

Date: 10-02-2022 Exp. 5

Code Conversion

**Aim:**

To find the code conversions for BCD and ASCII

**Tool Used:**

Assembler - MASM 611

**Algorithm:**

1. Assume two numbers bcd and ascii
2. Start the program by initializing the code segment and clear the content
3. Store the first 4 binary numbers of bcd and add 30 to it.
4. Then store the last 4 binary numbers of bcd and add 30 to it.
5. Split the ascii code into 2 halves and subtract 30 from each
6. Print the results

**Program:**

```
ASSUME CS:CODE,DS:DATA
```

```
DATA SEGMENT
```

```
    ORG 1000H
```

```
    ASI EQU 3532H
```

```
    BCD EQU 01110100
```

```
    ANSB DW ?
```

```
    ANSA DW ?
```

```
DATA ENDS
```

```
CODE SEGMENT
```

```
START:
```

```
    MOV AX,DATA
```

```
MOV DS,AX  
XOR AX,AX  
MOV AL,BCD  
MOV BL,0FH  
MOV AH,AL  
AND AL,BL  
MOV CX,04H  
SHR AH,CL  
OR AX,3030H  
MOV ANSB,AX  
XOR AX,AX  
MOV AX,ASI  
AND AX,0F0FH  
MOV ANSA,AX  
HLT  
CODE ENDS  
END START
```

**Sample Input:**

ASI - 3532H  
BCD - 74H

**Sample Output:**

ASCII : 37 34

BCD : 05 02

**Manual Verification:**

BCD to Decimal Converter

BCD:

**Convert BCD to Decimal**

**Decimal Number**

74

**Register/ Memory Contents for I/O:**

-u		
0865:0022	A30210	MOV [1002],AX
0865:0025	F4	HLT
0865:0026	C4F6	LES SI,SI
0865:0028	8946F6	MOV [BP-0A],AX
0865:002B	894EF8	MOV [BP-08],CX
0865:002E	8956FA	MOV [BP-06],DX
0865:0031	885EFC	MOV [BP-04],BL
0865:0034	887EFF	MOV [BP-01],BH
0865:0037	8CC8	MOV AX,CS
0865:0039	0F	DB 0F
0865:003A	02C0	ADD AL,AL
0865:003C	80E460	AND AH,60
0865:003F	80CC92	OR AH,92

Snapshot of the Output:

```
-g 0025

AX=0502  BX=000F  CX=0004  DX=0000  SP=0000  BP=0000  SI=0000  DI=0000
DS=0764  ES=0754  SS=0763  CS=0865  IP=0025  NV UP EI PL NZ NA PO NC
0865:0025 F4          HLT
-d 0764:1000 1005
0764:1000 34 37 02 05 00 00          47....
```

Result:

The code conversions are verified.