

Homework: xv6 and Interrupts and Exceptions

This assignment requires the files `xv6.pdf` and `xv6_rev0.zip`. You may download them from the Assignments page.

Read: `trapasm.C`, `trap.c`, `syscall.c`, `vectors.S`, `usys.c` of `xv6`. Skim `lapic.c`, `ioapic.c`, and `picirq.c`

Hand-In Procedure

You are to turn in this homework during lecture. Please write up your answers to the exercises below and hand them in to a 6.828 staff member at the beginning of the lecture.

Introduction

Try to understand `trapasm.C`, `trap.c`, `syscall.c`, `vectors.S`, `usys.c` of `xv6`. You will need to consult:

Chapter 5 of IA-32 Intel Architecture Software Developer's Manual, Volume 3: System programming guide present in readings section; you can skip sections 5.7.1, 5.8.2, and 5.12.2. Be aware that terms such as exceptions, traps, interrupts, faults and aborts have no standardized meaning.

Chapter 9 of the 1987 i386 Programmer's Reference Manual in readings section also covers exception and interrupt handling in IA32 processors.

Assignment: In `xv6`, set a breakpoint at the beginning of `syscall()` to catch the very first system call. What values are on the stack at this point? Turn in the output of `print-stack 35` at that breakpoint with each value labeled as to what it is (e.g., saved `%ebp` for `trap`, `trapframe.eip`, etc.).

This completes the homework.