

Open prepared VirtualBox image

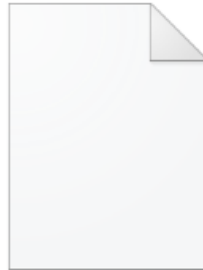
- Install [VirtualBox](#) first
- Decompress NTU-CompilerDesign-2019.rar
https://drive.google.com/open?id=1fEzdDWRkF686gbF-LXPh7SlwzF4ubCv_



Logs



NTU-CompilerDesign-2019.vbox



NTU-CompilerDesign-2019.vbox-
prev

*If the Internet is disabled, please reconnect the Internet or reboot the OS.



NTU-CompilerDesign-2019.vdi

Click it!

Prepared VM image! (RISC-V toolchain installed)

If internet is disable.

- Please reboot or reconnect.

How to run our output.s

Tools

- RISC-V toolchain are all installed at `/home/ntu/.local/riscv`
- GNU C Compiler
 - `riscv64-unknown-linux-gnu-gcc`
- GNU objdump
 - `riscv64-unknown-linux-gnu-objdump`

```
compiler@compiler-VirtualBox:~/hw5_src$ ls  
hello.c main.S others output.s
```

```
compiler@compiler-VirtualBox:~/hw5_src$ cat hello.c  
int MAIN(){  
    write("Hello");  
    write("\n");  
    return 0;  
}
```

- Don't modify main.S .
- hello.c is the input file(what we want to compile).
- Run ./parser hello.c. The output.s is the output.

```
ntu@compiler:~/Compiler$ riscv64-unknown-linux-gnu-gcc -static -O0 main.S
ntu@compiler:~/Compiler$ qemu-riscv64 a.out
Hello Compiler!
ntu@compiler:~/Compiler$
```

- Linking: `riscv64-unknown-linux-gnu-gcc -static -O0 main.S`
- `a.out` is the RV64G executable.

We run `a.out` through `qemu-riscv64`

You can also use run.sh

- We also provide a script: run.sh to do all these instructions.

Usage:

Put the run.sh and main.S in the same directory.

`./run.sh [your parser] [the C-- file]`

The output is a a.out executable.

Ex: `./run.sh ./parser ./patern/hello.c`

How to debug?

Using GDB and QEMU

- We can run command: `riscv64-unknown-linux-gnu-objdump -d a.out > tmp.s` to dump assembly to tmp.s
- Run: `qemu-riscv64 -g 1234 ./a.out`
- create another terminal and type the following command
- `riscv64-unknown-linux-gnu-gdb`
(enter gdb)
- set architecture `riscv:rv64`
- target remote `localhost:1234`

Some useful command for gdb

- `b *address`
- `layout asm`
- `layout regs`
- `c`
- `nexti`

Can get more information by typing `help` or google `gdb`.

