

# 14LPP

## 14nm FinFET Technology

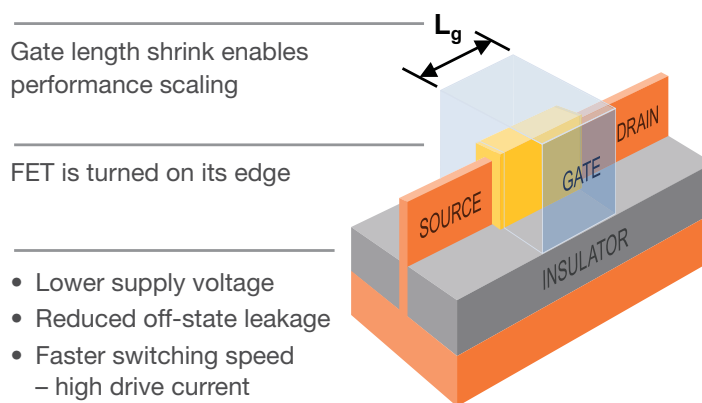
### Highlights

- 14nm FinFET technology
  - + Manufactured in state-of-the-art facilities in Saratoga County, New York
  - + Volume production in Computing, Networking, Mobile and Server applications
- Ideal for high-performance, power-efficient SoC applications
  - + Cloud / Data Center servers
  - + CPU and GPU
  - + High-end mobile processors
  - + Automotive ADAS
  - + Wired and wireless networking
  - + IoT edge computing
- Comprehensive design ecosystem
  - + Full foundation and complex IP libraries
  - + PDK and reference flows supported by major EDA and IP partners
  - + Robust DFM solutions
- Complete services and supply chain support
  - + Regularly scheduled MPWs
  - + Advanced packaging and test solutions, including 2.5/3D products

### Enabling *Connected Intelligence*

GLOBALFOUNDRIES 14LPP 14nm FinFET process technology platform is ideal for high-performance, power-efficient SoCs in demanding, high-volume applications.

3D FinFET transistor technology provides best-in-class performance and power with significant cost advantages from 14nm area scaling. 14LPP technology can provide up to 55% higher device performance and 60% lower total power compared to 28nm technologies.



### Target Applications and Solutions

| Mobile Apps Processor           | High Performance Compute & Networking |            |
|---------------------------------|---------------------------------------|------------|
| 60% power reduction             | 60% power reduction                   | 2x # cores |
| 80% higher performance, >2.2GHz | >3GHz maximum performance             |            |
| 45% area reduction              | 55% area reduction                    |            |
| ~2x output increase per wafer   | >56G SerDes, 32 channels              |            |

(max. benefit compared to 28nm technology)

## Technology Overview

- Twin-well CMOS bulk FinFET (4 Core device Vt's)
- Two gate dielectrics: thin (SG) and medium I/O (EG)
- Full suite of passive devices
- Optional MIM capacitor, Mx/Vx eFuse
- VDD: 0.8V nominal or 0.945V overdrive
- Standard temperature range: -40°C to 125°C

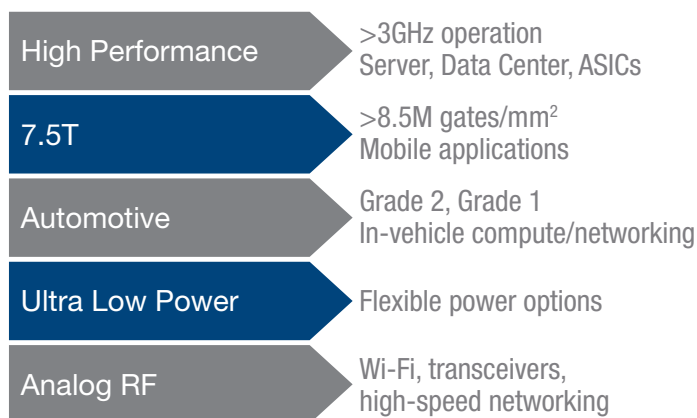
## IP Overview

The comprehensive 14LPP FinFET Platform IP portfolio includes a wide range of silicon-proven high performance, power-optimized solutions for a broad set of applications.

| Foundation IP   |                      |                       |
|---|----------------------|-----------------------|
| Standard Cell 10.5T                                     | Standard Cell 9T     | Standard Cell 7.5T    |
| GPIO / ESD  | PLL                  | Temp Sensor           |
| ROM Compiler  | SRAM Compiler/TCAM   |                       |
| Interface IP  |                      |                       |
| DDR3/4  | LPDDR3/4             | PCIe G1.1/2/3/4       |
| MIPI G1/2/3   | SATA I/II/III        | SerDes (6G-56G)       |
| USB2/3.x  | HDMI/DP              |                       |
| Memory  |                      |                       |
| High density memories                                   | NVM: Electrical Fuse | NVM: OTP              |
| SRAM Compiler/TCAM                                      | ROM Compiler         |                       |
| Processors  |                      | Analog / mixed-signal |
| Segment-specific (Cloud / Data Center, Networking, IoT) |                      |                       |

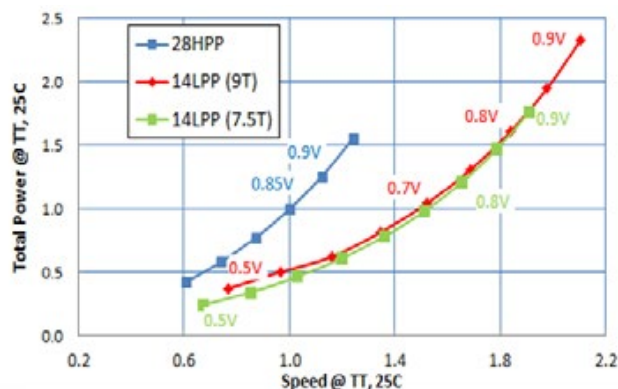
Contact GF for IP availability.

## Application-optimized Platform Extensions



## Performance, Power, Cost Advantages from 14nm Area Scaling

- Up to 55% performance improvement at iso power
- Up to 60% power reduction at iso frequency



## GLOBALSOLUTIONS® Design and Manufacturing Ecosystem

GLOBALSOLUTIONS is the sum of internal resources and external partners, combined into an ecosystem that efficiently enables the fastest time-to-volume for customers. This ecosystem includes partners in all aspects of design enablement and turnkey services, OPC and mask operations, and advanced capabilities in assembly solutions.



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