Picture Source: GLOBALFOUNDRIES Dresden

GLOBALFOUNDRIES 130, 90, 55, 45, 40, 28, 22nm PROTOTYPING AND VOLUME PRODUCTION

Through EUROPRACTICE-IC, customers from both academic and private sectors can access Multi-Project-Wafer and Volume Production services of GLOBALFOUNDRIES.

Why EUROPRACTICE?

- Affordable and easy access to Prototyping and Small Volume Production services for academia and industry.
- MPW (Multi-Project-Wafer) runs for various technologies, including ASICs, Photonics, MEMS and GaN.
- Advanced packaging, system integration solutions and test services.

Why GLOBALFOUNDRIES?

- The world's leading specialty foundry with the flexibility to meet the dynamic needs of clients.
- Broad range of platforms and features, such as RF CMOS, FDSOI, RFSOI, SiGe, FinFET, SiPh.
- Technology nodes ranging from 350nm down to 12nm.
- 22nm and 28nm nodes fabricated in Dresden, Germany.

Technology Highlights

GF 130LP and 130BCDlite

The highly configurable and production-proven 130nm platform solution enables integration of logic, RF, analog and non-volatile memory to provide a cost effective solution. 130LP technology is ideal for volume production serving Mobile Cellular, Consumer and Digital/RF SoC. 130BCDLite process is tailored for cost-effective mobile/consumer applications such as DC-DC, AC-DC, PMIC, Wireless and Quick Charging.

GF SiGe 8HP

GF's SiGe 8HP technology drawn at 130nm features low noise figures, high linearity, gain, breakdown and operating voltages, together with simplified impedance matching and excellent thermal stability. Advanced SiGe heterojunction bipolar transistors (HBTs) provide superior low-current and high-frequency performance while enabling the technology to operate at high junction temperatures.

GF SiPh 90WG

This 90nm silicon photonics technology features best-in-class performance in key parameters, including SOI waveguide loss, undercut thermal phase shifter, input/output single mode fiber fiber-to-chip coupling loss and optical return loss. Moreover, it has Mach-Zehnder Interferometer (MZI) and photodiode bandwidth.

GF 55LPe-RF and 55LPx

Built on the company's low power enhanced (LPe) platform, 55nm RFCMOS technology combines the benefits of a rich baseline logic technology and IP ecosystem with RF features and PDKs, enabling a seamless transition to digital logic SoCs with higher levels of RF integration. The 55nm Low Power Extended (LPx) platform is ideal for mixed-signal / RF applications with flexible mixed-technology options for RF, eFlash, high voltage and automotive.

GF 45RFSOI

45RFSOI takes advantage of a 45nm partially-depleted SOI server-class technology base that has been extensively evaluated for use in mmWave applications and in high volume production at multiple GF fabs since 2008. Today, this baseline process has RF-centric enablement, topped with device and technology additions, including thick copper and dielectric back-end-of-line (BEOL) features which enable 45RFSOI to handle the demanding performance requirements of 5G solutions.

GF 40LP-RF-mmWave

The GF 40LP process is aimed for power- and price-sensitive applications, such as mobile and wireless. In addtition, it has flexible mixed-technology options for RF, low voltage and automotive solutions. Using a multi-Vt baseline logic process, the 40nm LP-RF technology adds RF-specific features and provides mmWave coverage for active and passive elements.

GF 28SLP-RF

The 28nm Super Low Power (SLP) utilizes High-k Metal Gate (HKMG) "Gate First" technology and offers complete RF modelling for high performance RF-SoC applications. As a result, it provides superior Performance, Power, Area and Cost (PPAC) characteristics, optimized scalability (die size, design compatibility, performance) and manufacturability.

GF 22FDX

GF 22FDX employs 22nm Fully-Depleted Silicon-On-Insulator (FD-SOI) technology that delivers outstanding performance at extremely low power with the ability to operate at 0.4V ultra-low power and at 1pA per micron for ultra-low standby leakage. It has Integrated RF and mmWave devices for 5G architectural innovation and reduced system cost.

Technology Details

130BCDlite-Gen2

Core Voltage: 1.5V/5V/12V-30V
I/O Voltage: 1.5V/5V/12V-30V
Metal layers: 4 - 8
2 core device Vt's
Iso- and low $R_{ds(on)}$ N/PLDMOS (10V-40V)
HRES, Zener diode, MIM and MOM capacitors, eFuse and OTP

8XP: 130nm SiGe process

Core Voltage: 1.2V/2.5V
Metal layers: 5 - 7
HBT f_t/f_{max} (GHz): 250/340
High Breakdown: 3.2V B_{vceo} @78GHz f_t
µ/mmWave passive elements
Inductors and Tx lines

55LPe-RF

Core Voltage: 1.2V
I/O Voltage: 1.8V/2.5V/3.3V
Metal layers: 6 – 8
3µm thick top metal
3 core device Vt's (HVt, RVt, LVt)
APMOM, MIM and MOS Caps
5V EDMOS, MOS Varactor, eFuse

45SPCLO: Si-Photonics

Core Voltage: 0.9V/1V
Metal layers: 8 Cu and 1 Al
Single wire and coupled wire CPW, eFuse, VNCAP, Inductors
C-band (1550 nm) coherent transceivers modules
O-band (1310 nm) direct detect transceivers

45RFSOI

Core Voltage: 0.9V/1V
Metal layers: 7 – 8
3 core device Vt's (HVt, SVt, UVt)
High f_t/f_{max} (290/410 GHz)
FET stacking for higher PA Pout and PAE
High and low density MIM Caps

28SLPe

Core Voltage: 1V
I/O Voltage: 1.5V/1.8V
Metal layers: 6 – 11
4 core device Vt's
3µm thick top metal
VNCAP, APMOM and High Precision OP Resistor
Inductors and eFuse

22FDX: FDSOI process

Core Voltage: 0.8V
I/O Voltage: 1.2V/1.5V/1.8V/3.3V
Metal layers: 7 – 10
4 core device Vt's
34x Ultra Thick Top metal
APMOM, Integrated RF and mmWave devices
eMRAM

12LP+ FinFET process

Core Voltage: 0.8V
I/O Voltage: 1.2V/1.35V/1.5V/1.8V
Metal layers: 8 – 13
4 core device Vt's
DDB, SDB, Single Fin Logic
2 & 3 plate MIMCAP
Precision MOL Res, VNCAP and Inductors