12:02:27 From Cecil, Blake R to Everyone: did you ever look into running omp with nvcc

I haven’t. I will check it out soon.

12:02:27 From Huy Trieu to Everyone: i think my third function for project 6 was faster, is this wrong?

It’s not what I would have expected, but a bunch of people are getting that, so you should go with it.

12:02:41 From Akins, Sean to Bailey, Mike: What was the probability for Project 5?

~ 10%

12:02:42 From Milan Donhowe to Everyone: For project 6 would you prefer we use the DGX system to collect performance metrics like we did in Project 5?

Yes, please. I’d like you to know the types of performances the most modern GPUs can give you.

12:11:51 From Ebert, Victoria to Everyone: The website says that the grades are out of 1110 points, but canvas only has 1010 points worth of assignments. Is there one missing or is the class site wrong?

12:12:59 From Matsumoto, Nicholas to Everyone: canvas doesn’t have the last test in yet

You’re right. I’m still working on Test #2 so haven’t published it yet.

12:22:52 From Gutzmann, Melanie to Everyone: I might also be totally misunderstanding how OpenGL operates, maybe it can stream its output to a file or something

It can, but it is slow and your program has to do it. The process is:
1. Render a frame out to the screen
2. Upload those pixels into an array in your program
3. Write that array to a file whose format can be used to play them back frame-by-frame (e.g., mp4)

12:25:49 From Gutzmann, Melanie to Everyone: seems like this might be helpful for us regarding window creation: https://stackoverflow.com/questions/66497147/cant-run-opengl-on-wsl2 but haven’t looked into the GPU access

12:26:15 From Lucas Stella to Everyone: I would expect we are rendering out frames for the simulation

Yes, but not the “upload pixels” style of rendering – the realtime animation style of rendering.

12:28:39 From Barnes, Jack to Everyone: with a quick search, it looks like wsl2 can work with opengl output, might need to change a config setting or two. And VMs generally don’t have full GPU access, although I’m sure there is an exception. IMO setting up VS2019 is the path of least resistance for running within Windows 10

12:29:12 From Patrick Sullivan to Everyone: I want to say you can access a Linux windowed application by: 1. Installing xming or some sort of X11 forwarding server on windows, 2. Installing a windowing system on WSL https://thomasward.com/wsl2-x11/
12:30:23 From Cho, Yongsung to Everyone: Can I run this code and get result video on rabbit or DGX server?

No.

12:31:20 From Zach Parsons to Everyone: Will a Mac laptop be able to run this if it was also able to run CS450 assignments?

Yes, if it also has the OpenCL drivers loaded.

12:31:30 From James Taylor to Everyone: Imagine calling a GPU that doesn't have any graphics capabilities a GPU. lol

12:37:42 From Lucas Stella to Everyone: Its just a PU 😊

12:38:28 From Zach Parsons to Everyone: Is 7A any more graphics intensive than the CS450 assignments?

No.

12:49:54 From Gutzmann, Melanie to Everyone: just out of curiosity, do students generally tend to pick 7a or 7b?.

12:50:00 From Patrick Sullivan to Everyone: What's the usual split between people doing 7a vs 7b?

This is the first time I have added an MPI project into the mix. Ask me again in 2 weeks. But, do try to take your career aspirations into account when choosing. Depending on your career goals, either 7A or 7B would be cool to talk about and show to the right kind of job interviewer.

12:58:44 From Kao, Wei-Chen to Everyone: Could you briefly describe why MultReduce will have worse performance? I am curious about different mechanisms between MultArray and MultReduce.

I would expect that because it does all the multiplies but does the reduction in addition to them. However, a mitigating factor might be that the multiplies are done into shared (local) memory, not into global (off-chip) memory.

13:00:04 From Huang, Yi-Chan to Everyone: for the graph in project 6, should we have to put the curve of mutiply and multiply-add together? Or we should separate them?

You can do it that way or separately. Your choice. If you do it separately, be sure that the tic mark number labels on both Y axes are the same so we can compare the curves just by looking at them.

13:01:11 From Alcaide, Tiffanie Charlyne Yu to Everyone: For project 6, is it required to multiply NMB by 1024*1024 for NUM_ELEMENTS? or is it ok to either take out 1024*1024 or just do NMB*1024?

Ultimately, you are trying to set NUM_ELEMENTS. Do it anyway that makes sense to you.

13:01:44 From Kao, Wei-Chen to Everyone: I assume you can directly set the NUM_ELEMENTS

Yes.
13:08:30 From Caruthers, Sean P to Everyone: Can you think of any reason that we would only get 2-2.5x performance for multiply on DGX compared to rabbit? I tried running a multiply with CUDA as well and the results were only about 3x better than openCL on rabbit.

13:08:58 From Caruthers, Sean P to Everyone: getting around 20 g on rabbit

13:09:06 From Caruthers, Sean P to Everyone: 40 g on dgx

It sounds like the rabbit performance numbers were artificially high. Now, having said that, I have no idea why.

13:26:17 From Akins, Sean to Everyone: I noticed that if the kernel failed to compile on project 6 it would show a max performance.... this was locally. So I'd suggest going back and checking the code.

13:27:02 From Akins, Sean to Everyone: Which makes sense.... that spike may be .... a similar issue there

When a kernel fails to compile, it also will fail to run. Failing to run takes close-to-zero time to accomplish, so time1 almost is equal to time0. This makes your performance look super-high, even though your program didn't actually do anything. I suppose we should have had your program exit upon detection of any OpenCL errors rather than falling through to the print statements.

14:02:30 From Kao, Wei-Chen to Everyone: Do I only have to compile it with
g++ -o printinfo printinfo.cpp -Im -fopenmp

You will also need to include your OpenCL library on the g++ line.