

INT 21H (DOS FUNCTION CALL)



Selected DOS Function Call

- ❑ To use a DOS function call in a DOS program, place the function number in AH and other data that might be necessary in other registers.

Example-1

MOV AH,01H ;load DOS function number

INT 21H ;access DOS

;returns with AL=ASCII key code



Function Number 01H

Read the Keyboard

Entry

AH=01H

Exit

AL=ASCII character

This function call automatically echoes whatever is typed to the video screen



Function Number 02H

Write to Standard Output Device

Entry

AH=02H

DL=ASCII character to be displayed

Exit

This function call normally displays data on the video display



Function Number 06H

Direct Console Read/Write

Entry

AH=06H

DL= 0FFH or DL= ASCII character to be displayed

Exit

AL=ASCII Character

If DL=0FFH on entry, then this function reads the console. If DL=ASCII Character, then this function displays the ASCII Character on the console (CON) video screen



Function Number 08H

Read standard input without echo

Entry

AH=08H

Exit

This function call reads the standard input device



Function Number 09H

Display a character string

Entry

AH=09H

DS:DX=address of the character string

Exit

The character string must end with an ASCII \$(24H). The character string can be of any length and may contain control characters such as carriage return (0DH) and line feed (0AH)



Function Number 0AH

Buffered Keyboard Input

Entry

AH=0AH

DS:DX=address of the keyboard input buffer

Exit

The first byte of the buffer contains the size of the buffer (up to 255). The second byte is filled with the number of the characters typed upon return. The third byte through the end of the buffer contains the character string typed, followed by a carriage return(0DH). This function continues to read the keyboard (displaying data as typed) until either the specified number of characters are typed or until the enter key is typed.



D0	D1	D2	D3	D4	D5	D6	D7	D8	D9
Buffer Length	Actual Length								

Figure 1: Keyboard Buffer Structure

Input

D0	D1	D2	D3	D4	D5	D6	D7	D8	D9
08	XX	XX	XX	XX	XX	XX	XX	XX	XX

Output

'H' 'E' 'L' 'L' 'O' 'enter' 'empty' 'empty'

D0	D1	D2	D3	D4	D5	D6	D7	D8	D9
08	05	68	65	6C	6C	6F	0D	XX	XX

- ❑ DOS 0AH is invoked with DS:DX pointing to an input buffer
- ❑ Size of the buffer should be at least three bytes longer than the largest input string anticipated

Example-1 : To read a string of maximum length 5, the buffer can be defined as below

```
MAXLEN DB 8  
ACTLEN DB ?  
BUFFER DB 6 DUP(?)
```

To read a string into the buffer, invoke DOS function 0AH as

```
MOV AH , 0AH  
MOV DX , OFFSET MAXLEN  
INT 21H
```



Function Number 4CH

Terminate Program and return to DOS

MOV AH , 4CH

INT 21H



Example 4-21

An example DOS model program that reads a key and displays it. Note that an @ key ends the program

```
.MODEL TINY
.CODE
.STARTUP
MAIN:  MOV AH,6           ;read a key
        MOV DL,0FFH
        INT 21H
        JE MAIN          ;eqvt to JZ, if no key typed
        CMP AL,'@'
        JE MAIN1         ;if an @ key is typed,exit
        MOV AH,06H       ; display key (echo)
        MOV DL,AL
        INT 21H
        JMP MAIN         ;repeat
MAIN1:
.EXIT           ; exit to DOS
END
```

(see page number 151, also see example 4-20, programs can be written in this format as well)



NEXT CLASS

Arithmetic and Logic Instructions



THE END

