

Laboratory Exercise 2

Write an C++ language program that displays current system time using interrupts. Program should take over two of the system interrupts, namely the keyboard interrupt (interrupt no. 09H) and the system timer interrupt (interrupt no. 08H). The keyboard interrupt handler, installed by the user, should only perform a check for F12 key press and switch the program between a standard mode, in which only the current hour minute and second is displayed on the screen, and an enhanced mode in which microseconds are also displayed additionally. The user timer interrupt handler should be programmed to constantly display current time on the screen, until the application finishes. In such setup the current time is displayed on the screen say to say "in the background", whereas the only role of the program's main loop is to check for Esc key press, which terminates the application.

Please use your code form Exercise 1 to display the current time on the screen using only the video memory. Also avoid calls to any of the C language functions which invoke DOS system calls from inside the interrupt handling routines (e.g. avoid calling a function `_dos_gettime` from a system timer interrupt handler), since it might cause the DOS system procedures to crush thus hanging the whole system. Use example programs for accomplishing the exercise.