

Conditional Calling

In 8085 Instruction set, depending upon one of the flag bit values (excluding AC flag bit), the conditional call instructions will branch to a subroutine. The branch takes place based on the value of Cy flag, Z flag, P flag, or S flag. There is no call instruction based on the value of AC(Auxiliary Carry) flag bit. This is because generally, no one is interested in branching to a subroutine based on this flag bit value. The conditional call instructions are 3 Bytes in length, 1 Byte for the opcode, and another 2 Bytes for the subroutine address i.e. low-order Byte and high-Byte of the address values.

CCondⁿ Address 16 bit:-

1.) CC address 16 bit:- Call if carry

If CF=1, the microprocessor will call the subroutine,
Otherwise it will not call sub program.

2.) CNC address 16 bit :- Call if not carry


If CF=0, the microprocessor will call the subroutine,
Otherwise it will not call sub program.

3.) CZ address 16 bit :- Call if not zero

If Z=1, the microprocessor will call the subroutine,
Otherwise it will not call sub program.

4.) CNZ address 16 bit :- Call if not zero

If Z=0, the microprocessor will call the subroutine,
Otherwise it will not call sub program.

- 5.) CPE address 16 bit:-** Call if parity even
If P=1, the microprocessor will call the subroutine,
Otherwise it will not call sub program.
- 6.) CPO address 16 bit:-** Call if parity odd
If P=0, the microprocessor will call the subroutine,
Otherwise it will not call sub program.
- 7.) CP address 16 bit :-** Call if plus
If S=0, the microprocessor will call the subroutine,
Otherwise it will not call sub program.
- 8.) CM address 16bit :-** Call if minus
If S=1, the microprocessor will call the subroutine,
Otherwise it will not call sub program.
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Conditional Calling summary

S.NO.	INSRTUCTION	DESCRIPTION	STATUS FLAG
1	CC	Call if carry	CY=1
2	CNC	Call if not carry	CY=0
3	CP	Call is positive	S=0
4	CM	Call if minus	S=1
5	CZ	Call if zero	Z=1
6	CNZ	Call if not zero	Z=0
7	CPE	Call if parity even	P=1
8	CPO	Call if parity odd	P=0

Conditional Return


In conditional returning microprocessor will come back to the main program and otherwise microprocessor will not come back to the main program and continue subroutine. If we use conditional returning in subprogram there should be return instruction.



- 1) **RC** Return if carry .
If $CF=1$, microprocessor will come back to the main program otherwise it will continue to the subroutine.

- 2) **RNC** Return if not carry
If $CF=0$, microprocessor will comeback to the main program otherwise it will continue the subroutine.

- 3) **RZ** Return if zero.
if $z=0$, microprocessor will comeback to the main program, otherwise microprocessor will continue to the subroutine.

- 4) **RNZ** Return if not zero.
If $Z=1$, microprocessor will comeback to the main program
otherwise microprocessor will continue to the subroutine.
- 5) **RPE** Return if parity is even.
If $P=1$, microprocessor will comeback to the main program
otherwise microprocessor will continue to the subroutine.
- 6) **RPO** Return if parity is odd.
If $P=0$, microprocessor will comeback to the main program
otherwise microprocessor will continue to the subroutine.
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7) **RM** Return if minus.
If $S=1$, microprocessor will comeback to the main program
otherwise microprocessor will continue to the subroutine.

8) **RP** Return if plus.
If $S=0$, microprocessor will comeback to the main program
otherwise microprocessor will continue to the subroutine.

Diagram for CALL-RET in subroutine

