CS330 PJ #0

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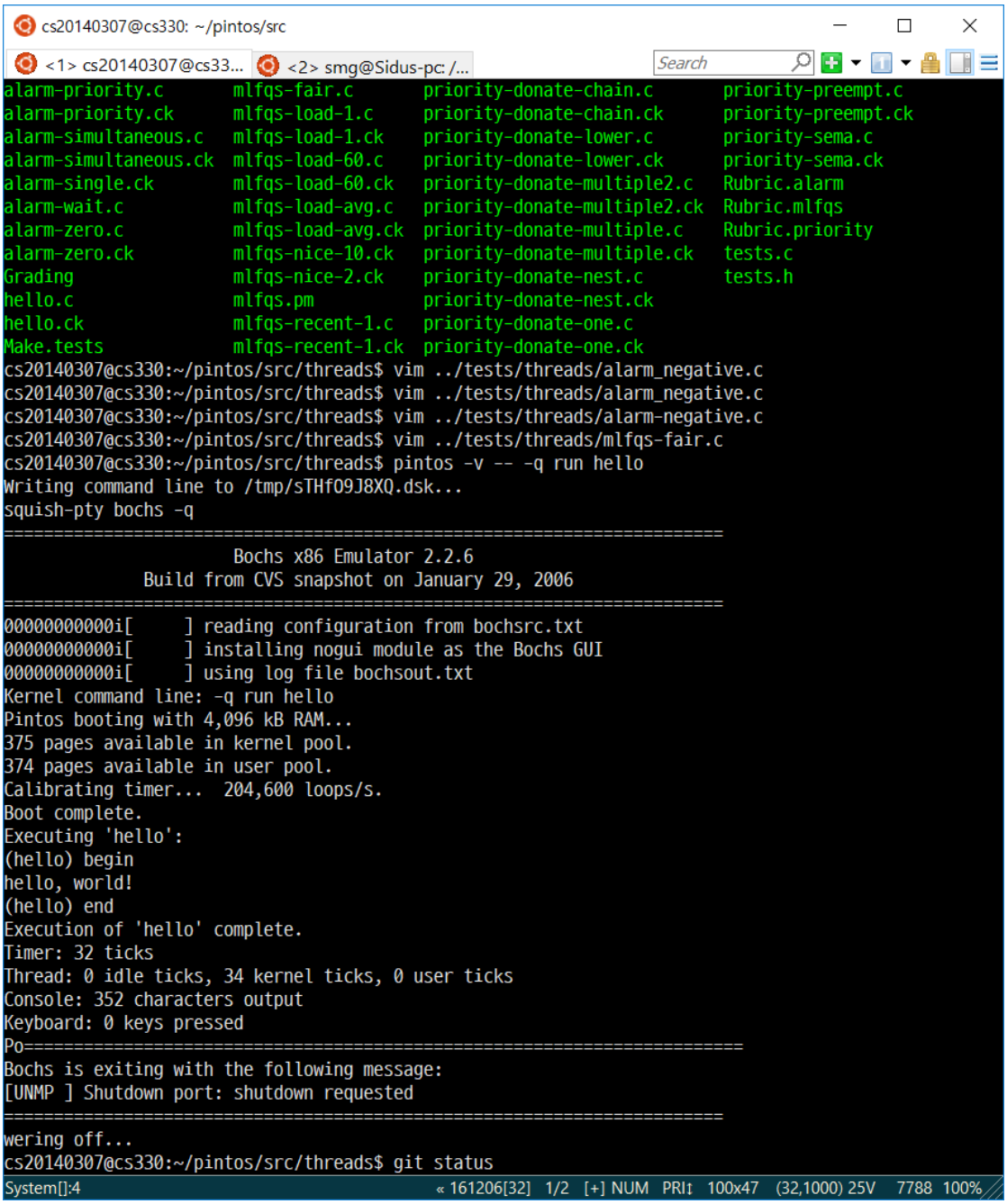
1 Preliminaries

0 tokens used.

2 Objectives

Add a new test program that prints “hello, world!”

3 Result


cs20140307@cs330: ~/pintos/src
<1> cs20140307@cs33...
<2> smg@Sidus-pc: /...
Search
alarm-priority.c mlfqs-fair.c priority-donate-chain.c priority-preempt.c
alarm-priority.ck mlfqs-load-1.c priority-donate-chain.ck priority-preempt.ck
alarm-simultaneous.c mlfqs-load-1.ck priority-donate-lower.c priority-sema.c
alarm-simultaneous.ck mlfqs-load-60.c priority-donate-lower.ck priority-sema.ck
alarm-single.ck mlfqs-load-60.ck priority-donate-multiple2.c Rubric.alarm
alarm-wait.c mlfqs-load-avg.c priority-donate-multiple2.ck Rubric.mlfqs
alarm-zero.c mlfqs-load-avg.ck priority-donate-multiple.c Rubric.priority
alarm-zero.ck mlfqs-nice-10.ck priority-donate-multiple.ck tests.c
Grading mlfqs-nice-2.ck priority-donate-nest.c tests.h
hello.c mlfqs.pm priority-donate-nest.ck
hello.ck mlfqs-recent-1.c priority-donate-one.c
Make.tests mlfqs-recent-1.ck priority-donate-one.ck
cs20140307@cs330:~/pintos/src/threads$ vim ../tests/threads/alarm_negative.c
cs20140307@cs330:~/pintos/src/threads$ vim ../tests/threads/alarm_negative.c
cs20140307@cs330:~/pintos/src/threads$ vim ../tests/threads/alarm-negative.c
cs20140307@cs330:~/pintos/src/threads$ vim ../tests/threads/mlfqs-fair.c
cs20140307@cs330:~/pintos/src/threads$ pintos -v -- -q run hello
Writing command line to /tmp/sTHfO9J8XQ.dsk...
squish-pty bochs -q
Bochs x86 Emulator 2.2.6
Build from CVS snapshot on January 29, 2006
00000000000i[ ] reading configuration from bochsrc.txt
00000000000i[ ] installing nogui module as the Bochs GUI
00000000000i[ ] using log file bochsout.txt
Kernel command line: -q run hello
Pintos booting with 4,096 kB RAM...
375 pages available in kernel pool.
374 pages available in user pool.
Calibrating timer... 204,600 loops/s.
Boot complete.
Executing 'hello':
(hello) begin
hello, world!
(hello) end
Execution of 'hello' complete.
Timer: 32 ticks
Thread: 0 idle ticks, 34 kernel ticks, 0 user ticks
Console: 352 characters output
Keyboard: 0 keys pressed
Bochs is exiting with the following message:
[UNMP] Shutdown port: shutdown requested
wering off...
cs20140307@cs330:~/pintos/src/threads$ git status
System[]:4
« 161206[32] 1/2 [+] NUM PRI↕ 100x47 (32,1000) 25V 7788 100%

4 Implementation

To track on test named hello, I modified `src/tests/threads/Make.tests`, `src/tests/threads/tests.h`, and `src/tests/thread/tests.c`.

I referred the list and the format of the predefined tests, and added the filename '`hello.c`' and test name `hello` based on those contexts.

And as a expected result of test `hello`, I made `src/tests/threads/hello.ck` based on another predefined test with a simple output, `alarm-zero.ck`.

`src/tests/threads/hello.c` contains actual program code. It includes `<stdio.h>` and `tests/threads/tests.h`, and a function `test_hello` with a simple `printf` line.

Other tests uses the `msg` function to print, but I could not find what makes them different to each other. Since `msg` prints the test name, I decided using `printf` is more appropriate to the assignment terms.

5 Description

As the appendix on pintos manual describes, the loader finds the kernel, loads it to memory, and sets the control on its entry point. `main()` is responsible to initialize BSS, parse command line, initialize the thread system, the memory system, the interrupt system. Then it creates the thread and enables interrupts, calibrates the timer.

Boot is over, so the pintos excutes the command line.

`printf` is implemented in `kernel/stdio.h`, and it uses `vga.c`, `vga.h`, `serial.c` and `serial.h` to display the text "hello, world!".