



## Ada Departmental Supercomputer

### Distributed Computing 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 10 compute nodes, each with four AMD Instinct MI210 or MI100 GPUs. The compute nodes are connected to the head node with 200 Gb/s Broadcom Ethernet. With the maximum 10 compute nodes, Ada contains 768 AMD EPYC processor cores and 40 AMD Instinct GPUs. This delivers 7240 TFLOPS of FP16, 904 TFLOPS of FP32 and FP64, and 1812 TFLOPS of matrix FP32 and FP64 GPU floating point performance.

Ada provides a Python based distributed computing environment with Python servers on each compute node accessible from the head node. There is a large 4TB global NVMe memory based filesystem and a single system interface cluster operating system based on SUSE 15 Linux. Ada can be configured with up to 800TB of disk array storage.

The large global NVMe filesystem and multiple GPUs can support the training of highly complex AI and machine learning models. It is optimized for running Pytorch. It can handle some of the largest engineering simulations for computational 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.

#### Features

- Powerful Dedicated GPU and Many-Core Supercomputing
- Large Global NVMe file system
- Single Software Image

#### Benefits

- √ *Faster projects. Dedicated power when your project needs it.*
- √ *Ideal for large data applications*
- √ *Simple Python based distributed computing programming environment.*

### System Specifications

- Processors:** Head Node: 2 AMD EPYC 7713 processors (64 core-2.0/3.67 GHz)  
 Compute Nodes: 1 AMD EPYC 7713P processor (64 core-2.0/3.67 GHz), 4 AMD Instinct MI210 or MI100 GPUs
- Memory:** 2TB or 4TB 3200 MHz DDR4
- Compute Node Memory:** 512GB or 1TB 3200 MHz DDR4 (each)
- Storage:** On-board M.2 NVME (4TB-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)
- Interconnect:** Broadcom 200 Gb/s Ethernet Dual Port PCIe Gen 4 Host Bus Adapters (Direct Connect, No switch is needed)
- I/O:** 2x 1 Gb/s LAN ports, 1x management LAN port  
 4x USB 3.0  
 1x VGA console
- Power:** 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
- Dimensions:** 6U-22U Standard 19 inch Rack Mountable

### Software Specifications

- Linux OS (SUSE 15)
- AMD ROCm GPU software including Pytorch
- RPYC Python distributed computing environment
- OpenMP, MPI
- Slurm Workload Manager

RPYC provides a Distributed Computing Environment for Ada that extends the Python environment across multiple nodes.

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