

Microprocessor 8085

Instruction Set - BRANCH

Instructions

Types of Instruction

Since the 8085 is an 8-bit device it can have up to 2^8 (256) instructions.

- ❖ However, the 8085 only uses 246 combinations that represent a total of 74 instructions.

Types of instruction sets

- ❖ Data transfer operations
- ❖ Arithmetic operations
- ❖ Logic operations
- ❖ Branch operations
- ❖ Machine control operations

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Branch operations

1. Jump instructions
2. Call and Return instructions
3. Restart instructions

The branching instruction alter the normal sequential flow.

These instructions alter either unconditionally or conditionally

Unconditional jump

Opcode	operand	Description	Hex code
JMP	16 -bit memory location	Jump unconditionally to the given address	C3

- ❖ The program sequence is transferred to the memory location location specified by the 16-bit address given in the operand.
- ❖ JMP 2034H

Jump conditionally

Opcode	Description	Status Flags
JC	Jump if Carry	CY = 1
JNC	Jump if No Carry	CY = 0
JP	Jump if Positive	S = 0
JM	Jump if Minus	S = 1
JZ	Jump if Zero	Z = 1
JNZ	Jump if No Zero	Z = 0
JPE	Jump if Parity Even	P = 1
JPO	Jump if Parity Odd	P = 0

Branching Instructions

Opcode	operand	Description	Hex code
CALL	16 -bit memory location	Call unconditionally the given address	C3

- ❖ The program sequence is transferred to the memory location location specified by the 16-bit address given in the operand.
- ❖ Before the transfer, the address of the next instruction after CALL (the contents of the program counter) is pushed onto the stack.
- ❖ CALL 2034H

Call conditionally

Opcode	Description	Status Flags
CC	Call if Carry	CY = 1
CNC	Call if No Carry	CY = 0
CP	Call if Positive	S = 0
CM	Call if Minus	S = 1
CZ	Call if Zero	Z = 1
CNZ	Call if No Zero	Z = 0
CPE	Call if Parity Even	P = 1
CPO	Call if Parity Odd	P = 0

Branching Instructions

Opcode	operand	Description	Hex code
RET	None	Return unconditionally	

- ❖ The program sequence is transferred to the memory location location specified by the 16-bit address given in the operand.
- ❖ Before the transfer, the address of the next instruction after CALL (the contents of the program counter) is pushed onto the stack.
- ❖ CALL 2034H