

Comparison between cortex a9 and intel core series processor

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Comparison between Cortex A9 and Intel Core Series processor Instruction set and Architecture Introduction ARM's Cortex A9 processor and Intel Core series processors are considered top of the line of line processor. The main market of ARM based processor is mobile devices while the core series processors have huge market in desktop PCs and laptops. The Cortex A9 Processor is a next generation processor designed by ARM Ltd (ARM Inc). The Core series processors have been designed and developed by Intel Corporation (Intel Corporation). Differences and Similarities The main difference between the two processors is in their architecture and instruction set. The Cortex A9 processor is a Reduced Instruction Set based Computer (RISC) (ARM Inc.) while the Intel core series processors are Complex Instruction Set based Computer (CISC) (Intel Corporation). This means that there is a fundamental difference in how they execute instructions and the instruction sets that they have. The main aim of a CISC based processor (Core series) is to get a task done in as few lines of assembly language as possible. Hence, these processors have an instruction set in which each instruction is capable of performing several task in one go. Thus these instructions can take multiple clock cycles to complete. On the other hand, RISC based processor (Cortex A9) have an instruction set that consists of only simple instructions that take only a single clock cycle to complete. Thus they complete only a single task. Hence, the Cortex A9 processor may take a higher number of instructions than a core series processor to perform the same task. Although it is important to mention here that due to simplicity of their instruction set, Cortex A9 executes instructions

much more quickly than a Core series processor (Roberts). Both Cortex A9 as well as Core series processor make use of multi-processing. Both processors make use of instruction pipeline; the Cortex A9 has a superscalar 8-stage speculating pipeline (ARM Inc.), while the core series processor uses a 14-stage pipeline (Intel Corporation). However, since the Cortex A9 processor has the simplified RISC architecture it requires much less transistors for its implementation than the CISC core series processors (Roberts). Conclusion The Cortex A9 processor and Intel's core series processors are based on very different architectures with A9 favoring simple instruction set while the core series use a much more complex instruction set. While both processors support pipelining, multiprocessing and other advanced technologies, A9 simple instruction set makes it much less complex to implement. Work Cited ARM Inc. " Cortex-A9 Processor." ARM Inc. Website. ARM Inc., 24 Apr 2011. Web. 24 Apr 2011. . Intel Corporation. " Intel® Microarchitecture." Intel Corporation Website. Intel Corporation, 24 Apr 2011. Web. 24 Apr 2011. . Roberts, E. " RISC Vs CISC." Risc Architecture. Stanford University, 2001. Web. 24 Apr 2011.