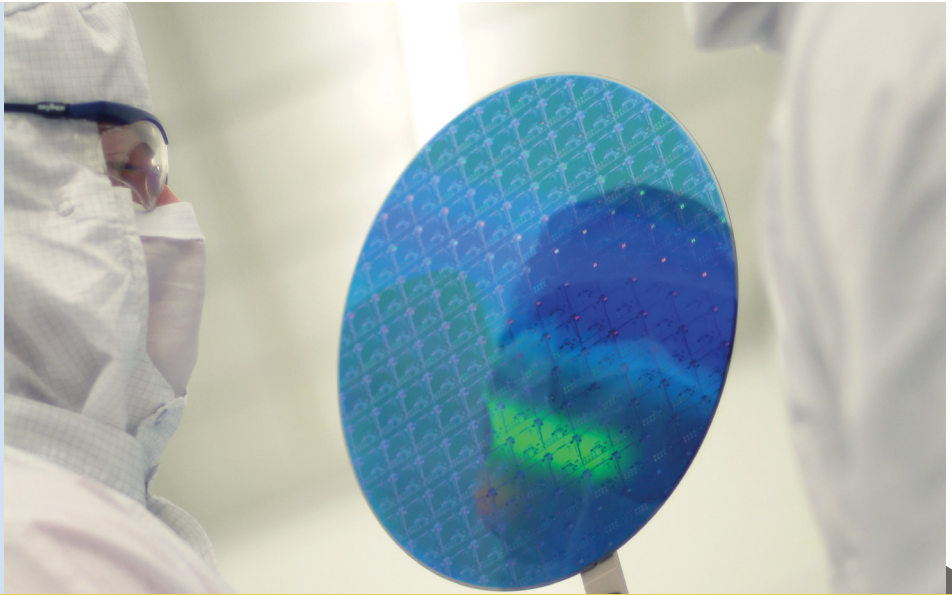




# UMC



**EUROPRACTICE**  
IC SERVICE



## UMC 0.18, 0.13, 0.11 $\mu\text{m}$ & 65, 40, 28 nm PROTOTYPING AND VOLUME PRODUCTION

**EUROPRACTICE-IC provides access to Multi-Project-Wafer and Volume Production services in UMC deep submicron CMOS technologies to academia and industry.**

### 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 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 layout 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 $\mu\text{m}$ , 0.13 $\mu\text{m}$ and 0.11 $\mu\text{m}$ .

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 0.11  $\mu\text{m}$  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 0.18  $\mu\text{m}$ .

EUROPRACTICE grants its customers access to MPW and Volume Production services for UMC 0.18  $\mu\text{m}$ , 0.13  $\mu\text{m}$  and 0.11  $\mu\text{m}$ . For the last two technologies, there are also mini@sic solutions available.

#### 65 nm

UMC was one of the first foundries in the world to deliver 65nm customer products. Due to a flexible technology design platform, customers can choose the process device options that are optimized for their specific application, such as Standard (high) Performance (SP), Low Leakage (LL) or Low Power (LP) 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, MTP and OTP low-cost solutions are available for academic institutions through eMemory. The 65nm technology is very well supported by general and mini@sic 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, EURO PRACTICE provides access to regularly scheduled MPW runs with a fixed block size of 16mm<sup>2</sup> (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, EURO PRACTICE offers several general MPW runs per year with a block size of 16mm<sup>2</sup> (4mm x 4mm).

## Technology Details

<b>L180 eFlash L GII</b> 6 Metal layers Double poly process Capacitors: MIM (1fF), Ono Triple well Dual voltage (1.8V/3.3V) HV P/NMOS (14V) MV P/NMOS (6.5V)	<b>L180 L/Mixed-Mode/RF</b> 6 Metal layers Hipo resistor MIM capacitor (1fF) Triple well Dual Voltage (1.8V / 3.3V) low / zero VT 20kÅ RF metal	<b>L130 L/MM/RF</b> 5 to 8 Metal layers Hipo resistor MIM capacitor (1, 1.5, 2fF) Triple Well Dual Voltage (1.2V / 2.5V, 3.3V) Low VT P/NMOS Zero VT NMOS HS, SP, LL 20kÅ RF metal HG IO-device	<b>L110AE L/MM/RF</b> 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
	<b>L65N L/MM/RF</b> 10 Metal layers Hipo resistor Capacitors: MIM (2fF), MOM, NCAP Triple Well Dual Voltage (1.0V, 1.2V / 1.8V, 2.5V, 3.3V) SP, LL Native Device 32 kÅ RF metal	<b>40N L/MM-LP</b> 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	<b>28N L/MM-HPC</b> 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.