

HiPerGator specification sheet

Evolution and summary

HiPerGator went into production in August 2013 with 16,000 AMD cores. In 2016, HiPerGator was expanded by adding 30,000 Intel cores and an extra 1 PB, bringing the total to 51,000 cores and a 3 PB high-performance file system. In 2018, a cost-effective 3 PB storage system, called “orange,” was installed for capacity storage. In 2019, 560 Nvidia RTX 2080ti and 48 RTX-6000 GPUs were added. In 2020, the 2 PB Lustre storage system was upgraded to a 4 PB performance file system, called “blue”. In 2021, HiPerGator was expanded with 40,000 AMD EPYC cores (30,000 2nd gen and 10,000 3rd gen) and the oldest 16,000 cores were retired. HiPerGator was further expanded with a 140-node NVIDIA DGX A100 540GB SuperPOD with 18,000 AMD EPYC 2nd gen cores, 1,120 A100 GPUs, and 2.5 PB all-flash high-performance storage system. That component is called “HiPerGator AI.” The “orange” and “blue” storage systems will be doubled in size to 6 PB and 8 PB respectively in the summer of 2021. There are a number of edge servers integrated into HiPerGator to provide Galaxy portal, web services, and database services.

CPU (central processor unit) core and RAM (random access memory) details

There are 70,000 cores total, 30,000 come with 4 GB of RAM per core, the 40,000 newest come with 8 GB RAM.

Computing speed

The Intel and AMD cores of HiPerGator provide a total of about 2 Petaflops computing speed as measured by the HPL benchmark. The HiPerGator AI system has an HPL rating of over 16 Petaflops and a theoretical AI performance peak of 700 Petaflops.

Storage details

There are three storage systems, called orange (3 PB, expanded to 6PB), blue (4 PB, expanded to 8), and red (2.5 PB), with orange more for long term preservation, blue for active computing, and red for extreme performance required on HiPerGator AI. The file system is Lustre.

Accelerator details

HiPerGator has 80 K80 GPUs (graphical processor units), 560 RTX 2080ti, 48 RTX 6000, and 1,120 A100, all made by NVIDIA.

Further information

Consult the UFIT Research Computing web site for more details:

- HiPerGator <https://www.rc.ufl.edu/get-started/hipergator/>
- Accelerators <https://www.rc.ufl.edu/about/ai/>
- Buying resources <https://www.rc.ufl.edu/get-started/pricing/>