



Cray XC40™ Series Specifications

Processor	64-bit Intel® Xeon® processor E5 family; up to 384 per cabinet
Memory	64-256 GB per node Memory bandwidth: up to 153 GB/s per node
Compute Cabinet	Up to 384 sockets per cabinet, upgradeable with processors of varying core counts Peak performance: initially up to 297 TF per system cabinet
Interconnect	1 Aries routing and communications ASIC per 4 compute nodes 48 switch ports per Aries chip (500 GB/s switching capacity per chip) Dragonfly interconnect: low latency, high bandwidth topology
System Administration	Cray System Management Workstation (SMW) Single-system view for system administration System software rollback capability
Reliability Features (Hardware)	Integrated Cray Hardware Supervisory System (HSS) Independent, out-of-band management network Full ECC protection of all packet traffic in the Aries network Redundant power supplies; redundant voltage regulator modules Redundant paths to all system RAID Hot swap blowers, power supplies and compute blades Integrated pressure and temperature sensors
Reliability Features (Software)	HSS system monitors operation of all operating system kernels Lustre® file system object storage target failover; Lustre metadata server failover Software failover for critical system services including system database, system logger, and batch subsystems NodeKARE (Node Knowledge and Reconfiguration)
Operating System	Cray Linux Environment (includes SUSE Linux SLES11, HSS and SMW software) Extreme Scalability Mode (ESM) and Cluster Compatibility Mode (CCM)
Compilers, Libraries & Tools	Cray Compiler Environment, Intel Compiler, PGI Compiler, GNU compiler Support for the ISO Fortran standard (2008) including parallel programming using coarrays, C/C++ and UPC MPI 3.0, Cray SHMEM, other standard MPI libraries using CCM. Cray Apprentice and CrayPAT™ performance tools. Intel Parallel Studio Development Suite (option)
Job Management	PBS Professional job management system Moab Adaptive Computing Suite job management system SLURM – Simple Linux Unified Resource Manager
External I/O Interface	Infiniband, 40 and 10 Gigabit Ethernet, Fibre Channel (FC) and Ethernet
Disk Storage	Full line of FC, SAS and IB based disk arrays with support for FC and SATA disk drives, Sonexion® data storage system
Parallel File System	Lustre, Data Virtualization Service (DVS) allows support for NFS, external Lustre and other file systems
Power	90 kW per compute cabinet, maximum configuration Support for 480 VAC and 400 VAC computer rooms 6 kW per blower cabinet, 20 AMP at 480 VAC or 16 AMP at 400 VAC (three-phase, ground)
Cooling	Water cooled with forced transverse air flow: 6,900 cfm intake
Dimensions (Cabinets)	H 80.25" x W 35.56" x D 62.00" (compute cabinet) H 80.25" x W 18.00" x D 42.00" (blower cabinet)
Weight (Operational)	3,450 lbs. per compute cabinet—liquid cooled, 243 lbs./square foot floor loading 750 lbs. per blower cabinet
Regulatory Compliance	EMC: FCC Part 15 Subpart B, CE Mark, CISPR 22 & 24, ICES-003, C-tick, VCCI Safety: IEC 60950-1, TUV SUD America CB Report Acoustic: ISO 7779, ISO 9296