

# ECE 391 Discussion

## Week 1

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# Announcements & Reminders

- ▶ Make sure you have access
  - ▶ The ECE391 lab (ECEB 3026)
  - ▶ Both V and Z drive
  - ▶ GitLab Repo
  - ▶ Course Webpage/Piazza
- ▶ MP0 is due next Wednesday (Sept 5) before OH ends
  - ▶ Demo to a TA in office hour before the due date
  - ▶ Must complete on a EWS lab computer
  - ▶ Start early

# Announcements & Reminders

- ▶ x86 Assembly reference sheet is available on the course website
- ▶ Setup an environment at home
  - ▶ [https://courses.engr.illinois.edu/ece391/references/doc-workhome\\_novpn.pdf](https://courses.engr.illinois.edu/ece391/references/doc-workhome_novpn.pdf)
  - ▶ Post all related questions to pinned Piazza post
  - ▶ This is not officially supported by the staff, if you need help please grab a TA that knows ☺
  - ▶ If you want to do MP1 on this setup you must do part of MP0 on this setup too (detailed information is included in the link above)

# Machine Problems (MP) & Problem Sets (PS)

- ▶ 2-3 PSs, about 1% total grade
  - ▶ Groups of at least 3
- ▶ 4 MPs
  - ▶ MP0: Environment setup (5%)
    - ▶ At most 2 hours (if you RTDC)
    - ▶ Lock computer and return (must leave note, no more than 4 hours)
  - ▶ MP1: RTC tasklet based game (x86) (10%)
  - ▶ MP2: Device drivers (C) (VGA, TUX) & multi-threading (10%)
    - ▶ 2 checkpoints
  - ▶ MP3: Operating system (C and x86) (25%)
    - ▶ Linux style OS
    - ▶ 5 checkpoints
    - ▶ Group of 4

# Lab & Office Hours

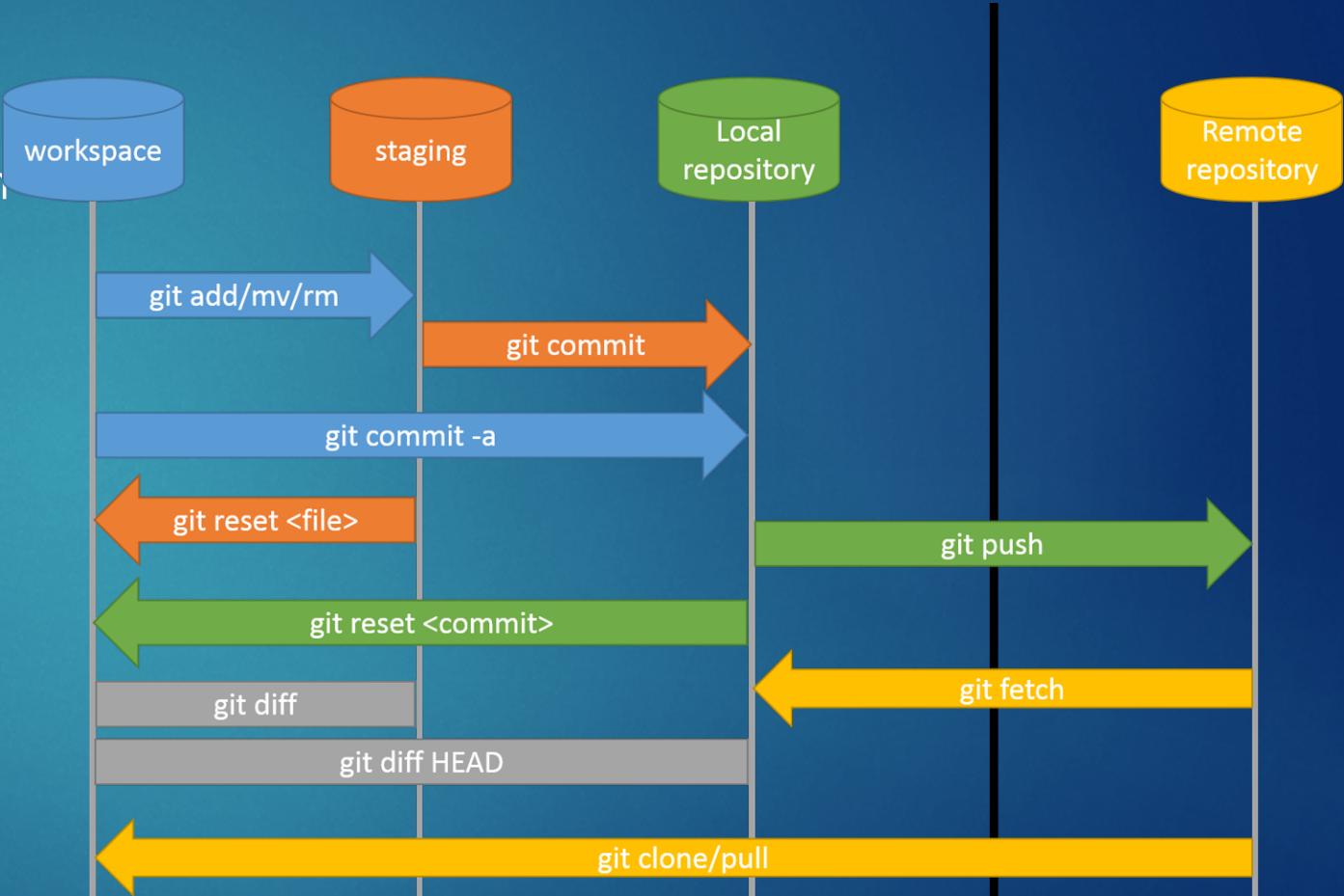
- ▶ ECEB 3026 is dedicated to ECE 391 only
  - ▶ If you see students from other class and the lab is full, tell them to leave (be nice)
  - ▶ Only lab with office hours!
- ▶ You may lock your machine AND leave a note for up to 30 minutes (except for MP0, which is 4 hours max)
- ▶ Trash must go outside the lab
- ▶ Do **NOT** block the door (either open or close)
- ▶ Windows (the physical ones) don't open so stay fresh
- ▶ Write your name on the queue if you want to ask questions
  - ▶ Queue is on the course website
  - ▶ Be prepared for questions from the TA
  - ▶ You must be in ECEB 3026 when we call your name

# GNU Debugger (GDB)

- ▶ Some useful commands
  - ▶ Ctrl+c: interrupt the current running program so you can use other commands
  - ▶ info reg (ir): show all current values of the registers
  - ▶ continue (c): continue to run the program you interrupted
  - ▶ run (r): run the program
  - ▶ step (s): executes the next instruction, if the next instruction is a function, this will step into it
  - ▶ stepi (si): execute the next machine instruction (useful for inline assembly)
  - ▶ next (n): executes the next instruction, if the next instruction is a function, this will execute the entire function
  - ▶ breakpoint (b): allows you to set breakpoints, either function names or line numbers, you can also specify file names too.

# Git

- ▶ Distributed version control system
- ▶ Useful commands
  - ▶ git pull
  - ▶ git push
  - ▶ git commit
  - ▶ git log
  - ▶ git add
  - ▶ git status
  - ▶ git reset
  - ▶ git diff
  - ▶ .....



# Make & Makefile

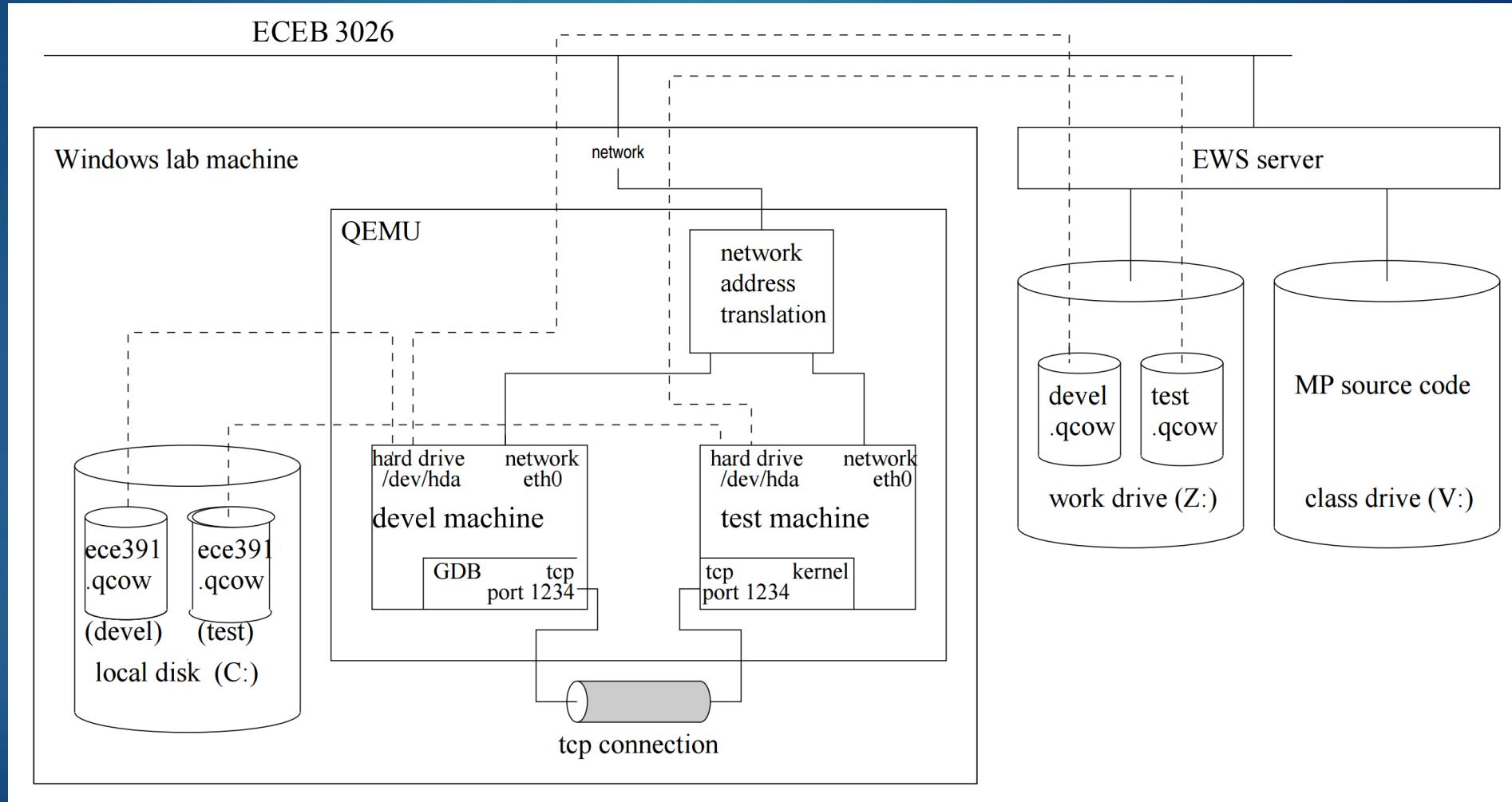
- ▶ A **Makefile** is a script that **make** runs
  - ▶ Basically you put the compilation command you normally run in the terminal in this file and give the target a name
  - ▶ Example:

```
hello: other.o
        gcc other.o hello.c -o hello
other.o:
        gcc -o other.c
```
  - ▶ Running “make hello” to execute that target. Necessary dependencies will also be run automatically
  - ▶ Running “make” with no arguments will run the target “all:” if it exists
- ▶ We do not cover this in the lectures / discussions

# Environment

- ▶ V: class drive, where you find your MP0 materials
- ▶ Z: work drive, your VMs and your source codes go here, mounted as /workdir/ inside the VMs (not mounted in working from home)
- ▶ U: EWS Windows home drive, do **NOT** use this one
- ▶ Shortcuts
  - ▶ devel
  - ▶ test\_nodebug
  - ▶ test\_debug
- ▶ QEMU troubleshooting
  - ▶ Check file “C:\qemu-1.5.0-win32-sdl\stderr.txt” if VMs are not starting

# Environment



# Some useful suggestions

- ▶ Always attend lectures and discussions as long as you don't have conflicts (which you shouldn't).
- ▶ Use Piazza
  - ▶ Everything course related will be posted
- ▶ Take full advantage of the course website
  - ▶ homework and MP doc, OH information, syllabus, practice exams and other useful references.
- ▶ Learn Git!
  - ▶ We use Gitlab for MP code distribution and submission. Make sure you have access to Gitlab through your netID.
- ▶ For office hour, we have a new website to keep track of question queue and TA's effort to guarantee fairness.

# Some useful suggestions

- ▶ Make sure to start early on MPs.
- ▶ Think and read before you raise any questions.
  - ▶ Questions are highly welcome, but we will be more glad to help if we know that you've already put some effort looking for answers. (**RTDC** = Read The Document Carefully)
- ▶ Kind feedbacks to the course are always welcome.
- ▶ Do **NOT** cheat
- ▶ Have fun!