Summarize the attached article ("the future of microprocessors") in your own words. Do not quote or copy/paste directly from the article. If you use 4 or more consecutive words directly from the article, you may be regarded as copying (not summarizing) the article. The summary must contain at least 450 words

The Future of Microprocessors

Microprocessor is a sole semiconductor chip encompassing all the computations involved on a computer system. Microprocessors today include everything ranging from simple additional functions to specialized media-processing engines. This article will firstly highlight the rapid growth in the performance of microprocessors in the past 20 years and then portrays the challenges posing in maintaining the same trajectory of improved performance in computing.

Exponential Growth in Performance of Microprocessors in the Past 20 Years

In the past 20 years, three core technology drivers have contributed a great deal in the commendable growth of microprocessor performance namely: microarchitecture techniques, transistor-scaling and cache memories. Transistor scaling yields three major benefits which have resulted in an increase of three-order-of-magnitude in microprocessor performance over the last two decades. Firstly, it provides area shrinking of about 50% which doubles the density of the transistors in each upcoming generation (Moore's Law). Secondly it caters with higher performance of the system at a rate of 40% more than the previous ones. Thirdly it reduces the consumption of energy by 65% by keeping the electric field constant. So, collectively transistor scaling doubles the transistors by making the circuits 40% faster and keeping the power consumption level the same even after the doubling of transistors in every generation, eventually leading to drastic performance improvement trends.

Microarchitecture techniques like pipelining, die-caches, speculation, superscalar architectures and out-of-order execution also played an instrumental role in enhancing the performance without making a compromise on energy efficiency.