

68080 Core - Superscalar

Overview

APOLLO Core is a **pipelined** CPU, so that it can use **2 pipes**.

APOLLO Core can use [Instruction Fusing](#) whenever possible.

APOLLO Core can use [Instruction Bonding](#) whenever possible.

With Pipeline, [Fusing](#) and [Bonding](#), the core can execute **up to 4 instructions per clock cycle**.

Description

Feature	Pipe 1	Pipe 2	Notes
All instructions	X	–	Pipe2 cannot execute all instructions.
1 cycle instructions	X	X	Pipe2 can only do instructions which finish in 1 single clock.
More than 1 cycle instructions	X	–	Pipe2 cannot do MOVEM, CMPM, MOVE (mem),(mem), MUL, DIV, for example.
8-bytes instructions	X	X	Pipe2 can do instructions of length 8 bytes.
More than 8-bytes instructions	X	–	Pipe2 can max do instructions of length 8 bytes.
Flags dependent-instructions	X	–	Pipe2 is never allowed to depend on flags created by Pipe1.
Fuse two instructions	X	X	Both pipes can fuse two instructions whenever possible.
Bond two instructions	X	X	Both pipes can bond two instructions whenever possible.

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