



# AI cloud accelerators using 12LP and 12LP+

## Cost-efficient, innovative SoCs

### Design smarter, not smaller

- Leverage AI-optimized performance and power advantages—without moving to a smaller node.

### Get to market faster

- Best-in-class IP and third-party design and packaging ecosystem.

Explosive data growth has led to significant memory and power bottlenecks, from the data center to the edge. At the same time, the costs and complexities of moving to smaller lithography nodes are skyrocketing, while the performance and power advances associated with this scaling—which solution providers have typically relied on to address escalating requirements—have slowed.

12LP and 12LP+ AI accelerator solutions from GlobalFoundries® (GF®) can help solve these memory and power bottlenecks while speeding up AI applications. The two FinFET-based solutions offer 1 GHz+ performance, with purpose-specific AI innovations that provide significant power efficiency and area advantages. 12LP+ builds upon GF's established 14LPP/12LP FinFET solutions, of which GF has shipped more than one million wafers.

### 12LP and 12LP+ at a glance<sup>‡</sup>

Platform	Key Features
12 nm FinFET	Superior AI performance at low power
	Same global routing capability as 7 nm, at lower design and tape-out costs
	12LP+ extends platform power and performance benefits, offering a next-generation SC library and reducing total power by 50%* through a low-power MAC design and innovations that include a dual work-function gate and a burst-optimized, low-voltage SRAM bitcell <sup>‡</sup>


**Design smarter:**

12LP and 12LP+ deliver a superior combination of AI performance, power and area benefits without the need to migrate to smaller and much costlier geometries, while offering the same global routing capability as 7 nm solutions.


**Maximize performance, minimize power consumption:**

Customers are already leveraging GF's 12LP solution to achieve industry-leading power and performance benefits. 12LP+ helps designers take those advantages to the next level with optimized MAC designs, a 0.5 V  $V_{min}$  SRAM bitcell for 2X lower power at 1 GHz and a dual-work function FET that enables >20% faster logic performance or >40% lower power.\*


**Optimize with AI in mind:**

12LP and 12LP+ offers more flexibility to leverage a design technology co-optimization business engagement to fine-tune hardware specifically for AI applications and offer an AI accelerator reference package to simplify and streamline chip design.


**Differentiate and accelerate time to market:**

12LP and 12LP+ offer Tier 1 supplier I/O interfaces, while best-in-class IP and a robust third-party partner design ecosystem enable cost-efficient designs and quick-turn prototyping for lower NRE and faster time to production. A 2.5D interposer is available for customers using high-bandwidth memory (HBM2/2e).

**LEARN MORE**
**AI accelerator solutions from GF®**

Platform	12LP	12LP+	22FDX®
Benefits	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 <sup>‡</sup> and ultra-low power (1 pA/cell) with 0.5 V logic operation for edge AI inference.

**Contact Us**


Learn more about our differentiated portfolio of AI accelerator solutions at [gf.com/contact-us](https://gf.com/contact-us)

\* Compared to 12LP.

† For more information about platform availability and IP readiness, contact us at [gf.com/contact-us](https://gf.com/contact-us).

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

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