

```

1 Handout for CS 372H
2 Class 8
3 10 February 2011
4
5 1. Implementing threads
6
7     Per-thread state in thread control block:
8
9     typedef struct tcb {
10         unsigned long esp;      /* Stack pointer of thread */
11         char *t_stack;         /* Bottom of thread's stack */
12         /* ... */
13     };
14
15     Machine-dependent thread-switch function:
16
17     void swtch(tcb *current, tcb *next);
18
19     Machine-dependent thread initialization function:
20
21     void thread_init(tcb *t, void (*fn) (void *), void *arg);
22
23     Implementation of swtch(current, next):
24
25     pushl %ebp; movl %esp, %ebp      # Save frame pointer
26     pushl %ebx; pushl %esi; pushl %edi # Save callee-saved regs
27
28     movl 8(%ebp),%edx                # %edx = current
29     movl 12(%ebp),%eax               # %eax = next
30     movl %esp,%edx                  # %edx->esp = %esp
31     movl (%eax),%esp                 # %esp = %eax->esp
32
33     popl %edi; popl %esi; popl %ebx # Restore callee saved regs
34     popl %ebp                       # Restore frame pointer
35     ret                              # Resume execution
36
37
38     [thanks to David Mazieres]
39

```