

TSMC confirms its 2nm chips entered volume production in Q4 2025

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2nm Technology

TSMC has always insisted on building a strong, in-house R&D capability. As a global semiconductor technology leader, TSMC provides the most advanced and comprehensive portfolio of dedicated foundry process technologies.

* ## A12 Technology TSMC's A12 technology is the second generation of innovative backside power rail solution, with integrated cutting-edge nanosheet transistor, making it the best solution for AI/HPC applications. Backside power...

* ## A14 Technology A14 technology is TSMC's next cutting-edge logic process that achieves full-node power, performance and area through dimensional scaling. A14 is designed to drive AI transformation forward by delivering...

* ## A16 Technology TSMC A16™ technology integrates leading nanosheet transistors with innovative backside power rail solution, bringing greatly improved logic density and performance. Backside power rail improves logic density...

* ## 2nm Technology TSMC's 2nm (N2) technology has started volume production in 4Q25 as planned. N2 technology features industry-leading first-generation nanosheet transistor technology, with full-node strides in performance...

* ## 3nm Technology In 2022, TSMC became the first foundry to move 3nm FinFET (N3) technology into high-volume production. N3 technology is the industry's most advanced FinFET technology, offering the best performance, power...

* ## 5nm Technology In 2020, TSMC became the first foundry to move 5nm FinFET (N5) technology into volume production and enabled customers' innovations in smartphone and high-performance computing (HPC) applications...

* ## 7nm Technology In 2018, TSMC became the first foundry to start 7nm FinFET (N7) volume production. The N7 technology is one of TSMC's fastest technologies to reach volume production and provides optimized manufacturing processes...

* ## 16nm Technology In 2013, TSMC became the first foundry to begin 16nm Fin Field Effect Transistor (FinFET) technology risk production and later in 2014, the first foundry to deliver a fully functional 16nm FinFET customer...

* ## 22nm Technology The 22nm Ultra-Low Power (22ULP) process technology is derived from TSMC's industry-leading 28nm technology. It delivers enhanced performance and cost efficiency, making it suitable for applications such...

* ## 28nm Technology In 2011, TSMC became the first foundry that provided 28nm general purpose process technology. Following this, TSMC continued to expand its 28nm technology offerings and offered the foundry's most comprehensive... In 2011, TSMC became the first foundry that provided 28nm general purpose process technology. Following this, TSMC continued to expand its 28nm technology offerings and offered the foundry's most comprehensive 28nm process portfolio to support customers to deliver products with better performance and are more energy efficient and environmentally friendly.

TSMC's 28nm process technology features high performance and low power consumption advantages. This

technology supports a wide range of applications, including smartphone 5G RF transceiver, millimeter wave (mmWave) and automotive radar, consumer, Internet of Things (IoT), and many others. For mainstream smartphone and consumer applications, TSMC offers customers a broad range of 28nm logic process technologies, including 28nm High Performance Compact (28HPC), 28nm High Performance Compact Plus (28HPC+), and comprehensive IPs to satisfy customer needs for high-performance and low-power chips.

To support customers' innovation in the IoT space, TSMC not only provides customers with solid logic technology on 28nm, but also builds a leading, complete, and highly integrated Ultra-Low Power (ULP) technology platform. Technologies including 28nm ULP have been widely adopted by various IoT system-on-a-chip (SoC) and battery-powered products to extend battery life.

In addition, TSMC offers a broad array of competitive automotive-grade specialty technologies on 28nm, including embedded flash memory, resistive random-access memory (RRAM), mmWave RF, and ultra-low leakage devices.

* ## 40nm Technology TSMC led the foundry segment to start the volume production of a variety of products for multiple customers using its 40nm process technology in 2008. The 40nm process integrated 193nm immersion lithography... * ## 65nm Technology TSMC became the first foundry to begin 65nm risk production in 2005 and passed product certification the following year. The Company also introduced foundry's first 65nm Low Power (LP) process to meet... * ## 90nm Technology TSMC became the first semiconductor company to produce fully-functional 90nm chips using immersion lithography technology. The Company announced the accomplishment at SEMICON Japan in December 2004... * ## 0.13μm Technology TSMC launched the semiconductor industry's first 0.13μm low-k, copper system-on-chip (SoC) process technology. The Company insisted on building its own R&D capabilities and made a key decision early on that... * ## 0.18μm Technology TSMC's 0.18μm logic technology marked a significant milestone in semiconductor manufacturing and today provides a reliable and proven solution for a wide range of applications. This mature process node strikes...

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