

Community building blocks for HPC systems

Mission

OpenHPC is a Linux Foundation Collaborative Project whose mission is to provide a reference collection of open-source HPC software components and best practices, lowering barriers to deployment, advancement, and use of modern HPC methods and tools.

Key Takeaways for the Project

- OpenHPC provides a collection of pre-built ingredients common in HPC environments - fundamentally it is a package repository
- OpenHPC repositories are publicly accessible for direct use with Linux package managers:
 - yum (CentOS/RHEL)
 - zypper (SLES/openSUSE)
- OpenHPC is building-block oriented: administrators can choose relevant package(s) of interest
- Multiple compiler/MPI family combinations are supported
- In addition to being a package repository, OpenHPC also provides validated recipes for bare-metal system installs:
 - recipes are organized by choice of OS, architecture, and key administrative components (e.g. provisioner and resource manager)
 - latest guides always available on main GitHub site:
github.com/openhpc/ohpc

Vision

OpenHPC components and best practices will enable and accelerate innovation and discoveries by broadening access to state-of-the-art, open-source HPC methods and tools in a consistent environment, supported by a collaborative, worldwide community of HPC users, developers, researchers, administrators, and vendors.

Available Software Overview (v2.0)

Functional Areas	Components (78 Components Available)
Base OS	CentOS 8, OpenSUSE Leap 15
Architecture	x86_64, aarch64
Administrative Tools	Conman, Lmod, LosF, Nagios, NHC, pdsh, pdsh-mod-slurm, prun, EasyBuild, ClusterShell, Genders, Shine, Spack, test-suite
Provisioning	Warewulf, xCAT
Resource Mgmt.	SLURM, Munge, OpenPBS, PMIx
Runtimes	Charliecloud, Singularity
I/O Services	Lustre client, BeeGFS client
Numerical/ Scientific Libraries	Boost, GSL, FFTW, Hypre, Metis, MFEM, Mumps, OpenBLAS, OpenCoarrays, PETSc, PLASMA, Scalapack, Scotch, SLEPc, SuperLU, SuperLU_Dist, Trilinos
I/O Libraries	HDF5 (pHDF5), NetCDF/pNetCDF (including C++ and Fortran interfaces), Adios
Compiler Families	GNU (gcc, g++, gfortran), Intel Parallel Studio**, ARM Alinea Studio**
Transport Layers	Libfabric, UCX
MPI Families	MVAPICH2, OpenMPI, MPICH
Development Tools	Autotools, cmake, hwloc, mpi4py, R, SciPy/ NumPy, Valgrind
Performance Tools	Dimemas, Extrae, GeoPM, IMB, Likwid, msr-safe, OSU Micro-Benchmarks, PAPI, Paraver, pdttoolkit, Scalasca, ScoreP, SIONLib, TAU

** requires separate access to vendor compilers not provided by OpenHPC

Learn more, join us!

Membership

Anyone may download from or contribute to OpenHPC.

The community has continued to grow in membership and use of the open source system software stack since started in November 2015. The community's business is led by a member Governing Board while technical matters are led by an elected Technical Steering Committee. Current community members are highlighted below:



Learn more, join us!

Community site: openhpc.community GitHub repository: github.com/openhpc/ohpc Mailing Lists: openhpc.community/support/mail-lists/
Membership contact: Neal Caidin, Linux Foundation (ncaidin@linuxfoundation.org)