Experiment 08 : Mouse Interfacing

Learning Objective: Student should be able to Develop program to interface mouse driver.
Tools: TASM/MASM

Theory:

Interface mouse using Int 33H

Int 33h MS Mouse Interrupt

Function 0 Reset
Input
AX = 0
Output
AX = mouse status -1 = installed
0 = not installed
BX = number of buttons

Function 1 Show Mouse Cursor
Input
AX = 1
Output
NONE

Function 2 Hide Mouse Cursor
Input
AX = 2
Output
NONE

Function 3 Get Mouse Position & Button Status
Input
AX = 3
Output
BX = Button Status
xxxx xxxx xxxx xMRL
M=middle (if present) R=right L=left
0= not pressed 1 = pressed
CX = Horizontal Mouse Cursor Position
DX = Vertical Mouse Cursor Position

(div positions by 2 for med res
graphics; div by 8 for text mode)

Function 4 Set Mouse Cursor Position
Input
AX = 4
CX = new horizontal cursor position
DX = new vertical cursor position
Output
NONE

Function 5 Get Button Press Information
Input
AX = 5
BX = button of interest (0=L; 1=R; 2=M)
Output
AX = button status (current status of ALL buttons)
BX = number of buutton presses on specified button
CX = horizontal position at last press
DX = vertical position at last press

Function 6 Get Button Release Information
Input
AX = 6
BX = button of interest (0=L; 1=R; 2=M)
Output
AX = button status (current status of ALL buttons)
BX = number of buutton presses on specified button
CX = horizontal position at last release
DX = vertical position at last release

Function 7 Set Minimum and Maximum X Position

Input
AX = 7
CX = new minimum horizontal cursor position
DX = new maximum horizontal cursor position
Output
NONE

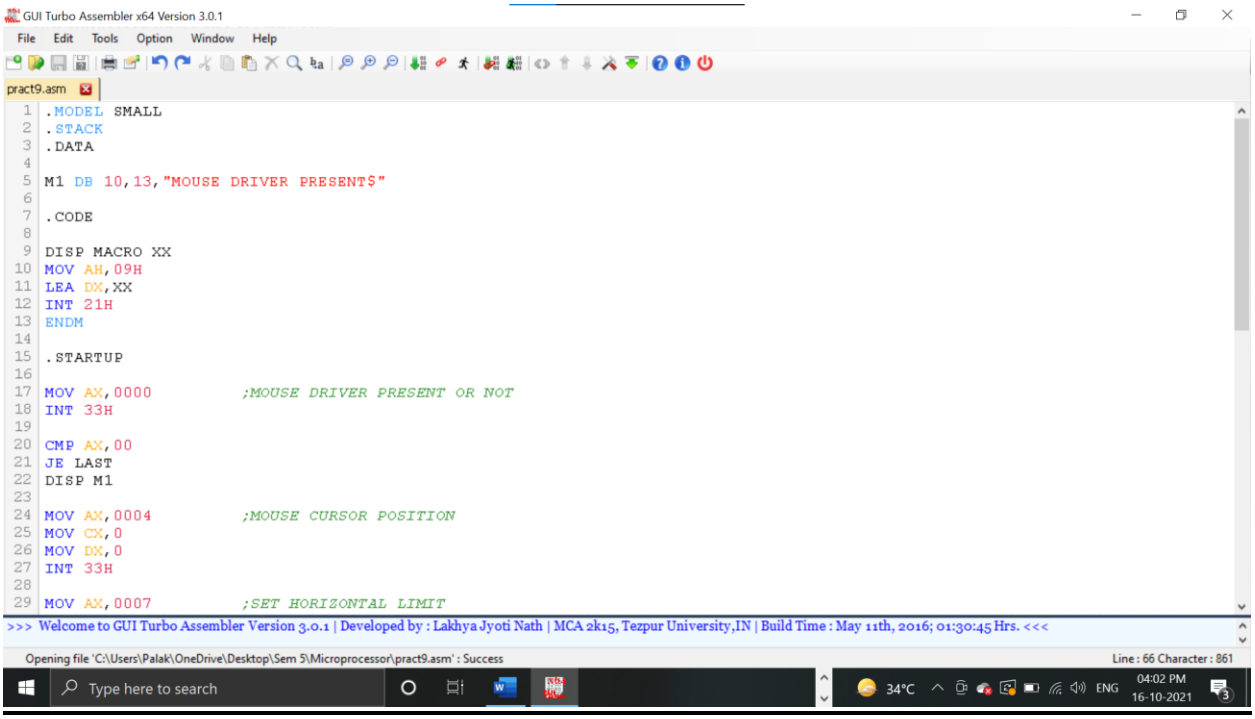
Function 8 Set Minimum and Maximum Y Position

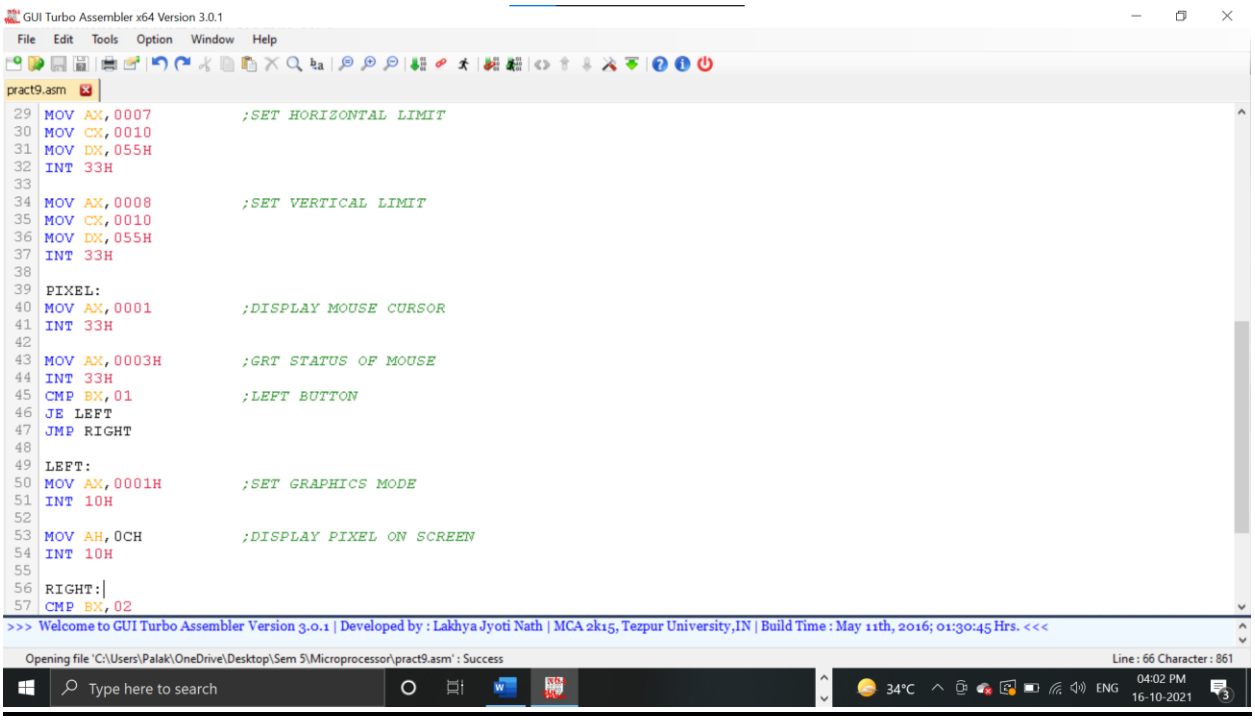
Input
AX = 8
CX = new minimum vertical cursor position
DX = new maximum vertical cursor position
Output
NONE

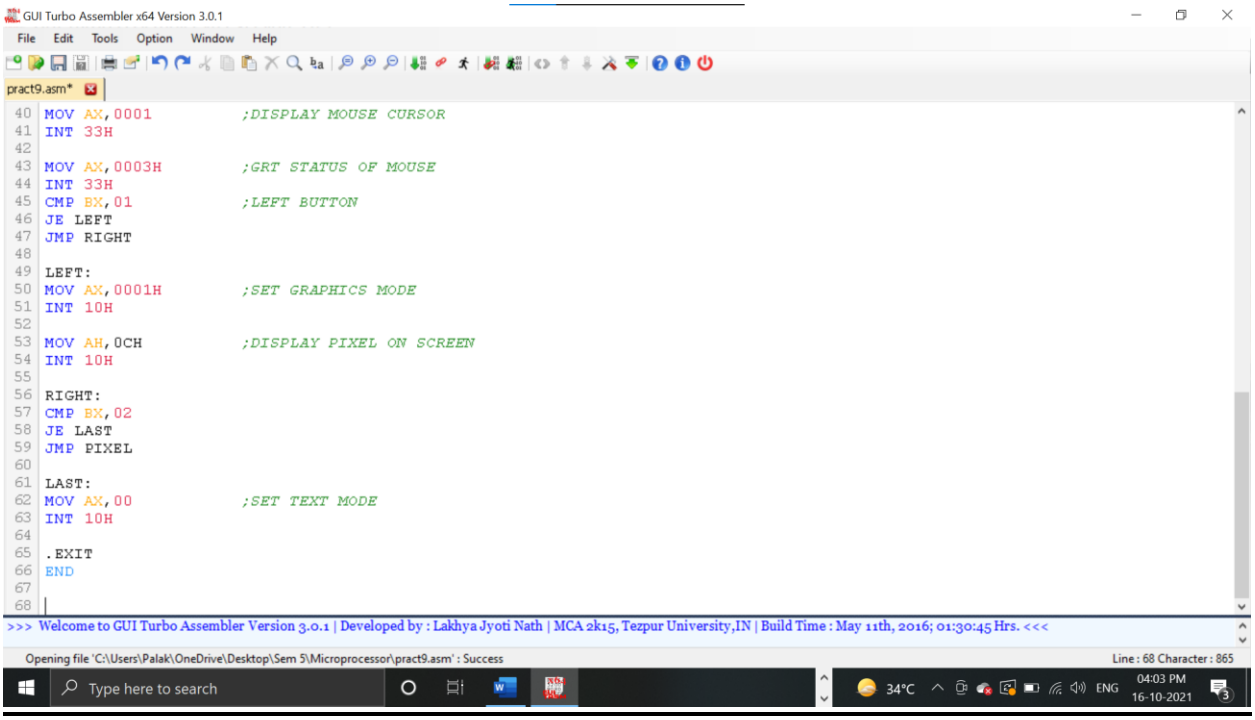
Function 9 Define Graphics Cursor
Input
AX = 9
BX = horizontal cursor hot spot (0,0) upper left
CX = vertical cursor hot spot
ES:DX = address of screen and cursor mask
Output
NONE

Application: Use of Int 33 H to interface mouse with system.

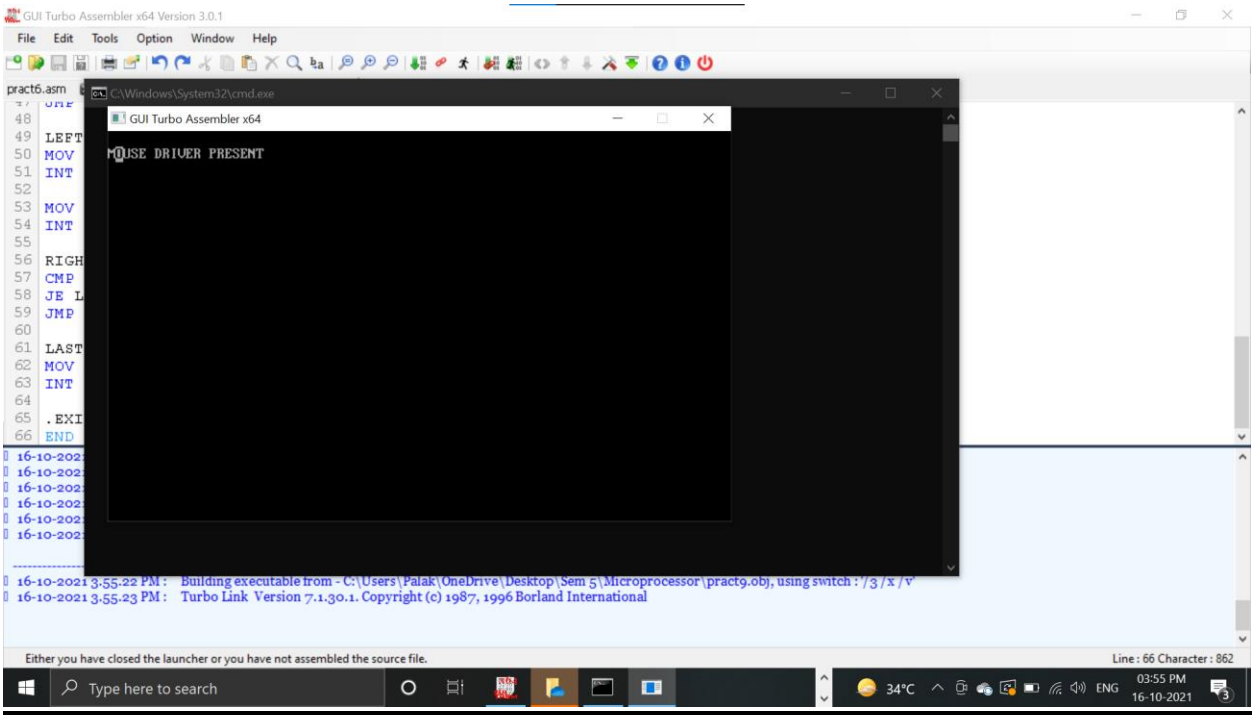
Design:

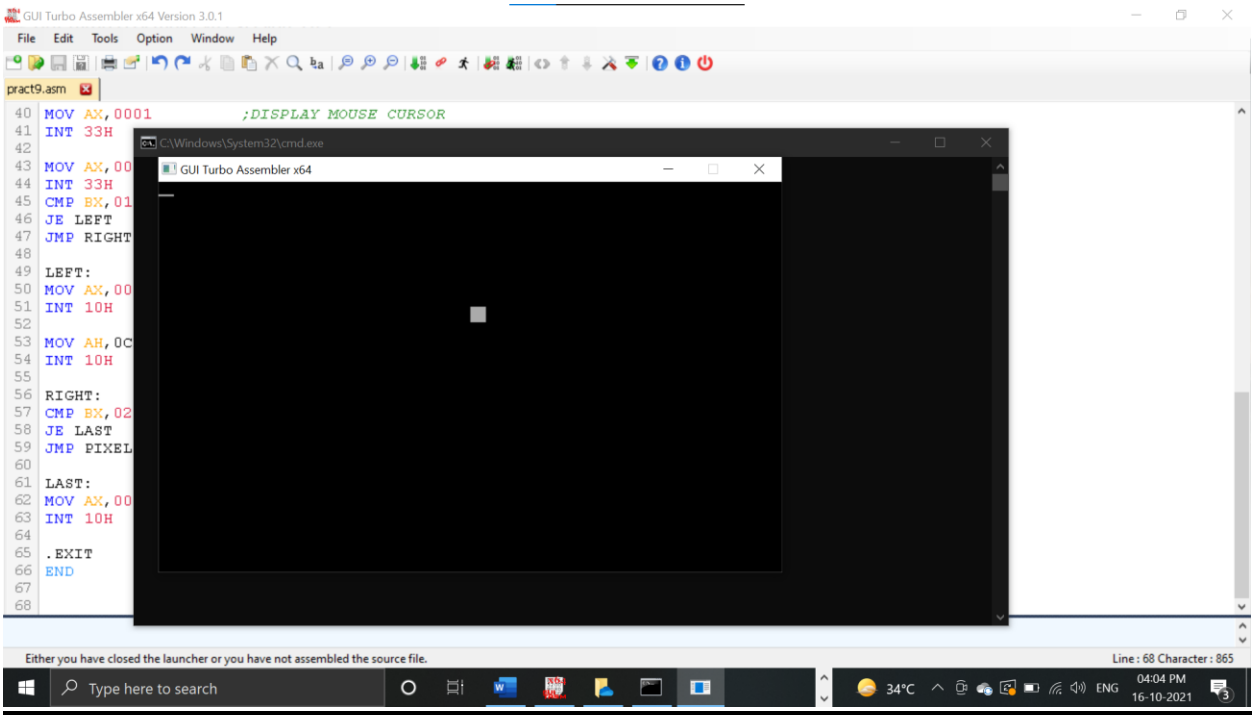



GUI Turbo Assembler x64 Version 3.0.1
File Edit Tools Option Window Help
pract9.asm
29 MOV AX,0007 ;SET HORIZONTAL LIMIT
30 MOV CX,0010
31 MOV DX,055H
32 INT 33H
33
34 MOV AX,0008 ;SET VERTICAL LIMIT
35 MOV CX,0010
36 MOV DX,055H
37 INT 33H
38
39 PIXEL:
40 MOV AX,0001 ;DISPLAY MOUSE CURSOR
41 INT 33H
42
43 MOV AX,0003H ;GRT STATUS OF MOUSE
44 INT 33H
45 CMP BX,01 ;LEFT BUTTON
46 JE LEFT
47 JMP RIGHT
48
49 LEFT:
50 MOV AX,0001H ;SET GRAPHICS MODE
51 INT 10H
52
53 MOV AH,0CH ;DISPLAY PIXEL ON SCREEN
54 INT 10H
55
56 RIGHT:
57 CMP BX,02
>>> Welcome to GUI Turbo Assembler Version 3.0.1 | Developed by : Lakhya Jyoti Nath | MCA 2k15, Tezpur University,IN | Build Time : May 11th, 2016; 01:30:45 Hrs. <<<
Opening file 'C:\Users\Palak\OneDrive\Desktop\Sem 5\Microprocessor\pract9.asm' : Success
Line : 66 Character : 861
Type here to search
34°C
ENG
04:02 PM
16-10-2021


GUI Turbo Assembler x64 Version 3.0.1
File Edit Tools Option Window Help
pract9.asm*
40 MOV AX,0001 ;DISPLAY MOUSE CURSOR
41 INT 33H
42
43 MOV AX,0003H ;GRT STATUS OF MOUSE
44 INT 33H
45 CMP BX,01 ;LEFT BUTTON
46 JE LEFT
47 JMP RIGHT
48
49 LEFT:
50 MOV AX,0001H ;SET GRAPHICS MODE
51 INT 10H
52
53 MOV AH,0CH ;DISPLAY PIXEL ON SCREEN
54 INT 10H
55
56 RIGHT:
57 CMP BX,02
58 JE LAST
59 JMP PIXEL
60
61 LAST:
62 MOV AX,00 ;SET TEXT MODE
63 INT 10H
64
65 .EXIT
66 END
67
68
>>> Welcome to GUI Turbo Assembler Version 3.0.1 | Developed by : Lakhya Jyoti Nath | MCA 2k15, Tezpur University,IN | Build Time : May 11th, 2016; 01:30:45 Hrs. <<<
Opening file 'C:\Users\Palak\OneDrive\Desktop\Sem 5\Microprocessor\pract9.asm' : Success
Line : 68 Character : 865
Type here to search
34°C
ENG
04:03 PM
16-10-2021

Result and Discussion:





Program for the same was written.

Learning Outcomes: The student should have the ability to

LO 9.1 Compare DOS and BIOS interrupts.

LO 9.2 Develop an application for Mouse interfacing using INT 33H.

LO 9.3 Develop an application for keyboard and Printer interfacing using INT 09H and INT 05H respectively.

Course Outcomes: Upon completion of the course students will be able to make use of instructions of 8086 to build assembly and Mixed language programs.

Conclusion: A system to Interface mouse using Int 33h is designed successfully.

Viva Questions:

1. Which interrupt used for mouse interfacing?

For Faculty Use

Correction Parameters	**Formative Assessment [40%]**	**Timely completion of Practical [40%]**	**Attendance / Learning Attitude [20%]**	
Marks Obtained				