ARITHMETIC INSTRUCTIONS

Add register or memory to accumulator
ADD R The contents of the operand (register or memory) are M added to the contents of the accumulator and the result is stored in the accumulator. If the operand is a memory location, its location is specified by the contents of the HL registers. All flags are modified to reflect the result of the addition.

Example: ADD B or ADD M

Add register to accumulator with carry
ADC R The contents of the operand (register or memory) and M the Carry flag are added to the contents of the accumulator and the result is stored in the accumulator. If the operand is a memory location, its location is specified by the contents of the HL registers. All flags are modified to reflect the result of the addition.

Example: ADC B or ADC M

Add immediate to accumulator
ADI 8-bit data The 8-bit data (operand) is added to the contents of the accumulator and the result is stored in the accumulator. All flags are modified to reflect the result of the addition.

Example: ADI 45H

Add immediate to accumulator with carry
ACI 8-bit data The 8-bit data (operand) and the Carry flag are added to the contents of the accumulator and the result is stored in the accumulator. All flags are modified to reflect the result of the addition.

Example: ACI 45H
Add register pair to H and L registers
DAD Reg. pair The 16-bit contents of the specified register pair are added to the contents of the HL register and the sum is stored in the HL register. The contents of the source register pair are not altered. If the result is larger than 16 bits, the CY flag is set. No other flags are affected.

Example: DAD H

Subtract register or memory from accumulator
SUB R The contents of the operand (register or memory) are M subtracted from the contents of the accumulator, and the result is stored in the accumulator. If the operand is a memory location, its location is specified by the contents of the HL registers. All flags are modified to reflect the result of the subtraction.

Example: SUB B or SUB M

Subtract source and borrow from accumulator
SBB R The contents of the operand (register or memory) and M the Borrow flag are subtracted from the contents of the accumulator and the result is placed in the accumulator. If the operand is a memory location, its location is specified by the contents of the HL registers. All flags are modified to reflect the result of the subtraction.

Example: SBB B or SBB M

Subtract immediate from accumulator

SUI 8-bit data The 8-bit data (operand) is subtracted from the contents of the accumulator and the result is stored in the accumulator. All flags are modified to reflect the result of the subtraction.

Example: SUI 45H

Subtract immediate from accumulator with borrow
SBI 8-bit data The 8-bit data (operand) and the Borrow flag are subtracted from the contents of the accumulator and the result is stored in the accumulator. All flags are modified to reflect the result of the subtraction.

Example: SBI 45H

Increment register or memory by 1
INR R The contents of the designated register or memory) are M incremented by 1 and the result is stored in the same place. If the operand is a memory location, its location is specified by the contents of the HL registers.

Example: INR B or INR M

Increment register pair by 1
INX R The contents of the designated register pair are incremented by 1 and the result is stored in the same place.
Example: INX H

Decrement register or memory by 1
DCR R The contents of the designated register or memory are M decremented by 1 and the result is stored in the same place. If the operand is a memory location, its location is specified by the contents of the HL registers.

Example: DCR B or DCR M

Decrement register pair by 1
DCX R The contents of the designated register pair are decremented by 1 and the result is stored in the same place.

Example: DCX H

Decimal adjust accumulator
DAA none The contents of the accumulator are changed from a binary value to two 4-bit binary coded decimal (BCD) digits. This is the only instruction that uses the auxiliary flag to perform the binary to BCD conversion, and the conversion procedure is described below. S, Z, AC, P, CY flags are altered to reflect the results of the operation. If the value of the low-order 4-bits in the accumulator is greater than 9 or if AC flag is set, the instruction adds 6 to the low-order four bits. If the value of the high-order 4-bits in the accumulator is greater than 9 or if the Carry flag is set, the instruction adds 6 to the high-order four bits.
Example: DAA