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Kennesaw State University HPC Facilities and Resources

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Kennesaw State University HPC Facilities and Resources

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The Kennesaw State University HPC computing resources represent the University's commitment to research computing. The KSU HPC is a RedHat Linux based cluster that offers a total capacity of over 50 Teraflops to KSU faculty researchers and their teams. The cluster consists of 47 compute nodes with 118 processors having 1,656 cores (excluding GPU cores) and 16.7 TB RAM and has both CPU and GPU capabilities. There are queues available for standard, high memory and GPU jobs. The HPC is built on a fast network for data and interconnect traffic. A large storage array is provided for user home directories and a fast storage array is available for use by each node during job runtime. Power for Cooling and Servers is backed by battery systems and natural gas generators. On and off campus access to the cluster is allowed only through secure protocols and utilizes Duo Authentication.

Software is provided through environment modules to help provide versions of the same software and avoid conflicts with dependencies. There are around 200 software programs available that include titles for Astronomy, Biology, Chemistry, Math, Statistics, Physics, Engineering and programming languages. Some popular titles include Gaussian, MATLAB, Mathematica, R, TensorFlow, COMSOL, LS-DYNA, HH-Suite, MAFFT, LAMMPS, OpenFoam, PHYLIP and Trinity. There is cluster management and job scheduling software used to provide free access to this shared resource.

KSU has established a high-speed pathway to Internet2 and other heavily used commercial content providers. Kennesaw and Marietta campuses are now directly connected through SoX to Internet2 and have established connections for both the Regional Research and Education Networks (R&E) routes and Internet2 Peer Exchange (I2PX) routes. The current connection speed is 10Gb/s. This connection will allow for rapid sharing of large amounts of data between KSU and other participating

research institutions worldwide. This implementation is now available to on-campus researchers and traffic that can be routed through this connection will be done automatically.

Kennesaw State University recommends that users of the university-level HPC include the following acknowledgement statement: “This work was supported in part by research computing resources and technical expertise via a partnership between Kennesaw State University’s Office of the Vice President for Research and the Office of the CIO and Vice President for Information Technology [1].” and cite using the appropriate citation format.

HPC Cluster Node Details

Queue Name	Node #	CPUs	Cores Per Socket	Cores Total	RAM (GB)
batch	34 - 51	2 Xeon Gold 6148 (2.4 GHz)	20	680	192
batch	52 - 70	2 Xeon Gold 6126 (2.6 GHz)	12	432	192
batch	71 - 77	4 Xeon Gold 6226 (2.70 GHz)	12	288	768
himem	78	4 Xeon Gold 6226 (2.70 GHz)	12	48	1,537
gpuq	79 - 82	CPU: 2 Xeon Gold 6230R (2.1 GHz) GPU: 4 NVidia V100S	26 5,120 each	208 81,920	768
	47 nodes	126 CPUs		1,656	16,705