***Summer 2023***

***Week of 7/17/2022***

Meeting Notes:

* Hardware Review
* Introduction to HPC operating systems (not yet finalized)
* Introduction to Linux, include Linux Commands, File Handling

Resources:

* Recording:<https://nyu.zoom.us/rec/share/5lZs6fK4OQMoHgSJsiKd59CrdsP7QFSUzoQ8epW3RNwrZhQiLs9HJRbWsHQ49_ID.QDiECXCZw01WoXdB>

Tasks Completed:

* Set up NYU HPC account and GUI control
* Hardware structure diagram <https://drive.google.com/file/d/1pi21wuv6_BaVd333f9SJ2k5hMP_glbTP/view?usp=drive_link>
* Try to run some software

***Week of 7/24/2022***

Meeting Notes:

* Introduction to HPC operating systems (not yet finalized)
* Introduction to Linux, include Linux Commands, File Handling

Resources:

* Linux tutorial:<https://sites.google.com/nyu.edu/nyu-hpc/training-support/tutorials/linux-tutorial>
* Slide:<https://drive.google.com/file/d/12VNe1X4Ujvb788hswlbUtQ11OP2tQpyL/view?usp=sharing>

Tasks Completed:

* Try to use basic linux commands

***Week of 7/31/2022***

Meeting Notes:

* Compiler
* Tmux
* Slurm

Resources:

* Slide:<https://drive.google.com/drive/u/0/search?q=HPC>
* Greene Slurm: <https://sites.google.com/nyu.edu/nyu-hpc/training-support/tutorials/slurm-tutorial?authuser=0>

Tasks Completed:

* Tried to use Slurm and submitted a simple job

***Week of 8/8/2022***

Meeting Notes:

* Meet with Shenglong on zoom
* What is SCC
* Why scientific research need HPC
* What is HPCG

Resources:

* Greene: <https://sites.google.com/nyu.edu/nyu-hpc/hpc-systems/greene>
* <https://www.lanl.gov/projects/crossroads/_assets/docs/ssi/Summary_HPCG.pdf>
* [*UL HPC Tutorials*](https://ulhpc-tutorials.readthedocs.io/en/latest/parallel/hybrid/HPCG/)

Tasks Completed:

* Readed UL’s HPCG tutorial

***Week of 8/14/2022***

Meeting Notes:

* HPCG Meeting
* How to run HPCG through Greene
* What is result of HPCG
* Idea of optimization

Resources:

* Zoom: [*HPCG ZOOM Recording*](https://nyu.zoom.us/rec/play/MZPE3Y5ZQ0R6TiMGRGDtr0Y_dqQEC6gyVd9bF7YfOEBIowLQ5wmkdpRpYs9E3DmfDHtBCylWhPpjlUxt.hj8pVX6n4Z5vS8Qd?canPlayFromShare=true&from=share_recording_detail&continueMode=true&componentName=rec-play&originRequestUrl=https%3A%2F%2Fnyu.zoom.us%2Frec%2Fshare%2FLRpgw9qdOjhOj0sWqtpeesQMQX_XzrciITTkijWKlsOHSWGC3beZe9yWwGb3TBaD.vD6L9q7Fqf7lel88)
* [*UL HPC Tutorials*](https://ulhpc-tutorials.readthedocs.io/en/latest/parallel/hybrid/HPCG/)

Tasks Completed:

* Build a basic version HPCG on Greene
* Run with a single node, 2 nodes and 4 nodes.

***Fall 2023***

***Week of 9/5/2022***

Meeting Notes:

* Make a poster for SCC23
* Organize hardware configuration
* Check powder data with Taidi

Resources:

* SCC23 Submission: <https://submissions.supercomputing.org/?args=Aprcnt3DxGAX0Iprcnt3D0xprcnt3D0rQyfTz0Cx0zfsGc_RMcTHQP0Aprcnt3DxfGzU3ACIIfb0HQP0Aprcnt3DxfTtUbprcnt3DsfGQUIYprcnt3DbTtUbb0XfQbGzt9hTzYprcnt3D40bprcnt3DQxGdbUfTzYprcnt3D40QHHGdbUfTzYprcnt3D40Iprcnt3Dxprcnt3DGdbUfTrAprcnt3DxGQttprcnt3DUHI0IQ3TrJUHtGQttprcnt3DUHI0IQ3TEGDhph9>
* Poster rule: <https://www.studentclustercompetition.us/2023/PosterRules.pdf>

Tasks Completed:

* [Copy of SCC23 Poster](https://docs.google.com/document/d/1JODTGzYtv7vyI_2nlS-Ovx_rmAilCCQbTTu7Nyc4gk8/edit?usp=sharing)

***Week of 9/11/2022***

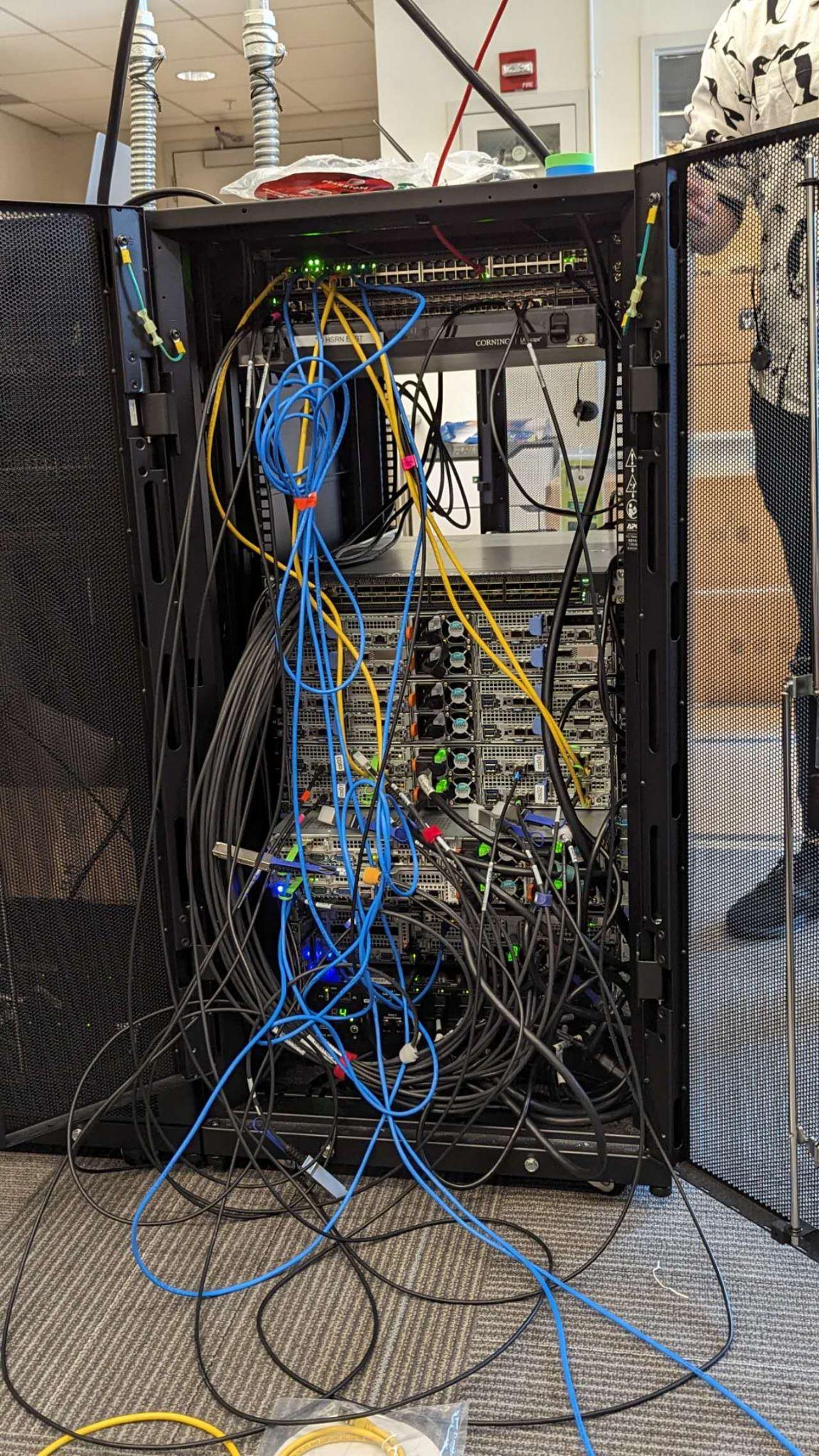
Meeting Notes:

* SCC23: Reproducibility Challenge Webinar
* How to connect cables on a cluster
* Subgroup meeting for notebook and website

Resources:

* Hardware sheet: <https://docs.google.com/presentation/d/1TUGOQVo6AXgrEHkmPxv2LjHa3cmIvMdLE0-m_d8aDvY/edit#slide=id.g1e4794a6e06_0_43>

Tasks Completed:

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***Week of 9/18/2022***

Meeting Notes:

* HPC Lab: install system, Rocky Linux
* SCC23: HPCG optimization
* Meeting with Shenglong
* Subgroup meeting for website

Resources:

* [*UL HPC Tutorials*](https://ulhpc-tutorials.readthedocs.io/en/latest/parallel/hybrid/HPCG/)

Tasks Completed:

* Tested:
  + srun --nodes=1 --tasks-per-node=12 --cpus-per-task=4 --mem=180GB xhpcg
  + srun --nodes=4 --tasks-per-node=48 --mem=180GB xhpcg
  + srun --nodes=4 --tasks-per-node=12 --cpus-per-task=4 --mem=180GB xhpcg
  + srun --nodes=4 --tasks-per-node=24 --cpus-per-task=2 --mem=180GB xhpcg

***Week of 9/25/2022***

Meeting Notes:

* HPC Lab: install system, Rocky Linux
* SCC23: Write HPCG-basic-tutorial, build MPAS
* Make subgroup website and slide

Resources:

* [*https://rockylinux.org/*](https://rockylinux.org/)
* [*https://www.hpcg-benchmark.org/*](https://www.hpcg-benchmark.org/)

Tasks Completed:

* <https://www.notion.so/HPCG-Basic-Tutorial-8e2e9d2a9d7949208f6465fc442eebf7?pvs=4>
* <https://sites.google.com/d/1aXTbq9BK20z72rGCVjYlYXp4uA2zsm0y/p/1cI3ElP38jmZhdt7RTVt1hOHhu4-eygcV/edit>

***Week of 10/2/2022***

Meeting Notes:

* HPC Lab: install system, Rocky Linux
* SCC23: run intel optimized HPCG
* Meet with shenglong for debug

Resources:

* [*https://www.intel.com/content/www/us/en/docs/onemkl/developer-guide-linux/2023-1/getting-started-with-intel-optimized-hpcg.html*](https://www.intel.com/content/www/us/en/docs/onemkl/developer-guide-linux/2023-1/getting-started-with-intel-optimized-hpcg.html)
* [*https://www.intel.com/content/www/us/en/developer/tools/oneapi/base-toolkit-download.html*](https://www.intel.com/content/www/us/en/developer/tools/oneapi/base-toolkit-download.html)
* [*https://www.intel.com/content/www/us/en/developer/tools/oneapi/hpc-toolkit.html#gs.741iim*](https://www.intel.com/content/www/us/en/developer/tools/oneapi/hpc-toolkit.html#gs.741iim)

Tasks Completed:

* Copied from intel benchmark on Greene
* Runed Intel HPCG with a single node

***Week of 10/9/2022***

Meeting Notes:

* HPC Lab: install system, Rocky Linux
* SCC23: build intel optimized HPCG from source code
* SCC in person meeting, module setup

Resources:

* [*https://www.intel.com/content/www/us/en/docs/onemkl/developer-guide-linux/2023-1/getting-started-with-intel-optimized-hpcg.html*](https://www.intel.com/content/www/us/en/docs/onemkl/developer-guide-linux/2023-1/getting-started-with-intel-optimized-hpcg.html)
* [*https://www.intel.com/content/www/us/en/developer/tools/oneapi/base-toolkit-download.html*](https://www.intel.com/content/www/us/en/developer/tools/oneapi/base-toolkit-download.html)
* [*https://www.intel.com/content/www/us/en/developer/tools/oneapi/hpc-toolkit.html#gs.741iim*](https://www.intel.com/content/www/us/en/developer/tools/oneapi/hpc-toolkit.html#gs.741iim)

Tasks Completed:

* Build the Intel optimized version HPCG use Intel MKL, ICC and OPENMPI
* Runed Intel HPCG with a single node, 4 nodes
* Setup Intel, openMPI, UTP on new cluster

***Week of 10/16/2022***

Meeting Notes:

* HPC Lab: install Ansible, write playbook
* SCC23:
  + Write Intel HPCG notes
  + Research on GPU version HPCG
* Meet with shenglong to talk about GPU version HPCG
* Scc23 meeting: table about competition strategy

Resources:

* [*https://catalog.ngc.nvidia.com/orgs/nvidia/containers/hpc-benchmarks*](https://catalog.ngc.nvidia.com/orgs/nvidia/containers/hpc-benchmarks)
* <https://developer.nvidia.com/blog/optimizing-high-performance-conjugate-gradient-benchmark-gpus/>

Tasks Completed:

* <https://www.notion.so/HPCG-Intel-9499ca7d408c4a3eb3636fb7d742cb97>
* Learned about Singularity

***Week of 10/23/2022***

Meeting Notes:

* HPC Lab: install Ansible, write playbook
* SCC23:
  + Run Nvidia HPCG with Singularity
  + Build HPL from source code
  + Write Nvidia HPCG Doc
  + Check submission rule
* Subgroup meeting to table about our progress and HPCG
* Met with the scc23 teams to talk about 3DMHD, MPAS and GPU

Resources:

* [*https://catalog.ngc.nvidia.com/orgs/nvidia/containers/hpc-benchmarks*](https://catalog.ngc.nvidia.com/orgs/nvidia/containers/hpc-benchmarks)
* [*https://www.netlib.org/benchmark/hpl/*](https://www.netlib.org/benchmark/hpl/)

Tasks Completed:

* Run Nvidia HPCG on 4 GPU nodes
* Run Nvidia HPCG on 1 GPU nodes
* Run HPL on competition cluster

***Week of 10/30/2022***

Meeting Notes:

* HPC Lab: file serve, mount and security
* SCC23:
  + Run Nvidia HPL with Singularity,
  + tune CPU version HPL
  + Test HPCG on competition cluster
  + Write HPL Doc
  + Try Mystery Application
* Subgroup meeting to table about our progress and HPCG
* Met with the scc23 teams to talk about 3DMHD, MPAS and GPU

Resources:

* [*https://catalog.ngc.nvidia.com/orgs/nvidia/containers/hpc-benchmarks*](https://catalog.ngc.nvidia.com/orgs/nvidia/containers/hpc-benchmarks)
* [*https://scc23-benchmarking.readthedocs.io/en/latest/benchmarks/general.html#*](https://scc23-benchmarking.readthedocs.io/en/latest/benchmarks/general.html#)

Tasks Completed:

* Nvidia HPL failed
* <https://www.notion.so/HPL-Basic-0a9db25184ca4e0481496c490d7c1682>
* Build part of Seissol

***Week of 11/6/2022***

Meeting Notes:

* HPC Lab: file serve, mount and security
* SCC23:
  + Debug Nvidia HPL with Singularity,
  + Try Mystery Application
  + Write Nvidia HPL Doc
  + Write interview questions
  + Hardware configuration
* Met with the scc23 teams to talk about 3DMHD, MPAS and GPU
* Met with shenglong to debug

Resources:

* [*https://seissol.readthedocs.io/en/latest/compiling-seissol.html*](https://seissol.readthedocs.io/en/latest/compiling-seissol.html)
* [*https://scc23-benchmarking.readthedocs.io/en/latest/benchmarks/general.html#*](https://scc23-benchmarking.readthedocs.io/en/latest/benchmarks/general.html#)

Tasks Completed:

* Run Nvidia HPL on ga02
* Build mystery application with Shenglong's script
* <https://www.notion.so/HPL-GPU-eb2474b061c440248a1a7aaf65ffc23a>
* <https://www.notion.so/Vender-Optimization-Version-Source-71e9ff49a5a84e30939f96cff7c1299a>

***Week of 11/13/2022***

Meeting Notes:

* Competition

Resources:

* [*https://github.com/pavlyhalim/SC23\_NYU*](https://github.com/pavlyhalim/SC23_NYU)

Tasks Completed:

***Week of 11/20/2022***

Meeting Notes:

* SCC23: Organize all information and materials
* Applicate for next semester HPC VIP
* Reimbursements

Resources:

Tasks Completed: