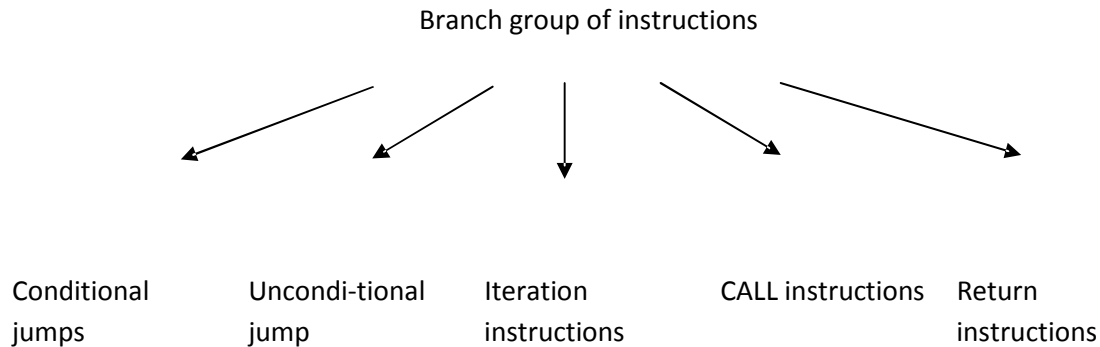


BRANCH GROUP OF INSTRUCTIONS

4.1 Branch group of instructions

Branch instructions provide lot of convenience to the programmer to perform operations selectively, repetitively etc.



Conditional Jump instructions

Conditional Jump instructions in 8086 are just 2 bytes long. 1-byte opcode followed by 1-byte signed displacement (range of -128 to +127).

Conditional Jump Instructions

↓
Jumps based on a single flag

└─┬─┘
↓
Jumps based on more than one flag

Jumps Based on a single flag

JZ	r8	;Jump if zero flag set (if result is 0). JE also means same.
JNZ	r8	;Jump if Not Zero. JNE also means same.
JS	r8	;Jump if Sign flag set to 1 (if result is negative)
JNS	r8	;Jump if Not Sign (if result is positive)
JC	r8	;Jump if Carry flag set to 1. JB and JNAE also mean same.
JNC	r8	;Jump if No Carry. JAE and JNB also mean same.
JP	r8	;Jump if Parity flag set to 1. JPE (Jump if Parity Even) also means same.

Examples for JE or JZ instruction

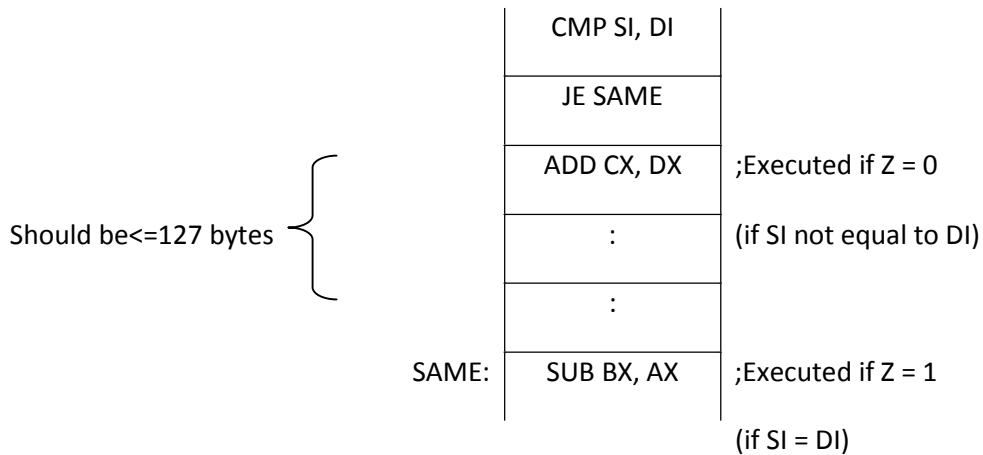
JNP r8 ;Jump if No Parity. JPO (Jump if Parity Odd) also means same.
 JO r8 ;Jump if Overflow flag set to 1 (if result is wrong)
 JNO r8 ;Jump if No Overflow (if result is correct)

JE is abbreviation for Jump if Equal. JNE is abbreviation for Jump if Not Equal.
 JB is abbreviation for Jump if Below. JNAE is for Jump if Not Above or Equal.

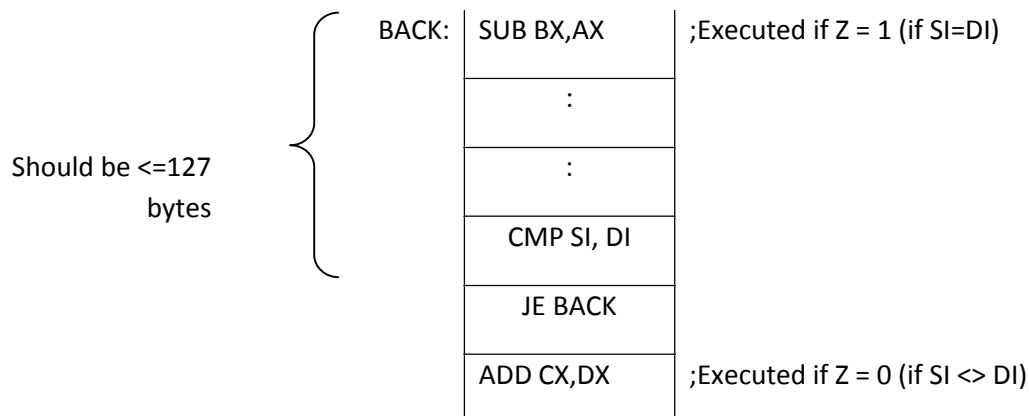
JZ, JNZ, JC and JNC used after arithmetic operation

Ex. for forward jump JE, JNE, JB, JNAE, JAE and JNB are used after a compare operation.

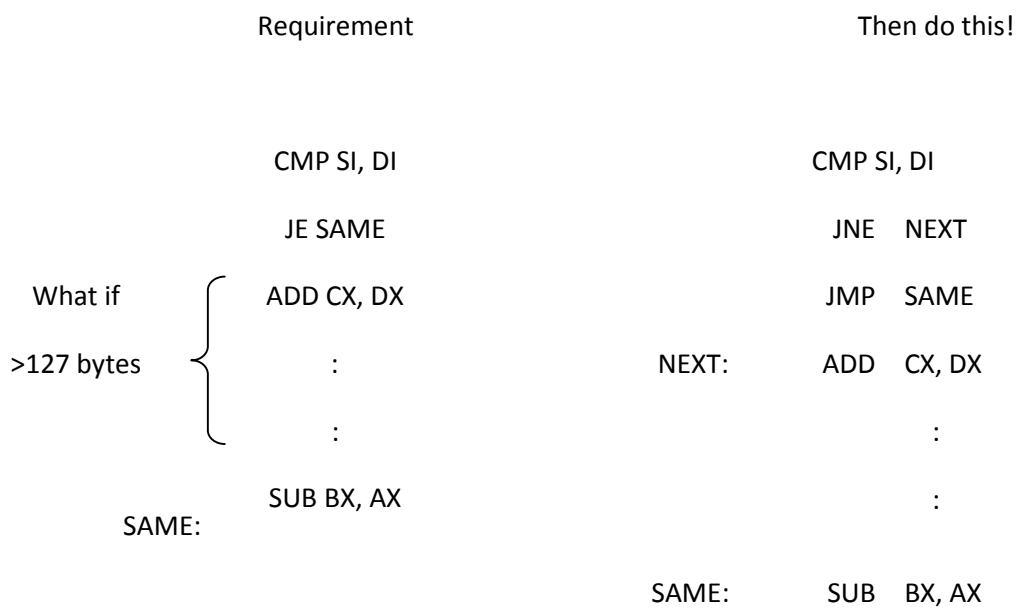
Only examples using JE instruction given for forward and backward jumps.



Ex. for backward jump



Jumping beyond -128 to +127?



Range for JMP (unconditional jump) can be $\pm 2^{15} = \pm 32K$. JMP instruction discussed in detail later