

ARM and TSMC collaborate to optimize next-generation 64-bit processors for FinFET process technology

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TSMC and ARM today announced a multi-year agreement extending their collaboration beyond 20-nanometer (nm) technology to deliver ARM processors on FinFET transistors, enabling the fabless industry to extend its market leadership in application processors. The collaboration will optimize the next generation of 64-bit ARM processors based on the ARMv8 architecture, ARM Artisan physical intellectual property (IP), and TSMC's FinFET process technology for use in mobile and enterprise markets that require both high performance and energy efficiency.

The collaboration will enable sharing of technical information and feedback between the two companies, enhancing the development of [ARM](#) IP and TSMC process technology. ARM will leverage process information to optimize the power, performance and area (PPA) of the overall solution to reduce risk and encourage early adoption. TSMC will use the latest ARM processors and technology to benchmark and tune advanced FinFET process technologies. The combination of TSMC FinFET technology and ARMv8 architecture provides the fabless industry with solutions for continued innovation across diverse market segments. The collaboration will result in improved silicon process, physical IP and processor technology that together will enable new system-on-chip (SoC) innovation and shorten time-to-market.

The ARMv8 architecture extends ARM low-power leadership with a new energy-efficient 64-bit execution state to meet the performance

demands of high-end mobile, enterprise and server applications. The 64-bit architecture has been designed specifically to enable energy-efficient implementations. Similarly, the 64-bit memory addressing and high-end performance are necessary to enable enterprise computing and network infrastructure that are fundamental for the mobile and cloud-computing markets.

TSMC's FinFET process promises impressive speed and power improvements as well as leakage reduction. All of these advantages overcome challenges that have become critical barriers to further scaling of advanced SoC technology. [ARM processors](#) and physical IP will be able to leverage these attributes to maintain market leadership, while the companies' mutual customers can benefit from these improvements for their new, innovative SoC designs.

“By working closely with TSMC, we are able to leverage TSMC's ability to quickly ramp volume production of highly integrated SoCs in advanced silicon [process technology](#),” said Simon Segars, executive vice president and general manager, processor and physical IP divisions, ARM. “The ongoing deep collaboration with TSMC provides customers earlier access to FinFET technology to bring high-performance, power-efficient products to market.”

“This [collaboration](#) brings two industry leaders together earlier than ever before to optimize our FinFET process with ARM's 64-bit processors and physical IP,” said Cliff Hou, vice president, [TSMC](#) Research & Development. “We can successfully achieve targets for high speed, low voltage and low leakage, thereby satisfying the requirements of our mutual customers and meeting their time-to-market goals.”

Source: ARM

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