Data Sheet

SUSE Linux Enterprise
High Performance Computing

SUSE® Linux Enterprise High Performance Computing

The convergence of high performance data-intensive simulation and modeling with data analytics workloads requires a powerful software-defined parallel computing platform. Advanced analytics is being used today in intelligence and scientific communities along with machine learning, and new commercial users rely on analytics for business intelligence, personalized medicine, fraud detection, affinity marketing and more—all fueling the needs for more compute power and scale. Businesses around the world today are recognizing that a high performance computing infrastructure is vital to supporting the analytics applications of tomorrow.

Product Overview

SUSE® Linux Enterprise High Performance Computing (HPC) is a highly scalable, high performance open source operating system designed to utilize the power of parallel computing for modeling, simulation and advanced analytics workloads.

Key Benefits

- *Accelerated innovation with a broad ecosystem of hardware partners (including HPE, Cray, Lenovo and Arm) and software partners (including Microsoft, Bright Computing, Univa and the OpenHPC Community) delivering cohesive HPC stacks for the latest supercomputers*
- *High scalability and performance by utilizing Linux clustering and the power of parallel computing*
- *Highly efficient offering that runs on a wide range of hardware with enhanced management of HPC workloads*
- *SUSE-supported HPC module for x86-64 and ARM64, providing simple and reliable access to high-demand HPC capabilities such as Slurm for workload management*

Key Features

SUSE Linux Enterprise High Performance Computing includes the following supported HPC services and capabilities:

- *Workload management (Slurm)*
- *Remote and parallel shells*
- *Performance monitoring and measuring tools*
- *Serial console monitoring tool*
- *Cluster power management tool*
- *Tool to discover the machine hardware topology*
- *Tool to monitor memory errors*
- *Scalable profiling library for MPI applications (Message Passing Interface in parallel computing)*
- *Tool to determine CPU model on capabilities (x86-64 only)*
- *User extensible heap manager capable of distinguishing between different kinds of memory (x86-64 only)*
- *Environment modules that simplify customizing the users' shell environment*
- *File format libraries for storing and organizing large amounts of numerical and scientific data*
- *Authentication service and credential validation in HPC clusters*
- *High performance Message Passing Library*
- *High performance MPI over Infiniband*
- *Scientific and mathematical computing libraries for parallel computing*
- *Console access and management*

With the exponential growth of advanced analytics we are seeing higher demands for the HPC platform to support them in many industries. From cost-effective Arm-based to high-end x86-based supercomputers, SUSE delivers an operating system that shapes the adoption of parallel computing technologies today and powers the analytics applications of tomorrow.

Contact us at:
www.suse.com

Get the Latest HPC Functionality Faster and Easier

Deploy updated functionality faster and easier with the HPC module, which provides a selected set of tools and components popularly used in High Performance Computing environments. To keep up with the pace of changing customer needs for leading edge HPC support on both hardware and software, this module provides software components which are frequently updated to the latest versions available. The selection of software components has been inspired by (but not limited to) what is provided by the OpenHPC community project at **https://openhpc.community**. Because this module is updated more frequently than the base operating system, it allows you to keep up with rapidly evolving HPC without changing the base OS and therefore avoid extensive re-testing of your platform.

System Requirements

SUPPORTED PROCESSOR PLATFORMS

- *x86_64 (64-bit)*
- *AArch64 (64-bit Arm)*

HPC MODULE

SUSE makes adopting HPC easier to implement by adding packages to the HPC module. This module is intended to simplify deployment and management of HPC environments by providing a number of fully supported HPC packages to SUSE Linux Enterprise HPC customers.

These packages were built and tested by SUSE and are provided at no additional cost with the SUSE Linux Enterprise HPC support subscription. All of the packages are open source and many are based on packages from OpenHPC. The HPC module is provided for customers using X86-64 and ARM AArch64 platforms and is available to customers with SLES HPC subscriptions.

The module structure allows SUSE to deliver additions and enhancements to HPC packages more frequently than is possible via Service Packs. Here is the list of packages and release numbers available in the HPC module currently:

- *conman 0.2.8*
- *cpuid 20170122 (X86 only)*
- *fftw 3.3.6*
- *ganglia 3.7.2*
- *ganglia-web 3.7.2*
- *genders 1.2.2*
- *GCC 7.3.1*
- *hdf5 1.10.1*
- *hwloc 1.11.8*
- *lua-lmod 7.6.1*
- *memkind 1.6.0 (X86 only)*
- *mpip 3.4.1*
- *mrsh 2.12*
- *munge 0.5.13*
- *mvapich2 2.2.13*
- *netcdf 4.6.1*
- *netcdf-cxx 4.3.0*
- *netcdf-fortran 4.4.4*
- *numpy 1.14.0*
- *openblas 0.2.20*
- *openmpi 2.1.3*
- *papi 5.5.1*
- *pdsh 2.33*
- *petsc 3.8.3*
- *phdf5 1.10.1*
- *powerman 2.3.24*
- *prun 1.0*
- *rasdaemon 0.5.7*
- *ScaLAPACK 2.0.2*
- *slurm 17.11.5*

For detailed product specifications and system requirements, visit: **www.suse.com/products/server/hpc/**

"Although SLES HPC drives some of the world's most powerful public-sector supercomputers, SUSE is especially strong in commercial environments that buy midrange HPC systems and place an especially high value on ease-of-use, along with strong service and support capabilities."

HYPERION RESEARCH
TECHNOLOGY SPOTLIGHT

Linux and Open Source Are Driving HPC into New High-Growth Markets, April 2017
Hyperion Research **www.hpcuserforum.com**