

Undocumented 8085 Instructions

FLAG REGISTER of 8085

| Bit | undocumented 8085 | Remark |
|---------|-------------------|---|
| 7 (MSB) | S | Mark flag,sign flag |
| 6 | Z | Zero flag |
| 5 | X5,k | Originally unused, concerning X5 or k it mentions later |
| 4 | AC | Auxiliary(Assistant) carry or half carry and for BCD operation revision |
| 3 | 0 | Unused |
| 2 | P | Parity flag, as for just Z80 CPU overflow flag combined use |
| 1 | V | Overflow flag or subtraction flag |
| 0 (LSB) | C | Carry |

X5-in case of the usual 8 bit addition and subtraction when the mark of 1st operand S1, the mark of 2nd operand designating the mark of S2 and the operational result as R, it seems that can describe the change of X5 with the formula, $X5 = S1 \& S2 \mid S1 \& R \mid S2 \& R$.

UNDOCUMENTED INSTRUCTIONS OF 8085

| Operator cord/ code | clock | undocumented 8085 | Discription |
|------------------------|-------|-------------------|---|
| 08 | 10 | DSUB | HL = HL - BC . Z, S, P, CY, AC and X5, V all flag receives influence |
| 10 | 7 | ARHL,RRHL | Rotate HL right. 16-bit rotation, flags unchanged. HL = HL/2 and CY = L0 . ARHL order is arithmetic right shift of HL register pair. MSB of the H register which means the mark does not change. The least significant bit of L register enters into the CY flag. Just the CY flag changes. |

| | | | |
|----|------|--------------------|--|
| 18 | 10 | RDEL,RLDE | Rotate DE left. Bit 15 to Carry. No other flags. DE = DE*2 and E0=CY and CY =D7 |
| 20 | RIM | RIM | read interrupt mask |
| 28 | 10 | LDHI imm,ADI HL,bb | Add 00bb immediate to HL, setting flags. DE = HL + imm |
| 30 | SIM | SIM | set interrupt mask. |
| 38 | 10 | LDSI imm,ADI SP,bb | Add 00bb immediate to stack pointer, setting flags. DE < - SP + imm |
| CB | 6/12 | RSTV,OVRST8 | RST 8 (to 0040) if the V flag is set. push PC and PC = 0040H |
| D9 | 10 | SHLX,SHLDE | LD [DE],HL.[DE] = HL |
| DD | 7/10 | JNX5 addr,JNK addr | Jump to location addr if K flag is reset. if (! X5) PC = addr |
| ED | 10 | LHLX,LHLDE | LD HL,(DE).HL=[DE] |
| FD | 7/10 | JX5 addr,JK addr | Jump to location addr if K flag is set. if (X5) PC = addr |

The 8085 is 100% software compatible with the 8080. It was called the 8085 because it's a 5V version of the 8080, which needs +5, +12 and -5 voltage supplies.

Labels: **8085**