

Server Performance Software

Ultra HPC Server Software

Sun HPC Software

- Sun HPC ClusterTools 3.0 software is licensed and requires one (1) RTU per node, regardless of the number of CPUs in the node. The licenses are floating node, thus a particular license may be used by different nodes, but not at the same time. (Note: a node is an individual system (or domain).)
- Sun HPC servers come bundled with a Sun HPC ClusterTools 3.0 software license, media, and documentation for one (1) RTU license. (Note: 1 RTU is needed per node, regardless of the number of CPUs in the node.) At least one media and documentation kit must be available at the customer site.
- Sun HPC ClusterTools 3.0 Software licenses, media, and documentation are available in two different ways:
 - Bundled with Sun HPC servers
 - Unbundled, available as a separately orderable item.
 - Unbundled as separate Sun Parallel Development Environment and Performance Workshop Slim Kit or Sun Parallel Development Environment and Fortran Compilers Slim Kit
- Sun HPC ClusterTools 3.0 Software includes the following components:
 - CRE (Cluster Runtime Environment) provides basic job-launching and load-balancing capabilities and supports applications with up to 256 processes running on up to 64 nodes.
 - Sun MPI is an optimized version of the industry-standard Message Passing Interface (MPI) communications library. Sun MPI is thread-safe and takes advantage of shared-memory for communication between processes on the same SMP, while using network protocols for communication between SMPs.
 - Sun MPI I/O supports a standard API that provides parallel I/O capabilities for message-passing programmers. It provides I/O to and from both UNIX file systems and Sun's Parallel File System.
 - Parallel File System (PFS) allows parallel applications to perform high-performance, scalable I/O by moving data among multiple storage system in parallel. These storage systems can be attached to multiple PFS I/O nodes or to a single node.
 - Prism is the Sun HPC graphical programming environment; it allows a programmer to develop, execute, debug, and tune Sun MPI applications. In addition, it provides a number of data and program visualization capabilities to the user.
 - Sun S3L is a thread-safe parallel math library that provides a set of parallel and scalable capabilities widely used in scientific computing. S3L requires Sun Performance Library.
 - Cluster Console Manager (CCM) allows administrators to open windows to each node in a cluster and to initiate operations either across all nodes or across subsets of nodes.
 - Switch Management Agent (SMA) helps the administrator configure and monitor the SCI switch.

Sun HPC Parallel Development Environment

- Sun Parallel Development Environment Version 1.0 includes the following components:
 - Sun HPF (High Performance Fortran) compiler is an implementation of the Subset HPF language. It produces parallel codes that runs on either a cluster or a single SMP system. The compiler includes parallel I/O capabilities that allow a user to take advantage of the parallel file system (PFS)
 - Prism graphical programming environment enables users to debug both serial and parallel programs. It supports debugging of data parallel programs at the Sun HPF source level. In addition, Prism supports the debugging of Sun MPI programs and allows the user to attach and delete to PVM programs. Prism also has data-visualization capabilities and offers performance analysis for data parallel programs
 - The Sun Scientific Subroutine Library (S3L) is a thread-safe, concurrent, parallel math library that supplies the following functionality for both Sun MPI and Sun HPF programmers:
 - An array syntax interface that supports both Sun HPF and message-passing programs written in C or F77
 - Vector and dense-matrix operations (known as Level 1, 2, 3 of Parallel BLAS)
 - LU factorization and solve
 - Matrix transpose
 - Real and complex FFTs
 - Safety mechanism
 - Two random-number generators
 - ID sort
 - Array copy

Ultra HPC Server Software *(continued)*

Sun HPC Parallel Development Environment *(continued)*

- PETSc (pronounced "pet-sea"), the public-domain portable, extensible toolkit for scientific computation, provides support for sparse iterative solvers. PETSc is developed and maintained by Argonne National Lab (ANL). PETSc is not supported by Sun and is not a licensed product.

LSF and RTE Software

- LSF and RTE resource management software is included in Sun HPC Software. FlexLM licensing technology is used to control the usage of all software.
- LSF and RTE Server is a system that runs the full spectrum of the LSF and RTE software.
- LSF Client is a system that runs LSF GUI and services that allow the utilization of a networked LSF Server. A client does not run any daemons on the local machine for load-monitoring, remote job execution, batch facilities, and so on. LSF Client hosts can be used when administrative or resource constraints prevent you from using hosts as servers, or the hosts are too slow, or do not have enough resources to run jobs. The client system cannot be used for LSF job processing. RTE does not require a client license
- LSF and RTE tokens is the unit by which LSF and RTE software licenses are measured; for example, one Sun HPC Software Server License includes ten LSF and RTE tokens.
- The total number of tokens needed for an environment is calculated by adding the required tokens for each LSF Server/Client and RTE Server.
- For an LSF and RTE Server, the required quantity of tokens depends on the number of its processors:
 - A uniprocessor server host requires ten LSF and ten RTE tokens
 - A dual-processor server requires 15 LSF and 15 RTE tokens
 - Larger MP servers require five LSF and five RTE tokens per processor
- An LSF Client requires two tokens regardless of its configuration. Additional unbundled Sun HPC Software licenses can be ordered to support desired number of LSF Clients.
- Each of the Sun HPC servers comes bundled with enough tokens to use the LSF and RTE software in a fully populated configuration. If the HPC server does not have the maximum number of processors, then the extra tokens can be used for LSF Clients or other LSF and RTE Servers.

Ultra HPC Server Software *(continued)*

Description	Order Number
Licenses (No Media and Docs)	
Sun HPC LSF 3.0 Base and Batch and RTE 3.0 Software License, 1 Uniprocessor Server (10 tokens for LSF and 10 tokens for RTE)	UNHPC-L3.0R3.0-L1
Twenty five user license for Parallel Development Environment 1.0 (Prism, HPF, and S3L)	UNHPC-PDE1.0-L25
Sun HPC RTE 3.0 Software License, 50 Server License (250 tokens for RTE, no LSF tokens)	UNHPC-RTE3.0-L50
Site user license for Parallel Development Environment 1.0 (Prism, HPF, and S3L)	UNHPC-PDE1.0-SL
Sun HPC RTE 3.0 Software Site License (no LSF tokens)	UNHPC-RTE3.0-SL

General Notes

- *Read the Software licensing information before ordering any software products.*
- *Supports either Solaris 1.x or Solaris 2.2 or later Solaris 2.x release for both client and server sides.*

HPC Cluster Tools 3.0

Requires:

- Requires Solaris 2.6 or Solaris 7.

Description	Order Number
Sun HPC ClusterTools 3.0 package Education Site License, includes one copy of media and documentation CRE (Cluster runtime envir.) Sun MPI, Sun PFS (Parallel File System), Prism, S3L (Sun Scalable Scientific Subroutine Library), CCM (Cluster Console Manager), SMA (Switch Management Agent), For education market customers only	HPCSS-300-9E99
Sun HPC ClusterTools 3.0 package Education Site License, includes Chinese media and documentation CRE (Cluster runtime envir.) Sun MPI, Sun PFS (Parallel File System), Prism, S3L (Sun Scalable Scientific Subroutine Library), CCM (Cluster Console Manager), SMA (Switch Management Agent), Chinese version, traditional and simplified For education market customers only	HPCSS-300-9E9N
Sun HPC ClusterTools 3.0 package Education Site License, includes one copy of media and documentation CRE (Cluster runtime envir.) Sun MPI, Sun PFS (Parallel File System), Prism, S3L (Sun Scalable Scientific Subroutine Library), CCM (Cluster Console Manager), SMA (Switch Management Agent), For education market customers only Only available with UN-8-PAC or UN-15-PAC on the same order	HPCAS-300-9E99
Sun HPC ClusterTools 3.0 package Education Site License, includes Chinese media and documentation CRE (Cluster runtime envir.) Sun MPI, Sun PFS (Parallel File System), Prism, S3L (Sun Scalable Scientific Subroutine Library), CCM (Cluster Console Manager), SMA (Switch Management Agent), Chinese version, traditional and simplified For education market customers only Only available with UN-8-PAC or UN-15-PAC on the same order	HPCAS-300-9E9N