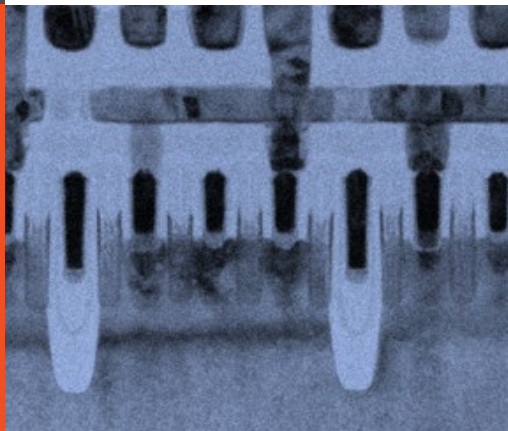




GLOBALFOUNDRIES®



# 7LP

## 7nm FinFET Technology

### Highlights

- 7nm FinFET technology
  - + 3<sup>rd</sup> generation FinFET process technology platform
  - + Manufactured in state-of-the-art facilities in Saratoga County, NY
- Ideal for high-performance, power-efficient SoC applications
  - + Cloud / Data Center servers
  - + CPU and GPU for VR
  - + High-end mobile processors
  - + Wired and wireless networking
  - + Automotive ADAS
  - + AI - DNN/CNN
- 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 2.5D and 3D products

### Enabling *Connected Intelligence*

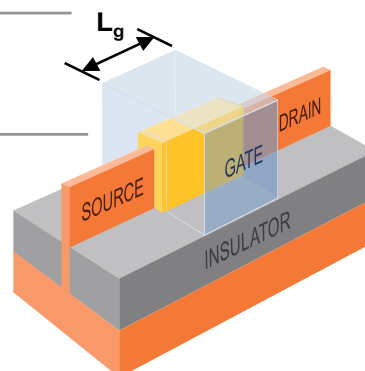
GLOBALFOUNDRIES 7LP 7nm FinFET process technology platform is ideal for high-performance, power-efficient SoCs in demanding, high-volume applications with balanced cost.

This technology provides world-class performance, power, area and cost advantages from 7nm scaling. Based on 3D FinFET transistor architecture and optical lithography with EUV compatibility at key levels, 7LP technology delivers more than twice the logic and SRAM density, and either >40% performance boost or >60% total power reduction, compared to 14nm foundry FinFET offerings.

Gate length shrink enables performance scaling

FET is turned on its edge

- Lower supply voltage
- Reduced off-state leakage
- Faster switching speed – high drive current



## Technology Overview

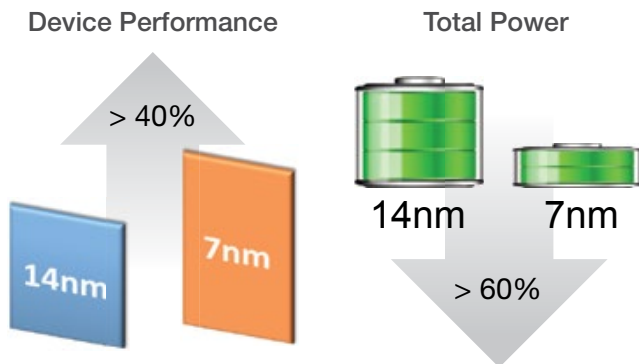
- Twin-well CMOS bulk FinFET
- 4 Core device Vt's
- Two gate dielectrics: thin (SG) and medium I/O (EG)
- Full suite of passive devices
- Optional MIM capacitor, eFuse
- VDD: 0.75V nominal or 0.85V overdrive
- Standard temperature range: -40°C to 125°C
- Optical lithography based process with EUV compatibility
- Up to 17 layers of metallization

## Performance, Power, Cost Advantage from 7nm Area Scaling

>40% performance improvement at iso power (vs. 14nm)

>60% power reduction at iso frequency (vs. 14nm)

Up to 30% lower die cost (vs. 14nm)



## Application-optimized Platform Extensions

- High Performance** → 5GHz operation  
Server, Data Center, ASICs
- 6T** → >17M gates/mm<sup>2</sup>  
for maximum scaling
- Automotive** → Grade 2 (in planning)  
In-vehicle compute/networking
- EUV** → For cycle time and process simplification

## IP Overview

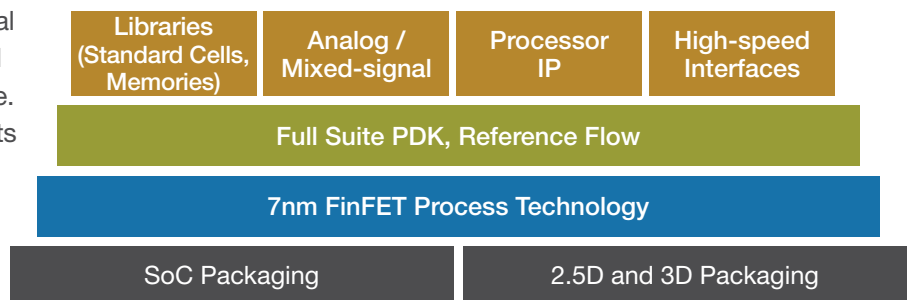
The comprehensive 7LP FinFET Platform IP portfolio includes a wide range of silicon-proven high performance, power-optimized solutions for a broad set of applications.

| Foundation IP                          |                               |                       |
|--|-------------------------------|-----------------------|
| Standard Cell 9T                       | Standard Cell 6T              |                       |
| GPIO / ESD                             | PLL                           | Temp & Voltage Sensor |
| ROM Compiler                           | SRAM Compiler / TCAM compiler |                       |
| Interface IP                           |                               |                       |
| DDR4/5                                 | LPDDR4                        | PCIe G1.1/2/3/4       |
| MIPI D-PHY/M-PHY                       | SATA I/II/III                 | USB2/3.x              |
| DP/HDMI/MHL 2.x                        | SERDES (6G-112G)              |                       |
| HBM2.0                                 | DAC                           | ADC                   |
| Memory                                 |                               |                       |
| High density memories                  | Electrical Fuse               | OTP                   |
| Single-port/Pseudo Two-port Dense SRAM |                               |                       |
| Processors                             |                               | Analog / mixed-signal |

Contact GF for IP availability.

## GLOBALSOLUTIONS® Design and Manufacturing Ecosystem

GLOBALSOLUTIONS is the sum of our internal resources and ecosystem partners, combined to efficiently enable the fastest time-to-volume. This ecosystem includes partners in all aspects of design enablement and turnkey services, OPC and mask operations, and advanced capabilities in assembly solutions.



**GLOBALFOUNDRIES®**

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