Week5-lab-report

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Q1

- ebreak之后，会产生中断信号，之后系统会寻找stvec寄存器中村的地址，调到对应位置，执行相应中断函数，执行前通过入口先用结构体封装上下文便于保存，然后打包给trap函数保存，trap函数调用exception_handler()处理中断，处理万后返回之前保存的上下文

Q2

- code

  in trap.c: change the case Illegal exception in exception_handler():

  ```
  case CAUSE_ILLEGAL_INSTRUCTION:
      cprintf("illegel caught at 0x%016llx\n", tf->epc);
      tf->epc += 2;
      break;
  ```

  in init.c:
  add one sentence before while(1):

  ```
  asm volatile("mret" ::);
  ```

- result

```
11911609JohnnyGe@johnny-Ge-WXX9:~/OS/labs/lab5/lab5_code$  make qemu
+ cc kern/init/init.c
+ cc kern/trap/trap.c
+ ld bin/kernel
riscv64-unknown-elf-objcopy bin/kernel --strip-all -O binary bin/ucore.bin

OpenSBI v0.6
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Platform Name          : QEMU Virt Machine
```

```
Platform HART Features : RV64ACDFIMSU
Platform Max HARTs     : 8
Current Hart           : 0
Firmware Base          : 0x80000000
Firmware Size          : 120 KB
Runtime SBI Version    : 0.2

MIDELEG : 0x0000000000000222
MEDELEG : 0x000000000000b109
PMP0    : 0x0000000080000000-0x000000008001ffff (A)
PMP1    : 0x0000000000000000-0xffffffffffffffff (A,R,W,X)
os is loading ...

ebreak caught at 0x000000008020003a
illegel caught at 0x000000008020003c
```