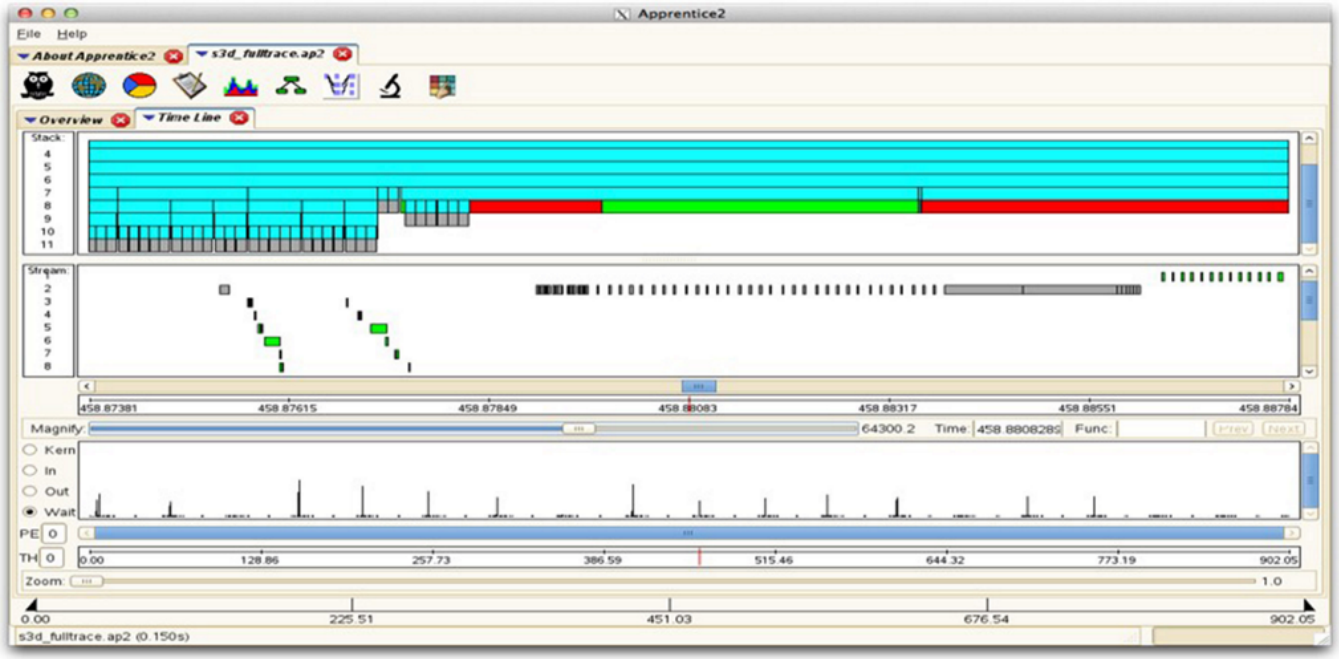
HPE Cray Supercomputing Programming Environment Software



What's new

- Added SKUs for ARM.

Overview

Does your HPC organization need to develop code in-house?

HPE Cray Supercomputing Programming Environment Software offers your programmers a complete set of tools for developing, porting, debugging, and tuning of their code so they can develop applications and bring innovations to the market faster. Save time by simplifying the transition to varying hardware architectures and configurations by automatically applying optimizations on HPC applications that use existing programming models with a simple recompile. HPE Cray Supercomputing Programming Environment Software provides a future-ready solution at a reduced cost with built-in languages, models, libraries, and tools.

Features

Compilers, Programming Languages, and Models

HPE Cray Supercomputing Programming Environment Software features Fortran, C, and C++ compilers to help extract impressive performance from systems, regardless of the underlying architecture—supporting x86-64 processors (both Intel® and AMD), as well as AMD and NVIDIA® accelerators.

The compilers automatically identify regions of computation that are either sequential scalar, vector parallel, or highly multi-threaded; and automatically exploit these capabilities of the system.

The compilers give programmers optimization feedback with an annotated listing of source code for easier application tuning. They also integrate with debuggers and performance tools in the suite—enhancing each other's capability to generate correct and performant code.

We focus on standards compliance for code safety, application portability, and investment protection our compilers support standard programming languages (Fortran, C/C++, and UPC) and standard programming models such as OpenMP and OpenACC.

HPE Cray MPI is an MPICH ABI compatible library that is tuned for Intel, AMD, and CPUs as well as AMD and NVIDIA GPUs. It is customized for low latency and high bandwidth, both on-node and off-node, for point-to-point and collective communications.

Scientific and Communication Libraries

The HPE Cray Supercomputing Programming Environment Software offers a comprehensive collection of highly-tuned linear algebra subroutines designed to give increased performance from the system with less effort.

Customized LibSci (including BLAS), LAPACK, and ScaLACK, our iterative refinement toolkit and LibSci_ACC (accelerated BLAS, LAPACK) are designed to take full advantage of the underlying hardware optimizing for node performance and network performance on most HPE Cray HPC systems.

Using auto-tuning and adaptation, the libraries choose the known best algorithms at runtime. They also feature simplified interfaces into complex software (no source code changes required to access optimized algorithms) and integrate with the compiling environment for better productivity.

NetCDF and HDF5 I/O libraries are built with the supported compiling environments and included in the suite for convenience.

Debugging Tools

HPE Cray Supercomputing Programming Environment Software offers traditional debuggers with innovative techniques that allow users to address debugging problems at a broader range and scale than conventional techniques. This means that programmers can spend less time debugging and more time creating.

Our unique comparative debugger helps programmers uncover issues by running two applications side by side with notifications for possible errors displayed via GUI. This capability is useful for locating errors that are introduced when applications are modified or ported between architectures.

Stack Trace Analysis Tool (STAT) and tool for Abnormal Termination Processing (ATP) are premier tools for exposing defects that are not present at smaller scale and/or are hard to find when running applications at scale.

Sanitizers for HPC: Help developers detect memory and thread errors for easier analysis and debugging of their applications at scale by aggregating and analyzing output of LLVM sanitizers at scale.

We also offer support for traditional debugging mechanisms, via integration with TotalView by Perforce and Arm® Forge.

Porting, Profiling, and Performance Optimization Tools

HPE Cray Supercomputing Programming Environment Software is designed with a comprehensive collection of tools to fit different developer needs and choice of interfaces for ease of use as well as reduce the time and effort associated with porting and tuning of applications on HPE HPC systems.

Performance Analysis Tool (PAT) brings valuable insight when analyzing bottlenecks to improve performance of applications that run across the whole system while also automatically generating observations and suggestions to improve code performance.

Programmers can quickly assess the type and severity of the performance issues by using our visualization tool which complements text reports and summarizes programs' performance data in graphs and charts, allowing users to easily drill down to get to the bottom of issues.

Code parallelization assistant helps developers reveal hidden potential of their application via code restructuring by combining performance statistics and program source code visualization with our compiling environment optimization feedback.

HPE Services

No matter where you are in your transformation journey, you can count on HPE Services to deliver the expertise you need when, where and how you need it. From strategy and planning to deployment, ongoing operations and beyond, our experts can help you realize your digital ambitions.

Advisory & Professional services

Experts can help you map out your path to hybrid cloud and optimize your operations.

Managed services

HPE runs your IT operations, giving you unified control, so can focus on innovation.

Support services

Optimize your entire IT environment and drive innovation. Manage day-to-day IT operational tasks while freeing up valuable time and resources.

— **HPE Complete Care Service:** a modular service designed to help optimize your entire IT environment and achieve agreed upon IT outcomes and business goals. All delivered by an assigned team of HPE experts.

— **HPE Tech Care Service:** the operational service experience for HPE products. The service provides access to product specific experts, an AI driven digital experience, and general technical guidance to help reduce risk and search for ways to do things better.

— **HPE Multivendor Services:** Single point of accountability for managing on-site hardware and software support for multivendor products. HPE experts help manage your IT across technologies and platforms for HPE and non-HPE technologies, acting as the single point of contact for your IT operational needs.

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Address your specific IT deployment project needs with tailored project management and deployment services.

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Training and certification designed for IT and business professionals across all industries. Create learning paths to expand proficiency in a specific subject. Schedule training in a way that works best for your business with flexible continuous learning options

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GreenLake

GreenLake is the cloud to run and manage your entire hybrid landscape—private, public, and edge. It helps you to:

— Streamline IT Operations across compute, storage, and networking without the chaos

— Unify and secure data, as you move faster

— Accelerate AI, from pilot to production

The result: greater operational efficiency, lower TCO, and faster AI delivery—all from one unified, intelligent platform built for today's hybrid enterprise.

For additional technical information, available models and options, please reference the QuickSpecs

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