CPU Components:

Carry Look-Ahead Adder

This component works with the Arithmetic Logic Unit to carry out add or subtract functions. Whether to add or subtract is determined by the ALU. Two registers are carried over to the A and B bytes, and the decision of addition or subtraction is passed to the B-Invert bit. The Adder then adds both bytes or inverts the B byte and then adds (depending on B-Invert). It was made with the Carry Look-Ahead Adder, which runs in fewer cycles than a Ripple-Carry Adder. This unit is also used to cycle through the program instructions, in which case, the ALU adds 1 to the current program counter, to cycle to the next instruction (in a 32-bit CPU, instead of adding 1, we would add 4 to get to the next instruction).