Computer organization and the MC68000

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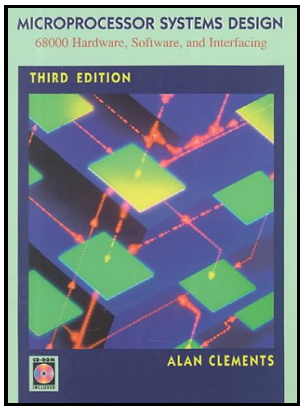

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The syntax is Ai + v. The CPU reads or fetches instructions from memory one at a time. In particular, it was designed to access quickly 16-bit quantities that start on an even address.

Design Philosophy Behind Motorola's MC68000 (1)

To bring the best of the 8-bit peripheral world into the universe of 16-bit software, designers included a special MOVEP Move Peripheral instruction in the MC68000. It correctly indicates that the result was positive or negative. Designers recognized that in 8-bit microprocessors the ability to handle 16-bit data came in quite handy for more advanced applications.

Motorola 68000

The prefetch queue can contain enough information to execute one instruction, decode the next instruction, and fetch the following instruction from memory -- all at the same time. Some of these may be user visible.

Chapter 3 Computer Organization

Whatever you consider it there is no doubt that the MC68000 is indeed a powerful microprocessor. During the instruction cycles, Instruction address calculation, Instruction fetch and Instruction operation decoding are performed only once, but operand address calculation and operand fetch may happen multiple times.

Bit Fracture

B D6,D2 adds the lower 8 bits of D6 to D2 takes 4 clock cycles ADD. Address storage and computation uses 32 bits internally; however, the 8 high-order address bits are ignored due to the physical lack of device pins. The MC68000 has only one 16-bit arithmetic and logic unit ALU for data operations.

Unit

The 68000 also is used for mass-market computers such as the , , , and. Once programmers figure out how to put the 16-bit value in both 8-bit accumulators, things get tougher when they try to get arithmetic carries from the lower half to the upper half of the value.

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