



## Ada Departmental Supercomputer

### Shared Memory GPU Cluster

The Ada™ Departmental Supercomputer is designed to provide near “TOP500” class supercomputing capabilities at your office or lab.

Ada is a hybrid supercomputer consisting of a large memory head node and 2 to 5 compute nodes, each with four AMD Radeon MI210 or MI100 GPUs. The compute nodes are connected to the head node with 200 Gb/s Mellanox Infiniband. With the maximum 5 compute nodes, Ada contains 448 AMD EPYC processor cores, 20 AMD Radeon GPUs and 9TB of memory (3TB globally sharable). This Ada configuration delivers 3620 TFLOPS of FP16, 452 TFLOPS of FP32 and FP64 GPU floating point performance supporting large computational models. Combined disk array capacity is 512TB.

Ada is a true symmetric multi-processing (SMP) computer with a large globally shared memory and a single system interface cluster operating system based on SUSE 15 Linux. It provides a 1.6TB global fast file system, and a large disk storage array. The performance of Ada is equivalent to supercomputers costing millions of dollars. Its large shared memory and multiple GPUs can support the training of highly complex AI and machine learning models. It can handle some of the largest engineering simulations utilizing fluid dynamics, finite element analysis and coupled models. It is an excellent resource for molecular dynamics, bio-informatics and drug discovery. With Ada you can execute your most demanding computationally intensive tasks locally.

Symmetric Computing’s Ada delivers supercomputing performance to business, industry, academia and government with greater access and less cost.

### System Specifications

<b>Processors:</b>	Head Node: 2 AMD EPYC 7713 processors (64 core-2.0/3.67 GHz) Compute Nodes: 1 AMD EPYC 7713P processor (64 core-2.2/3.67 GHz), 4 AMD Radeon MI210 or MI100 GPUs
<b>Memory:</b>	4TB 3200 MHz DDR4, 3TB globally shared
<b>Compute Node Memory:</b>	512GB or 1TB 3200 MHz DDR4 (each)
<b>Storage:</b>	On-board M.2 NVME (2TB-head, 1TB-compute) 12x 3.5" SATA/SAS hot-swap SSD/HDD bays (head node) 4x 3.5" SDD/HDD hot-swap bays (compute node)
<b>Interconnect:</b>	ConnectX-6 VPI 200 Gb/s InfiniBand Dual Port PCIe Gen 4 Host Bus Adapters (No InfiniBand switch is needed)
<b>I/O:</b>	2x 1 Gb/s LAN ports, 1x management LAN port 4x USB 3.0 1x VGA console
<b>Power:</b>	2x 2000 W redundant PSUs (head node) 110/208 VAC, 15 AMP, 50-60Hz 2x 2200 W redundant PSUs (compute nodes) 208 VAC, 15 AMP, 50-60Hz
<b>Dimensions:</b>	6U-12U Standard 19 inch Rack Mountable

### Features

- Powerful Dedicated GPU and Many-Core Supercomputing
- Large Global Shared Memory
- Single Software Image

### Benefits

- ✓ *Faster projects. Dedicated power when your project needs it.*
- ✓ *Ideal for large memory applications*
- ✓ *Simple and scalable SMP multi-threaded programming. No complicated cluster tailoring.*

### Software Specifications

- Linux OS (SUSE 15)
- DSMP™ Distributed Symmetric Multi-Processing
- AMD ROCm GPU software
- Slurm Workload Manager
- OpenMP, Pthreads, MPI

DSMP™ enables Symmetric Multi-Processing on Ada — A single system image with 3TB global shared memory across 6 server nodes with 448 AMD EPYC™ cores and 20 AMD GPUs.

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