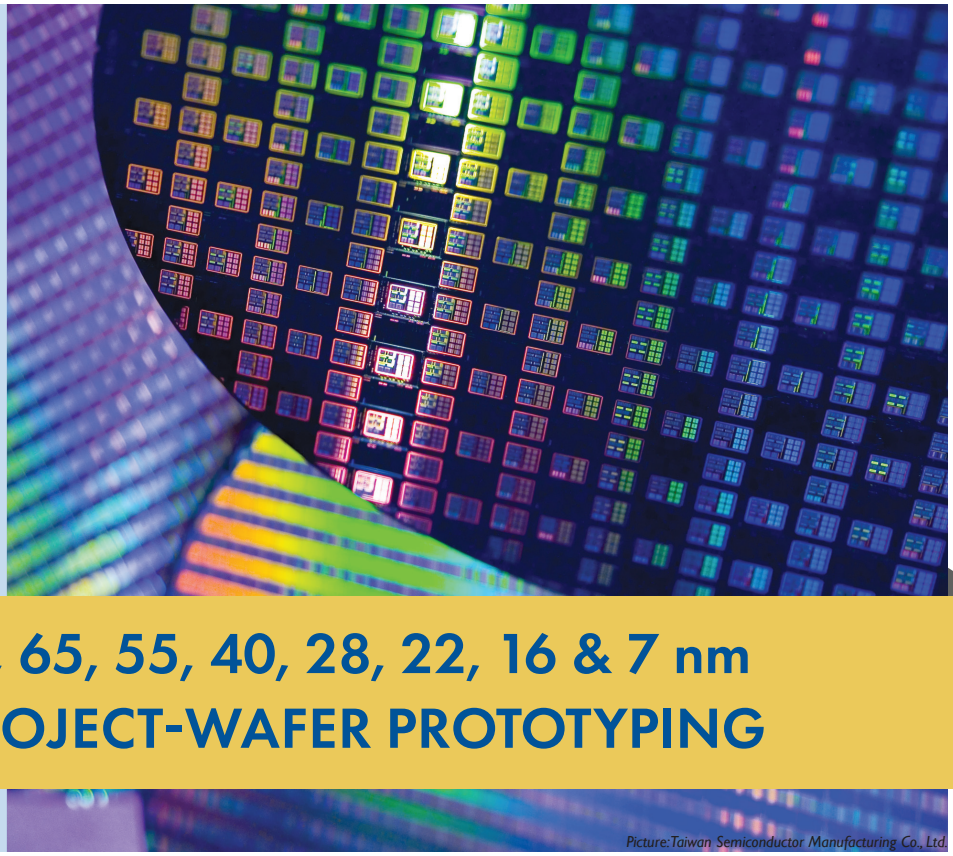

Picture: Taiwan Semiconductor Manufacturing Co., Ltd

TSMC 90, 65, 55, 40, 28, 22, 16 & 7 nm MULTI-PROJECT-WAFER PROTOTYPING

Europractice offers TSMC Multi-Project-Wafer (MPW) services in deep submicron CMOS technologies to academia, 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 TSMC?

- Semiconductor technology leader. Committed foundry providing record lead times for all technologies.
- Complete in-house library ecosystem together with a fully equipped and easy to install PDK.
- Flexible block sizes for MPW, including mini@sic solutions for particularly small designs in the 65nm, 40nm, 28nm, and 16nm technologies.

TSMC University FinFET Program

Europractice-member universities can now access the TSMC N16 FinFET technology at special pricing. Selected universities can also gain access to the cutting-edge TSMC N7 FinFET after the review and approval of TSMC.

Find out more:

Technology Highlights

7 nm

TSMC 7nm provides highly competitive logic density and industry-leading power and performance. It enables a broad array of applications, ranging from high-to-mid end mobile, consumer applications, AI, networking, 5G infrastructure, GPU, and high-performance computing.

Since it is classified as a leading node technology, access to TSMC 7nm is subject to review and approval by TSMC.

16 nm

The 16nm technology is the first FinFET solution offered by TSMC. It provides superior performance and power consumption advantage for next generation high-end mobile computing, network communication, consumer and automotive electronic applications.

22nm

TSMC's 22nm technology is developed based on its 28nm process. Europractice supports the Ultra Low Leakage flavor of the process: 22ULL. The technology is TSMC's most advanced planar node. TSMC's 22nm ULL RF technology adds key mmWave mobile communication devices.

28 nm

TSMC's 28nm uses high-k metal gates and multi-pitch libraries for higher performance, energy savings, and eco-friendly designs. The 28HPC+ RF variant supports 110GHz mmWave and 5G.

40 nm

TSMC's 40nm leverages 193nm immersion lithography and ultra-low-k interconnects for high performance and low power. It supports HV, NVM, and multi-VT libraries. General Purpose (GP) targets CPUs, GPUs, FPGAs, etc., while Low Power (LP) serves smartphones, DTVs, and wireless.

55nm

A 90% shrink from 65nm, TSMC's 55nm reduces die size and leakage. General Purpose (GP), Low Power (LP), and 55ULP support low-power IoT and wearable applications with minimal 65nm porting effort.

65 nm

Introduces LP and GP options (1.0V/1.2V), dual gate oxide, and up to 9 Cu + AlCu metal layers. Features low-k dielectrics, MIM capacitors, multiple Vt devices, and rich analog/RF options.

Technology Details

7nm FinFET	16nm FinFET Compact	22nm ULL
ULVT,LVT,SVT	Low NoiseVT,ULVT,LVT,SVT,HVT	ULVT, LVT, SVT, HVT, UHVT, EHVT, SULVT, AVT
NW, TiN High Resistor	NW, TiN High Resistor	NW, OD, High-R resistor
MOM capacitor	MOM capacitor	MOM capacitor
HD MIM decoupling capacitors	HD MIM decoupling capacitors	M2-M10 ELK Cu
M9 to M15 ELK Cu	M6 to M13 ELK Cu	Triple well, Deep N-Well in option
Last metal level in Al pad	Last metal level in Al pad	Ultra thick AL RDL
Triple well, Deep N-Well in option	Triple well, Deep N-Well in option	Core 0.8V, I/O 1.8V or 2.5V
Core 0.75V	Core 0.8V	SRAM (GL, ULL, eLL)

28nm Logic/RF HPC (+)	40nm LP and G MS/RF	65nm LP and G MS/RF
ULVT, LVT, SVT, HVT, UHVT, EHVT	HVT, SVT, LVT, native	HVT, SVT, LVT, Native, M-Low VT
NW, OD, High-R resistor	N-WELL, OD, Poly resistor	Unsilicided PO resistors
MOM capacitor	MOM Capacitor	MIM Capacitor
M2-M10 ELK Cu	M3-M10 ELK Cu	M3 - M9 Cu
Triple well, Deep N-Well in option	Triple well	Triple well
Ultra thick AL RDL	Ultra thick metal	Ultra thick metal
Core 0.9V	LP (core 1.1V) (I/O 1.8V or 2.5V)	LP (core 1.2V) (I/O 2.5V or 3.3V)
I/O 1.8V or 2.5V	G (0.9V) (IO 1.8V or 2.5V)	G (core1.0V) (I/O 2.5V or 3.3V)

Would you like to discover more?

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