

14LPP

14nm FinFET Technology

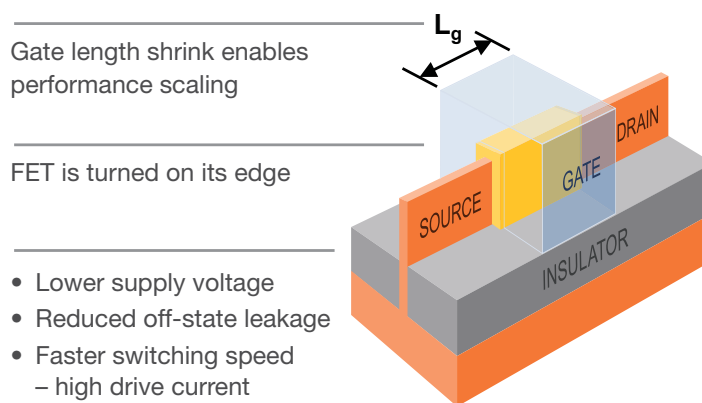
Highlights

- 14nm FinFET technology
 - + Manufactured in state-of-the-art facilities in Saratoga County, New York
 - + Volume production in Computing, Networking, Mobile and Server applications
 - + 12LP platform extension for higher performance, power and scaling by enabling an ultra-high density library
- 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

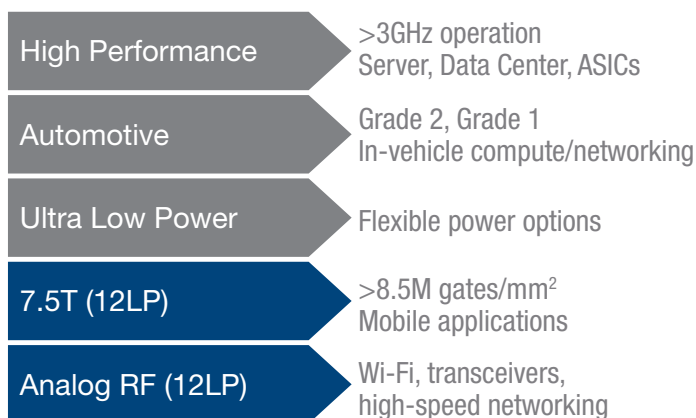
IP Overview

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		
Std Cell 10.5T	Std Cell 9T	Std Cell 7.5T (12LP)
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)		

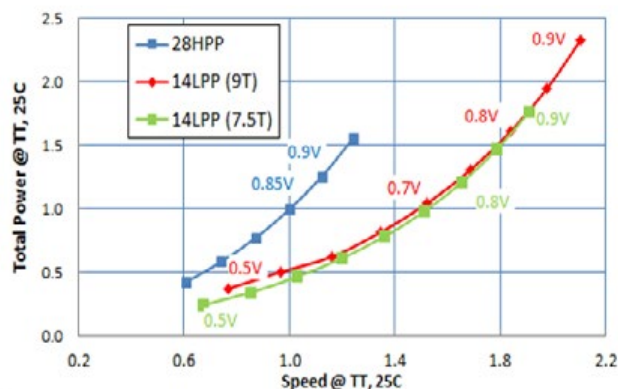
Contact GF for IP availability.

Application-optimized Platform Extensions



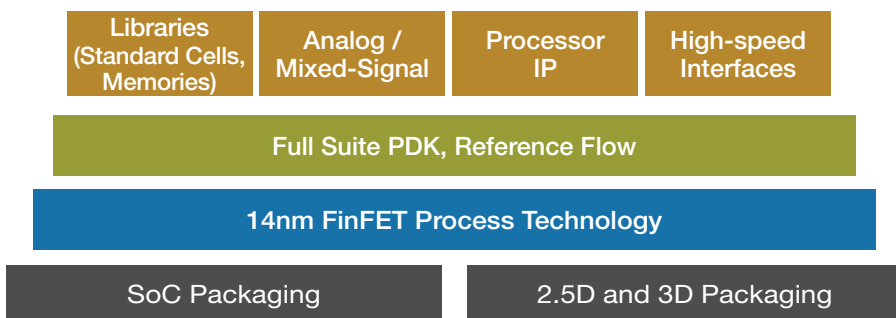
Performance, Power, Cost Advantages from 14nm Area Scaling

- 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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2600 Great America Way, Santa Clara, CA 95054 USA
Tel: +1 408-462-3900 globalfoundries.com/contact-us

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