Apple plans to produce a 5-nanometer chip by 2020, a 3-nanometer chip by 2022

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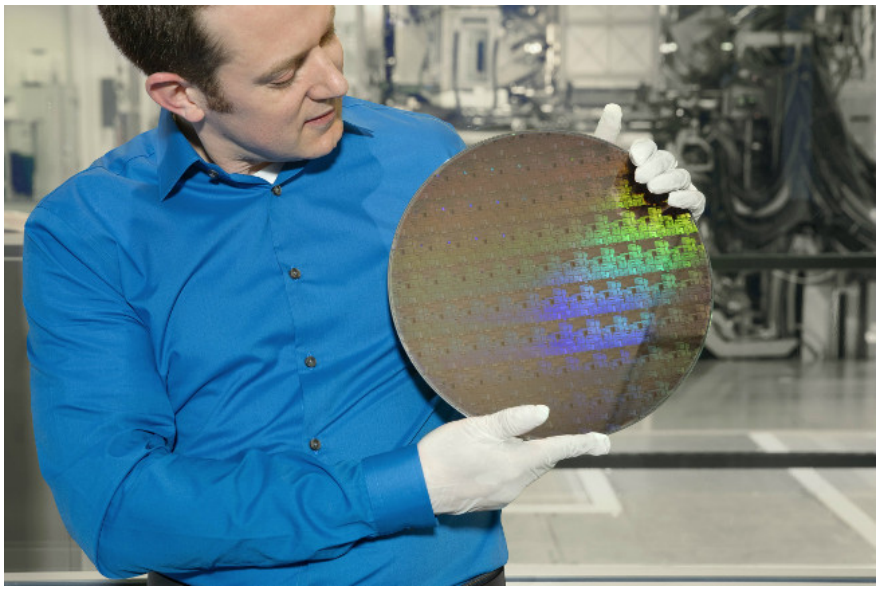
The new microprocessor chips will ensure that future smartphones will continue to shrink in size while still providing high performance and battery life will be more sustainable than today's models.

For the first time, announced in the physical model of IBM and Samsung in June last year, the 5-nanometer chip manufacturing process could squeeze 30 billion transistors - digital switches - into chips. The size of nails, doubling or tripling the number of transistors of 10-nanometer chips. TSMC's 5-nanometer chip manufacturing process uses ultra-sophisticated ultraviolet lithography technology, which requires a super-good, expensive laser that has just been put into practice.



Smaller, higher density transistors allow manufacturers to choose between faster performance, longer battery life, or speed balance and improved battery toughness. A 5 nanometer chip is four times more energy-efficient than a 10-nanometer chip, while its performance is equivalent, or four times faster with the same battery life.

Although there are many chip manufacturing companies, Intel, Samsung and TSMC are the three leading names in this field, they create chips used by leading electronic brands. Chip makers have the revenue by providing

millions of parts on schedule, but customers always require advanced manufacturing techniques that only the top manufacturers can afford. Unlike TSMC, Samsung got stuck in the 7-nanometer manufacturing process, stepping between 10-nanometer and 5-nanometer chips and lost part of Qualcomm's revenue.

TSMC's new chip production will have three phases of acceleration in the next three years, eventually producing more than half a billion 5-nanometer chips a year in Southern Taiwan Science Park, when the 5G smartphone is wishing to use this chip at peak frequency. The company is investing more than $ 17 billion in building plants and $ 24 billion in manufacturing 5-nanometer chips and 3-nanometer chips at the same time.

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