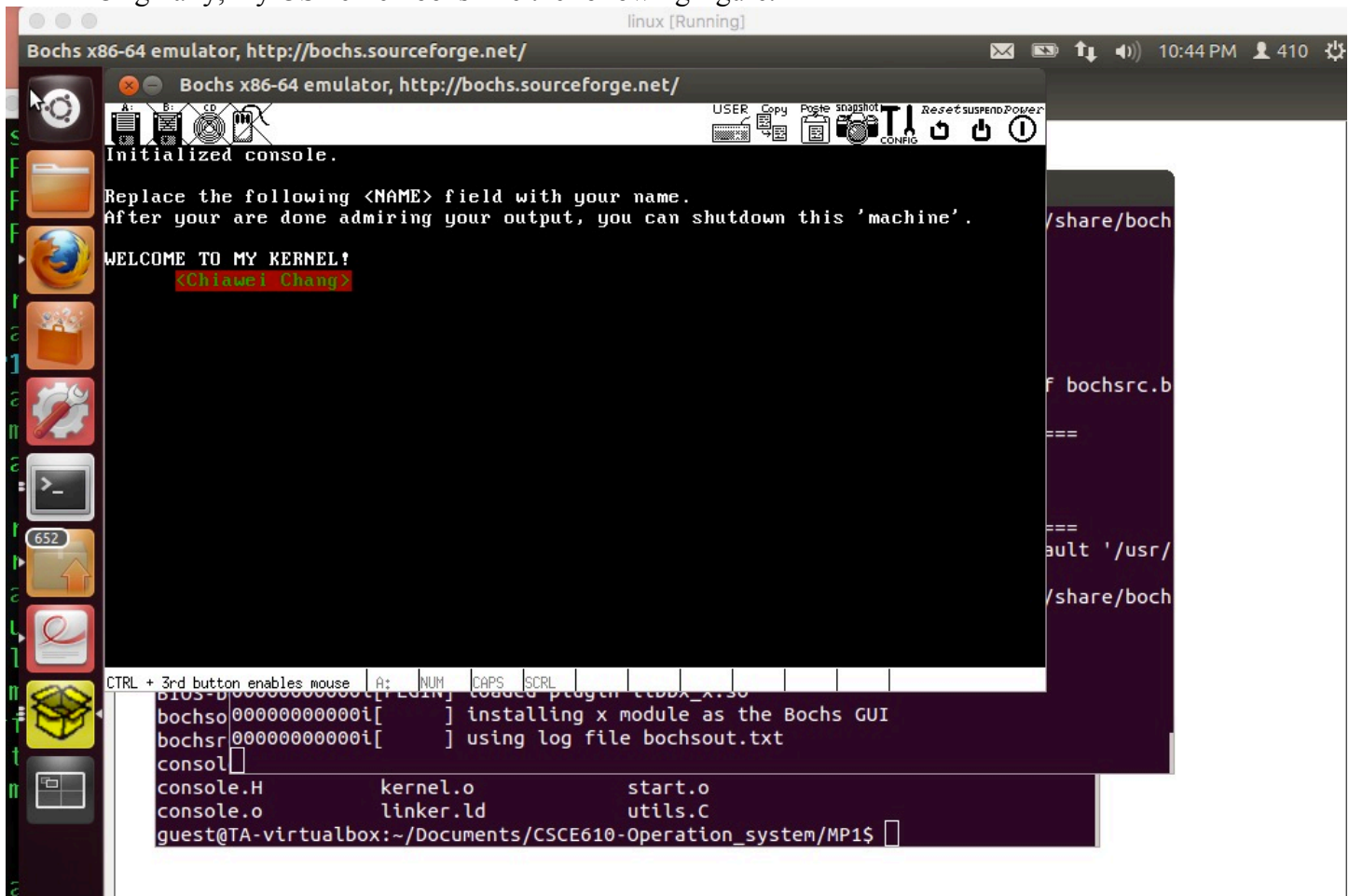


MP1

My github repo for this project is : https://github.com/hunkywei/CSCE610-Operation_system/

Originally, my OS kernel looks like the following figure.



Firstly, I downloaded the Get Bochs package from the web page documented in our instruction. Secondly, since gdb can be used to remotely debug the Bochs Environment, I follow the instruction to enable the gdb stub in the Bochs configuration file. After I set up the gdb debugger and modified the bochsrc.bxrc file, it will then waiting for the pre-set port first while we run it. I opened up two terminal and connected the gdb with boch locally like the picture shows bellow.

```
linux [Running]
Terminal File Edit View Search Terminal Help
Bochs x86 emulator, http://bochs.sourceforge.net/
guest@TA-virtualbox: ~/Documents/CSCE610-Operation_system/MP1
guest@TA-virtualbox:~/Documents$ ls
CSCE610-Operation_system __MACOSX MP1_Sources
guest@TA-virtualbox:~/Documents$ cd CSCE610-Operation_system/
guest@TA-virtualbox:~/Documents/CSCE610-Operation_system$ ls
MP1 README.md
guest@TA-virtualbox:~/Documents/CSCE610-Operation_system$ cd MP1/
guest@TA-virtualbox:~/Documents/CSCE610-Operation_system/MP1$ ls
BIOS-bochs-latest copykernel.sh makefile utils.H
bochsout.txt dev_kernel_grub.img MP1.img utils.o
bochsrc.bxrc kernel.bin README.TXT VGABIOS-lgpl-
console.C kernel.C start.asm
console.H kernel.o start.o
console.o linker.ld utils.C
guest@TA-virtualbox:~/Documents/CSCE610-Operation_system/MP1$ gdb
kernel.bin kerneloops kerneloops-submit
guest@TA-virtualbox:~/Documents/CSCE610-Operation_system/MP1$ gdb
kernel.bin kerneloops kerneloops-submit
guest@TA-virtualbox:~/Documents/CSCE610-Operation_system/MP1$ gdb
Reading symbols from /home/guest/Documents/CSCE610-Operation_syst
...(no debugging symbols found)...done.
(gdb) target remote localhost:1234
Remote debugging using localhost:1234
0x0000ffff in ?? ()
(gdb)

-----
This is the Bochs Configuration Interface
machine that you want to simulate. Bochs
configuration file (typically called bochs
could be found. When you are satisfied w
ahead and start the simulation.

You can also start bochs with the -q opti

1. Restore factory default configuration
2. Read options from...
3. Edit options
4. Save options to...
5. Restore the Bochs state from...
6. Begin simulation
7. Quit now

Please choose one: [6]
00000000000i[ ] installing x module as the Bochs GUI
00000000000i[ ] using log file bochsout.txt
Waiting for gdb connection on port 1234
Connected to 127.0.0.1
```

Finally, I set some break point to test our gdb is well functional and fully installed.

```
linux [Running]
Terminal File Edit View Search Terminal Help
Bochs x86 emulator, http://bochs.sourceforge.net/
guest@TA-virtualbox: ~/Documents/CSCE610-Operation_system/MP1
(gdb) target remote localhost:1234
Remote debugging using localhost:1234
0x0000ffff in ?? ()
(gdb) b main
Function "main" not defined.
Make breakpoint pending on future shared library load? (y or [n]) yy

Breakpoint 1 (main) pending.
(gdb) l
No symbol table is loaded. Use the "file" command.
(gdb) l
No symbol table is loaded. Use the "file" command.
(gdb) file kernel.C
A program is being debugged already.
Are you sure you want to change the file? (y or n) y
"/home/guest/Documents/CSCE610-Operation_system/MP1/kernel.C": not in execu
format: File format not recognized
(gdb) info frame
Stack level 0, frame at 0x0:
eip = 0xffff0; saved eip 0xffff0
Outermost frame: outermost
Arglist at unknown address.
Locals at unknown address, Previous frame's sp in esp
(gdb)

-----
This is the Bochs Configur
machine that you want to s
configuration file (typica
could be found. When you
ahead and start the simula
You can also start bochs w

1. Restore factory default
2. Read options from...
3. Edit options
4. Save options to...
5. Restore the Bochs state from...
6. Begin simulation
7. Quit now
```