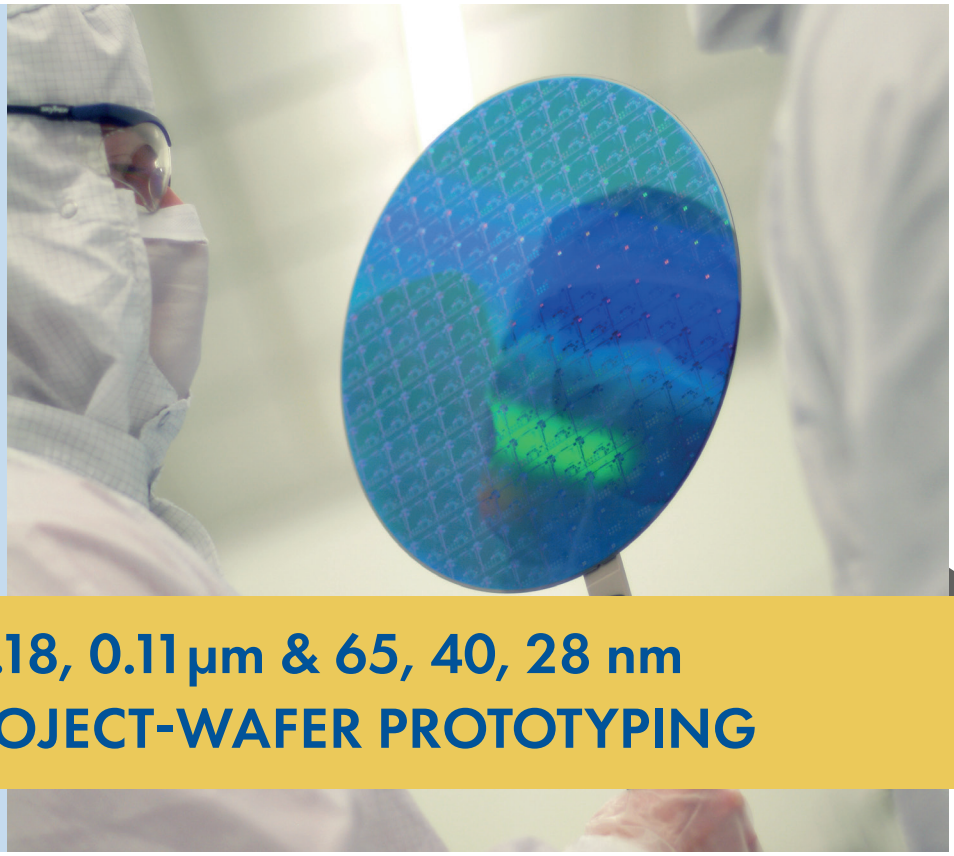
UMC

EUROPRACTICE



UMC 0.18, 0.11 µm & 65, 40, 28 nm MULTI-PROJECT-WAFER PROTOTYPING

Europractice provides access to Multi-Project-Wafer (MPW) fabrication services in UMC deep submicron CMOS technologies to universities, research institutes, and their spinouts.

Why Europractice?

- Affordable and easy access to Prototyping, Design Tools, and Training for universities, research institutes, and their spinouts.
- MPW runs for multiple technologies, including ASICs, Photonics, TFT, and more.
- Advanced packaging and system integration support.

Why UMC?

- Well-established and reliable foundry with 11 fabs in Taiwan, Singapore and China.
- Stable and competitive turn-around times.
- Full libraries including netlist and lay-out for the UMC 65nm technology.
- Flexible design platforms fulfilling customers' unique requirements together with easy to install PDKs.

Technology Highlights

Mature 8-inch technologies: 0.18 µm and 0.11 µm.

Many modern electronics, such as analog, mixed signal, RFCMOS, MCU, power management and audio IC, are produced on mature 8-inch technologies. UMC has world class manufacturing capabilities with innovative engineering resources to support these industry segments and provide a wide range of options. In the meantime, the foundry continues to differentiate its mature technologies by, for example, offering the most innovative 0.11µm aluminium platform in the foundry industry.

In cooperation with Faraday Technology Corporation, UMC provides silicon verified libraries, including standard cells, I/O and memory compilers, to effectively enable customer designs and broaden design versatility. This offer includes, for instance, a fully validated ecosystem with radiation hardened libraries for 0.18µm.

Europractice grants users access to MPW and Volume Production services for UMC 0.18µm and 0.11µm. There are also mini@sic solutions available for UMC 0.18µm.

65 nm

UMC was one of the first foundries in the world to deliver 65nm customer products. Thanks to a flexible technology design platform, customers can choose the process device options that are optimized for their specific application, such as Low Leakage (LL) transistors for logic and mixed signal/RFCMOS processes.

Through Europractice, customers receive access to the UMC proprietary libraries that include both netlist and full layout to enable a complete verification flow. In addition, users can access standard cell libraries through Faraday.

The 65nm technology is very well supported by general MPW runs.

40 nm

UMC's 40-nanometer technology supports today's high performance and low power requirements. It consists of a low power platform focusing on the low power and low leakage design solutions for mobile and consumer applications, and a generic platform (G) that is optimized for a broad range of consumer and high-speed applications. Designers also benefit from comprehensive device offerings that include features to help optimize power and performance, different I/O voltage choices and analog/RF design resources.

For the 40nm technology, Europractice provides access to regularly scheduled MPW runs with a fixed block size of 16mm^2 (4mm x 4mm).

28 nm

The UMC 28nm process technology uses 3rd generation stress techniques (SMT, t-CESL, c-CESL) and embedded SiGe to enhance electron mobility performance. It is ideal for applications that require high performance and low power consumption. The UMC 28HPM/HPC technology supports broad device options for increased flexibility and performance requirements, targeting a wide range of products, such as application processor, cellular baseband, WLAN, Tablet, field-programmable gate arrays (FPGAs) and Networking ICs.

For this technology, Europractice offers several general MPW runs per year with a block size of 16mm^2 (4mm x 4mm).

Technology Details

L180 L/Mixed-Mode/RF

6 Metal layers
Hipo resistor
MIM capacitor (1fF)
Triple well
Dual Voltage (1.8V / 3.3V)
low / zero VT
20kÅ RF metal

L110AE L/MM/RF

8 Metal layers
Hipo resistor
MIM capacitor (1, 1.5fF)
Triple Well
Dual Voltage (1.2V / 3.3V / 5V)
Low VT P/NMOS
Zero VT NMOS
HS, SP, LL
12, 20 or 40kÅ RF metal

L65N L/MM/RF

10 Metal layers
Hipo resistor
Capacitors: MIM (2fF), MOM, NCAP
Triple Well
Dual Voltage
(1.0V, 1.2V / 1.8V, 2.5V, 3.3V)
LL
Native Device
32 kÅ RF metal

40N L/MM-LP

10 Metal layers
P-Epi/P-Sub
Resistors: Diff, PO, RW
Capacitors: MOM, NCAP
DNW
ULVT, LVT, RVT, HVT
1.8V EXOR 2.5V I/O devices
12.5 KA or 34KA RF top metal

28N L/MM-HPC

10 Metal layers
P-Epi/P-sub
Resistors: Diff, PO, RW
Capacitors: MOM, NCAP
DNW
ULVT, LVT, RVT, HVT, UHVT
1.8V EXOR 2.5V I/O devices
14.5KA, 28KA; 34KA RF top metal

There are more options available for the UMC technologies on a case by case basis. Please check our website.

Would you like to discover more?

UMC Technologies
epumc@imec.be