



Midframe Departmental Supercomputer

Large Shared-Memory Many-Core Computing

The Midframe™ Departmental Supercomputer is designed to provide enterprise computing capabilities at your office or lab. With up to 768 cores of compute power, 6 TB of global shared memory, and 1 PB of storage, the Midframe matches the capabilities of large mainframe computers costing millions of dollars.

The Midframe departmental supercomputer is a rack mountable system consisting of four to six 2U state-of-the-art server blades each with 2 AMD EPYC 7713 processors. The head node contains 4 or 8 TB of memory allowing for a global shared memory of 2 or 6 TB respectively. The worker nodes contain 1 or 2 TB of local memory. Our Distributed Symmetric Multiprocessing (DSMP) technology, along with 200 Gb/s InfiniBand, transforms these server blades into one interconnected mainframe server. DSMP enables 768 cores to access a single large shared memory. The Midframe includes a fast 4TB NVMe global filesystem and a distributed computing environment with Python servers on each compute node accessible from the head node.

With the Midframe, you can host critical database, scientific and enterprise applications for significantly less cost. It is ideal for in-memory database applications. Both multi-threaded shared memory applications and distributed memory applications are supported. Symmetric Computing's Midframe™ delivers mainframe performance to business, industry, academia and governments at an unprecedented price point.

System Specifications

Processors:	8, 10, or 12 AMD EPYC 7713 CPUs (2.0/3.67GHz—64 core) Up to 768 cores / 1536 threads
Memory:	32 DIMM (3200 MHz DDR4) per node. Head node options: <ul style="list-style-type: none"> ● 8TB (6TB global shared memory) ● 4TB (2TB global shared memory) Worker node options: 1TB/2TB
Storage:	4 TB on-board M.2 NVME SSD head node 1 TB on-board M.2 NVME SSD worker node 12x 3.5" SATA/SAS hot-swappable SSD/ HDD per node (Up to 72 drive bays)
Node Interconnect:	200 Gb/s InfiniBand Dual Port PCIe Gen 4 Host Bus Adapters
I/O:	2x 1 Gb/s LAN ports, 1x management LAN 2x USB 3.0 Ports 1 VGA Port
Power:	2x Redundant 2000W PSU (each node) 2x 110/208 VAC, 15 Amp, 50-60Hz
Dimensions:	8U-12U Standard 19 inch Rack Mountable
Gross Weight:	19.5 Kg (43-lbs) per server blade

Features

Benefits

- Powerful Many-Core Computing ✓ *Faster projects. Dedicated power when your project needs it.*
- Large Global Shared Memory ✓ *Ideal for large memory applications*
- Single Software Image ✓ *Simple and scalable SMP multi-threaded programming.*
- Mainframe Replacement ✓ *Save millions of dollars on enterprise computing infrastructure.*

Software Specifications

- Linux OS (SUSE 15)
- DSMP™ Distributed Symmetric Multi-Processing™
- RPYC Python Distributed Computing environment
- Pthreads, OpenMP, MPI, POSIX
- Slurm Workload Manager

DSMP enables Symmetric Multi-Processing on the Midframe — A single system image with up to 6TB of shared memory and 768 AMD EPYC™ cores.

