12:00:23 From Beniamin Condrea [TA] to Everyone: Does the GPU have access to all the standard math library, like sqrtf?

It’s not so much the GPU, but the CUDA and OpenCL libraries. Yes, they have all the math functions that you expect C/C++ to have.

12:03:43 From Shen, Nuocheng to Everyone: It seems like we can not do long math during CUDA. Such as 0.5 * t * t is not valid -- I have to do a=0.5 * t, a = a * t

Not sure what is going on, but 0.5 * t * t is perfectly valid. Something else must be wrong.

12:10:17 From Jacob Eckroth(He/him/his) to Everyone: How are you feeling about all engineering classes being in person? (for the moment)

I like interacting with OSU students, so I like it. But, I recognize how remote works better for some of you, so I don’t like it. I’m really torn.

12:11:36 From Alice Li to Everyone: Can we use the bonus day for project 7?

No. Basically, I have already given you Bonus Days in the due date. If we don’t start grading it the next morning, it won’t get it done in time.

12:13:44 From Beniamin Condrea [TA] to Everyone: Can we run project 5 on our local GPU?

Yes, as long as it is an Nvidia GPU (CUDA is Nvidia-only).

12:18:41 From Jacob Eckroth(He/him/his) to Everyone: Does this [OpenCL reduction code] essentially use “barriers” to make sure each addition on each level gets completed?

Yes. You’ll see it in the code in the notes. Good intuition!

12:42:31 From Pemberton, Jordan E to Everyone: Is the global work size the data set size?

Yes, sorry, I use the terms interchangeably.

12:46:33 From Pemberton, Jordan E to Everyone: Is the Makefile you just showed [for the OpenCL reduction] in the resources?

I thought I had put it in the OpenCL notes, but apparently not. Here it is:

reduce: reduce.cpp
        g++ -o reduce reduce.cpp /usr/local/apps/cuda/cuda-10.1/lib64/libOpenCL.so.1.1 -lm -fopenmp

12:47:20 From Kao, Wei-Chen to Everyone: Is it possible that we will have sweet spot with block size = 256 rather than = 128?

It depends on the GPU and on what problem you are programming.

12:49:15 From Mohr, Nathaniel James to Everyone: If we continued to increase the array size, would 128 still remain the sweet spot?

For this problem and this GPU hardware, yes.
12:51:21 From Pemberton, Jordan E to Everyone: #10 says make local work size no larger than 256?
You don’t need to, but you can. Beyond that you get diminishing returns, but it is interesting to see it happen.

12:51:45 From Pemberton, Jordan E to Everyone: no smaller than 32?
Go smaller than 32 so you can see the effect of “some of the yellow robot grippers are empty”.

12:51:55 From Jacob Eckroth(He/him/his) to Everyone: oh no assembly flashbacks
Yes, but it gives you such good insight into how GPU code really works. It’s the insights you pick up this quarter that really count.

13:04:00 From Pemberton, Jordan E to Everyone: Why don’t NVIDIA GPUs support SIMD?
I asked once and they told me that by not putting SIMD hardware in the chip, they have room for more CUDA Cores, which they felt would give you more overall performance than SIMD would.

13:06:49 From Cecil, Blake R to Everyone: can you getomp to run on nvcc?
13:16:37 From Saydemir, Abdullah to Everyone: I tried openmp on cuda and it works
13:16:51 From Saydemir, Abdullah to Everyone: just we have to use -Xcompiler -fopenmp flags
Cool! I’ve never tried it, but I will try it and add it to the CUDA notes. Thanks for this!

13:47:48 From Moy, Kevin to Everyone: I really look forward to CS 491 this Fall. Is it still planned on being at 8:00am..?
Unfortunately, yes. It wasn’t my idea. I tried to get it changed when I found out.

14:21:19 From Tran, Dan D to Everyone: we have to run our program on DGX and use DGX performance nums, right?
Yes, develop and debug on rabbit, but get your performance numbers from the DGX. That will be more typical of what a modern GPU can do.

14:35:45 From Fogus, Joshua Ryan to Everyone: Are those [ i.e., my ] other class sites kept up to date such that if we aren't able to take your classes due to being post-bacc we might be able to follow along and learn anyway?
I leave all my class websites available and unlocked forever and ever, just in case they can help someone.

14:44:38 From Ricardo Wu to Everyone: If we’re running locally for proj.5, what files should I run with in PowerShell?
If it compiled successfully, there should be an .exe file in the Debug folder.

15:05:19 From Saydemir, Abdullah - Lurker to Everyone: you want to see a cat?
Of course! Who wouldn’t? [ Abdullah has a very cute 1-month-old kitten. ]
15:06:08 From Oh, Jaegeun to Everyone: wow
15:06:09 From Fogus, Joshua Ryan to Everyone: That's an adorable kitten.
15:06:18 From Oh, Jaegeun to Everyone: yeah yeah
15:11:17 From Fogus, Joshua Ryan to Everyone: Yeah, cats are very independent.

Nothing lights up our class's chat window like a live pet display. 😊