

# Summary of Apple A20 chipset information: 2nm, advanced WMCM technology, greatly improved performance

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The iPhone 17 series is still months away from being announced, and we're already starting to hear details about next year's iPhone 18 series. More and more details are coming out about the internal hardware of the iPhone 18 Pro and iPhone 18 Fold models, suggesting that the devices will feature a 2nm A20 chip based on a new WMCM packaging design.

Apple's A20 chip uses TSMC's 2nm N2 process and advanced WMCM packaging technology, improving computing performance and energy efficiency

The company's 20th anniversary iPhone lineup is expected to bring a host of changes to the front, including a new display with a "melting" design on all four sides for a more futuristic look and feel. The company will also bring a lot of changes internally, including to the chips that will power the devices. According to GF Securities market analyst Jeff Pu, next year's iPhone 18 Pro, iPhone 18 Pro Max, and iPhone 18 Fold will be powered by a new A20 processor, which he believes will feature major design changes compared to the current A18 and A19 chips.

The A20 will be Apple's first SoC to use TSMC's 2nm process, promising significantly improved computing and graphics performance for the iPhone 18 Pro models. Currently, the A18 Pro chip in the iPhone 16 Pro models is manufactured on TSMC's second-generation 3nm process, but the move to 2nm will allow the chips to pack in more transistors, allowing the devices to deliver improved performance that could potentially surpass the competition in terms of graphics output.



Based on previous reports, the jump from 3nm to 2nm chips will bring about a 15% performance boost to the lineup while being 30% more energy efficient than this year's A19 Pro chip in the iPhone 17 Pro models. Additionally, the A20 chip will be built on TSMC's N2 process, meaning the supplier will switch from FinFET transistors to Gate-All-Around (GAA) nanosheet transistors for better performance and efficiency through improved electrostatic control. Transistor density could increase by about 1.1x to 1.15x compared to the N3E process, which is used in the current A18 Pro chips.

Nanometers are often TSMC's marketing term for chips, but sometimes they don't reflect the actual size. This isn't the first time we've heard details about TSMC's move to 2nm, as Ming-Chi Kuo previously mentioned a similar path for the iPhone. It's also likely that the A20 chip will use TSMC's new Wafer-Level Multi-Chip Module (WMCM) packaging technology. With this new packaging technique, the supplier will be able to integrate RAM directly onto the A20 chip's wafer along with the CPU, GPU, and Neural Engine. Currently, RAM is connected to the processor via a silicon interposer.

This improvement promises to bring many benefits to the iPhone 18 Pro, iPhone 18 Pro Max, and iPhone 18 Fold, including better multitasking performance, better Apple Intelligence, and also contributes to better battery life. In addition, the overall size of the A20 may also be smaller than current chips, helping to free up space inside the iPhone for other components.

Apple will launch the iPhone 18 Pro and iPhone 18 Fold models with the new A20 chip next September, and this will be a big addition to the new models. Share your expectations for the new chip in the comments below!

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