GF

| Solution/ benefits | 12LP: Proven and robust offering with outstanding performance and area for cloud and edge AI inference. | 12LP+: 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. |
|---|---|---|
| | 22FDX®: Power-performance with highest level of integration◊ & ultra-low power (1 pA/cell) with 0.5 V logic operation for edge AI inference. | |

Learn more about our differentiated portfolio of AI accelerator solutions at
**globalfoundries.com/contact-us**

**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.