

BRANCHING INSTRUCTIONS

Jump unconditionally

JMP 16-bit address The program sequence is transferred to the memory location

specified by the 16-bit address given in the operand.

Example: **JMP** 2034H or **JMP** XYZ

Jump conditionally

Operand: 16-bit address

The program sequence is transferred to the memory location specified by the 16-bit address given in the operand based on the specified flag of the PSW as described below.

Example: **JZ** 2034H or **JZ** XYZ

Opcode Description Flag Status

JC Jump on Carry CY = 1

JNC Jump on no Carry CY = 0

JP Jump on positive S = 0

JM Jump on minus S = 1

JZ Jump on zero Z = 1

JNZ Jump on no zero Z = 0

JPE Jump on parity even P = 1

JPO Jump on parity odd P = 0

Unconditional subroutine call

CALL 16-bit address The program sequence is transferred to the memory 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.

Example: **CALL** 2034H or **CALL** XYZ

Call conditionally

Operand: 16-bit address

The program sequence is transferred to the memory location specified by the 16-bit address given in the operand based on the specified flag of the PSW as described below. Before the transfer, the address of the next instruction after the call (the contents of the program counter) is pushed onto the stack.

Example: **CZ** 2034H or **CZ** XYZ

Opcode Description Flag Status

CC Call on Carry CY = 1

CNC Call on no Carry CY = 0

CP Call on positive S = 0

CM Call on minus S = 1

CZ Call on zero Z = 1

CNZ Call on no zero Z = 0

CPE Call on parity even P = 1

CPO Call on parity odd P = 0

field flag of the PSW as described below. The two bytes from the top of the stack are copied into the program counter, and program execution begins at the new address.

Example: RZ

Opcode Description Flag Status
RC Return on Carry CY = 1
RNC Return on no Carry CY = 0
RP Return on positive S = 0
RM Return on minus S = 1
RZ Return on zero Z = 1
RNZ Return on no zero Z = 0
RPE Return on parity even P = 1
RPO Return on parity odd P = 0

Load program counter with HL contents

PCHL none The contents of registers H and L are copied into the program counter. The contents of H are placed as the high-order byte and the contents of L as the low-order byte.

Example: PCHL

Restart

RST 0-7 The RST instruction is equivalent to a 1-byte call instruction to one of eight memory locations depending upon the number. The instructions are generally used in conjunction with interrupts and inserted using external hardware. However these can be used as software instructions in a program to transfer program execution to one of the eight locations. The addresses are:

Instruction Restart Address

RST 0 0000H
RST 1 0008H
RST 2 0010H
RST 3 0018H
RST 4 0020H
RST 5 0028H
RST 6 0030H
RST 7 0038H

The 8085 has four additional interrupts and these interrupts generate RST instructions internally and thus do not require any external hardware. These instructions and their Restart addresses are:

Interrupt Restart Address

TRAP 0024H
RST 5.5 002CH
RST 6.5 0034H
RST 7.5 003CH