

Short Notes Chapter 12 (Lecture 33-34):

The **video services** are exported via **INT 10**.

Classification of Video services:

1. graphics mode services and
2. text mode services.

In graphics mode a location in video memory corresponds to a dot on the screen.

In text mode, the video memory holds the ASCII of the character to be shown and the actual shape is read from a font definition stored elsewhere in memory.

A list of common **video services** used in text mode.

INT 10 - VIDEO - SET VIDEO MODE

AH = 00h

AL = desired video mode

Some **common video modes** include 40x25 text mode (mode 0), 80x25 text mode (mode 2), 80x50 text mode (mode 3), and 320x200 graphics mode (mode D).

INT 10 - VIDEO - SET TEXT-MODE CURSOR SHAPE

AH = 01h

CH = cursor start and options

CL = bottom scan line containing cursor (bits 0-4)

INT 10 - VIDEO - SET CURSOR POSITION

AH = 02h

BH = page number

0-3 in modes 2&3

0-7 in modes 0&1

0 in graphics modes

DH = row (00h is top)

DL = column (00h is left)

INT 10 - VIDEO - SCROLL UP WINDOW

AH = 06h

AL = number of lines by which to scroll up (00h = clear entire window)

BH = attribute used to write blank lines at bottom of window

CH, CL = row, column of window's upper left corner

DH, DL = row, column of window's lower right corner

INT 10 - VIDEO - SCROLL DOWN WINDOW

AH = 07h

AL = number of lines by which to scroll down (00h=clear entire window)

BH = attribute used to write blank lines at top of window

CH, CL = row, column of window's upper left corner

DH, DL = row, column of window's lower right corner

INT 10 - VIDEO - WRITE CHARACTER AND ATTRIBUTE AT CURSOR POSITION

AH = 09h

AL = character to display

BH = page number

BL = attribute (text mode) or color (graphics mode)

CX = number of times to write character

INT 10 - VIDEO - WRITE CHARACTER ONLY AT CURSOR POSITION

AH = 0Ah

AL = character to display

BH = page number

BL = attribute (text mode) or color (graphics mode)

CX = number of times to write character

INT 10 - VIDEO - WRITE STRING

AH = 13h

AL = write mode

bit 0: update cursor after writing

bit 1: string contains alternating characters and attributes

bits 2-7: reserved (0)

BH = page number

BL = attribute if string contains only characters

CX = number of characters in string

DH, DL = row, column at which to start writing

ES:BP -> string to write

CHARGEN Services:

The chargen subset of video services are:

INT 10 - VIDEO - GET FONT INFORMATION

AX = 1130h

BH = pointer specifier

Return:

ES:BP = specified pointer
CX = bytes/character of on-screen font
DL = highest character row on screen

INT 10 - TEXT-MODE CHARGEN

AX = 1110h
ES:BP -> user table
CX = count of patterns to store
DX = character offset into map 2 block
BL = block to load in map 2
BH = number of bytes per character pattern

Graphics Mode Services:

INT 10 - VIDEO - WRITE GRAPHICS PIXEL

AH = 0Ch
BH = page number
AL = pixel color
CX = column
DX = row

DOS VIDEO SERVICES:

Some important DOS services are listed below.

INT 21 - READ CHARACTER FROM STANDARD INPUT, WITH ECHO

AH = 01h
Return: AL = character read

INT 21 - WRITE STRING TO STANDARD OUTPUT

AH = 09h
DS:DX -> \$ terminated string

INT 21 - BUFFERED INPUT

AH = 0Ah
DS:DX -> dos input buffer

DOS INPUT BUFFER FORMAT:

The DOS input buffer has a special format where the first byte stores the maximum characters buffer can hold, the second byte holds the number of characters actually read on return, and the following space is used for the actual characters read.