MSI Facilities Statement

Minnesota Supercomputing Institute (MSI) is the University of Minnesota's principle center for computational research. MSI also operates several data centers on campus. Its main data center is located in the basement of Walter Library (room B40) on the University Twin Cities campus. It has an IT raised floor surface of approximately 3700 sq.ft. and over 1 MW of available power. The Institute HPC systems are comprised of over 40,000 X86 64-bit compute cores and 145 TB of RAM, which can support over 1.6 PFLOPS of peak performance. HPC nodes are equipped with between 64 GB and 2 Tb of RAM to support applications that require small and large amounts of memory, 32 nodes have Solid State Drives (SSDs) to support applications with demanding input and output (I/O) requirements, and 57 nodes include various configurations of the NVidia general purpose GPU accelerators (K40 and VT100), from 2- to 8-way.

In addition to the supercomputing systems, MSI also supports on premise cloud platforms for specialized data use agreements, prototyping, and customizable software environments, interfaces and systems for advanced scientific visualization, and interactive computing. MSI manages two large storage systems: a high performance parallel files system (6.5 PB), and a CEPH/S3 tier 2 object storage system (4.0 PB). MSI hosts a SpectraLogic T950 tape library with expansion capabilities for over 30 PB of online storage, which is used to backup high value files. The data center is connected to the 100 Gbps campus research network via multiple 40 GbE connections. The University maintains 100 Gbps connections to our regional optical network, which in turn is connected to Internet2 and beyond. MSI provides the infrastructure and expertise to the greater Minnesota University system. In addition to the diverse systems, more than half of the MSI staff are available to provide expert consulting in areas such as research informatics, software development, and algorithm optimization.