CODE CONVERSIONS LECTURE 5

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MULTIPLICATION

A multiplicand is stored in memory location XX50H and multiplier is stored in location XX51H.WAP to transfer the two numbers from memory locations to the HL registers and store the product in the output buffer at XX90H. Write a subroutine to multiply two unsigned numbers placed in registers H and L. Return the result to HL pair.

PROGRAM:

```
LXI SP,STACK
LHLD XX50H
XCHG
CALL MLTPLY
SHLD XX90H
HLT
```

(CONT.)

```
MLTPLY:   MOV A,D
          MVI D,00H
          LXI H,0000H
          MVI B,08H
NXTBIT:   RAR
          JNC NOADD
          DAD D
NOADD:    XCHG
          DAD H
          XCHG
          DCR B
          JNZ NXTBIT
          RET
```

Subtraction with Carry

```
        LXI D,2050H
        LXI H,2080H
        MVI B,05 H
NEXT:   CALL SBTRAC
        INX D
        INX H
        DCR B
        JNZ NEXT
        HLT
SBTRAC: MOV A,M; A
        XCHG
        SUB M
```

SUBTRACTION WITH CARRY(CONT.)

```
MOV M,A
XCHG
INX H
INX D
MOV A,M
XCHG
SBB M
CC INDIKET
MOV M,A
RET
```

- A set of five 16 bit readings of the current consumption of industrial control units is monitored by meters and stored at memory locations starting at xx50H,followed by the higher order byte.
- The corresponding maximum limits for each control unit are stored starting at XX90H. Subtract each reading from its specified limit, and store the difference in place of the readings.
- If any reading exceeds the maximum limit, call the indicator routine and continue checking.