

Overview

Intel Software Offerings HPE Performance Software Portfolio

Intel Software Offerings is an open, unified programming model built on standards to simplify development and deployment of data-centric workloads across CPUs, GPUs, FPGAs and other accelerators.

Extract the most application performance on multiple types of Intel® architecture by using advanced, cross-architecture software development tools from Intel.

The Intel Software Offerings product family includes:

- Industry-leading compilers
- Performance libraries
- Analyzer and debugger tools
- Domain-specific toolkits, including libraries and accelerated workload tools

The Intel Software Offerings Base Toolkit is a core set of tools and libraries for building and deploying high-performance, data-centric applications across diverse architectures. It features the Data Parallel C++ (DPC++) language, an evolution of C++ that:

- Allows code reuse across hardware targets — CPUs, GPUs, and FPGAs
- Permits custom tuning for individual accelerators

Domain-specific libraries and the Intel® Distribution for Python provide drop-in acceleration across relevant architectures. Enhanced profiling, design assistance, and debug tools complete the kit.

High-performance computing (HPC) is at the core of artificial intelligence, machine learning, and deep learning applications. The Intel Software Offerings HPC Toolkit delivers what developers need to build, analyze, optimize, and scale HPC applications with the latest techniques in vectorization, multithreading, multi-node parallelization, and memory optimization.

The HPC toolkit is an add-on to the Intel® oneAPI Base Toolkit, which is required for full functionality.

Standard Features

Intel Software Offerings Toolkit Contents		
Components	Base Toolkit	HPC Toolkit
Intel oneAPI DPC++/C++ Compiler	√	
Intel oneAPI DPC++ Library	√	
Intel oneAPI Data Analytics Library	√	
Intel oneAPI Depp Neural Network Library	√	
Intel oneAPI Collective Communications Library	√	
Intel oneAPI Math Kernel Library	√	
Intel oneAPI Threading Building Blocks	√	
Intel oneAPI Video Processing Library	√	
Intel Advisor	√	
Intel Distribution for GDB	√	
Intel Distribution for Python	√	
Intel DPC++ Compatibility Tool	√	
Intel Integrated Performance Primitives	√	
Intel Vtune Profiler	√	
Intel C++ Compiler Classic		√
Intel Cluster Checker		√
Intel Fortran Compiler		√
Intel Inspector		√
Intel MPI Library		√
Intel Trace Analyzer and Collector		√

Priority Support is paid product support that covers all of the components included in the toolkit. It provides the following benefits for one year:

- Direct and private interaction with Intel's support engineers, including the ability to submit confidential support requests
- Accelerated response time for technical questions and other product needs
- Priority assistance for escalated defects and feature requests
- Free download access to all new product updates and continued access to older versions of the product
- Access to a vast library of self-help documentation built from decades of experience with creating high-performance code
- Access to Intel public community forums supported by community technical experts and monitored by Intel engineers



Service and Support

Support

Support for Intel Software Offerings is direct-to-vendor. Information about support processes will be provided at the point of providing a license key to Intel.



Configuration Information

Educational Products

For educational customers contact the Product Manager in charge of Intel Software Offerings, Chris Wahrman (Christopher.Wahrman@hpe.com).

Commercial Products

Limited vs. Priority Support

Priority Support from Intel allows for problems found on Intel-based hardware to be solved using Intel-based hardware. Problems found on Non-Intel hardware will be researched and tested using Intel-based hardware which may limit the ability to address issues unique to other processors. Configure SKUs with “Prem” in the description when Intel hardware is being sold in the opportunity. Configure SKUs with “Lmt” in the description when Non-Intel hardware is being sold in the opportunity.

System Size and SKU Selection

In order to determine the proper SKU to configure for Intel Software Offerings the system size must first be determined in the number of total nodes. There are four categories of SKUs each based on a node count:

- Very small systems are those with less than 64 nodes
- Small systems are those with 64 to 256 nodes
- Medium systems are those with 257 to 512 nodes
- Large systems are those above 512 nodes

If your system is less than 64 nodes there is an additional element to consider when configuring Intel Software Offerings SKUs and that is the number of developers / users that will submit tickets to Intel for support. For very small systems Intel offers configurations of 10 developers, 25 developers and 50 developers. If a system needs more than 50 developers contract the Product Manager, Chris Wahrman (Christopher.Wahrman@hpe.com) for a custom quote. Below are the SKUs available for very small systems. Select the appropriate SKU based on the number of developers needed and the term length required:

Description

SKU

Intel oneAPI Base and HPC 512+ Nodes 5-year Limited Support	S4H92AAE
Intel oneAPI Base and HPC 512+ Nodes 5-year Premium Support	S4H93AAE
Intel oneAPI Base and HPC 512+ Nodes 4-year Limited Support	S4H94AAE
Intel oneAPI Base and HPC 512+ Nodes 4-year Premium Support	S4H95AAE
Intel oneAPI Base and HPC 512+ Nodes 3-year Limited Support	S4H96AAE
Intel oneAPI Base and HPC 512+ Nodes 3-year Premium Support	S4H97AAE
Intel oneAPI Base and HPC 512+ Nodes 1-year Limited Support	S4H98AAE
Intel oneAPI Base and HPC 512+ Nodes 1-year Premium Support	S4H99AAE
Intel oneAPI Base and HPC 257-512 Nodes 5-year Limited Support	S4J01AAE
Intel oneAPI Base and HPC 257-512 Nodes 5-year Premium Support	S4J02AAE
Intel oneAPI Base and HPC 257-512 Nodes 4-year Limited Support	S4J03AAE
Intel oneAPI Base and HPC 257-512 Nodes 4-year Premium Support	S4J04AAE
Intel oneAPI Base and HPC 257-512 Nodes 3-year Limited Support	S4J05AAE
Intel oneAPI Base and HPC 257-512 Nodes 3-year Premium Support	S4J06AAE
Intel oneAPI Base and HPC 257-512 Nodes 1-year Limited Support	S4J07AAE
Intel oneAPI Base and HPC 257-512 Nodes 1-year Premium Support	S4J08AAE
Intel oneAPI Base and HPC 64-256 Nodes 5-year Limited Support	S4J10AAE
Intel oneAPI Base and HPC 64-256 Nodes 5-year Premium Support	S4J11AAE
Intel oneAPI Base and HPC 64-256 Nodes 4-year Limited Support	S4J12AAE
Intel oneAPI Base and HPC 64-256 Nodes 4-year Premium Support	S4J13AAE
Intel oneAPI Base and HPC 64-256 Nodes 3-year Limited Support	S4J14AAE

Configuration Information

Intel oneAPI Base and HPC 64-256 Nodes 3-year Premium Support	S4J15AAE
Intel oneAPI Base and HPC 64-256 Nodes 1-year Limited Support	S4J16AAE
Intel oneAPI Base and HPC 64-256 Nodes 1-year Premium Support	S4J17AAE
Intel oneAPI Base and HPC Maximum 63 Nodes up to 50 Developers 3-year Limited Support	S4J24AAE
Intel oneAPI Base and HPC Maximum 63 Nodes up to 50 Developers 3-year Premium Support	S4J25AAE
Intel oneAPI Base and HPC Maximum 63 Nodes up to 25 Developers 3-year Limited Support	S4J26AAE
Intel oneAPI Base and HPC Maximum 63 Nodes up to 25 Developers 3-year Premium Support	S4J27AAE
Intel oneAPI Base and HPC Maximum 63 Nodes up to 10 Developers 3-year Limited Support	S4J28AAE
Intel oneAPI Base and HPC Maximum 63 Nodes up to 10 Developers 3-year Premium Support	S4J29AAE
Intel oneAPI Base and HPC Maximum 63 Nodes up to 50 Developers 1-year Limited Support	S4J30AAE
Intel oneAPI Base and HPC Maximum 63 Nodes up to 50 Developers 1-year Premium Support	S4J31AAE
Intel oneAPI Base and HPC Maximum 63 Nodes up to 25 Developers 1-year Limited Support	S4J32AAE
Intel oneAPI Base and HPC Maximum 63 Nodes up to 25 Developers 1-year Premium Support	S4J33AAE
Intel oneAPI Base and HPC Maximum 63 Nodes up to 10 Developers 1-year Limited Support	S4J34AAE
Intel oneAPI Base and HPC Maximum 63 Nodes up to 10 Developers 1-year Premium Support	S4J35AAE

Renewing Support for Intel Software Offerings

There are specific SKUs to use when extending support for oneAPI. When renewing support the “Prem” and “Lmt” are no longer a factor in selecting the correct SKU. Now you need to select the correct size of system, the number of developers (only if the system size is less than 64 nodes) as well as if you are renewing before the end of the renewal term date (Ren Pre) or after the end of the term date (Ren Post). There are no options for renewing support after the term date on systems over 64 nodes. If this is required you will have to use the SKUs above to continue support from Intel. Otherwise the SKUs below are to be used in renewal situations:

Intel oneAPI Base and HPC 512+ Nodes 1-year Renewal Pre-expiration Support	S4H91AAE
Intel oneAPI Base and HPC 257-512 Nodes 1-year Renewal Pre-expiration Support	S4J00AAE
Intel oneAPI Base and HPC 64-256 Nodes 1-year Renewal Pre-expiration Support	S4J09AAE
Intel oneAPI Base and HPC Max 63 Nodes up to 50 Developers 1-year Renewal Post-expiration Support	S4J18AAE
Intel oneAPI Base and HPC Max 63 Nodes up to 50 Developers 1-year Renewal Pre-expiration Support	S4J19AAE
Intel oneAPI Base and HPC Max 63 Nodes up to 25 Developers 1-year Renewal Post-expiration Support	S4J20AAE
Intel oneAPI Base and HPC Max 63 Nodes up to 25 Developers 1-year Renewal Pre-expiration Support	S4J21AAE
Intel oneAPI Base and HPC Max 63 Nodes up to 10 Developers 1-year Renewal Post-expiration Support	S4J22AAE
Intel oneAPI Base and HPC Max 63 Nodes up to 10 Developers 1-year Renewal Pre-expiration Support	S4J23AAE



Technical Specifications

Distribution Media and Software Documentation

Intel Software Offerings is available for download. Upon order delivery, customers will receive an entitlement certificate, which includes a URL to the Intel Registration Site and additional license information. Customers will need to visit the Intel Registration Site to register their purchase and retrieve their license key.

After retrieving their license key, customers will need to visit the specified website to download the software and complete their support setup.

Customers may also download user guides and other documentation at the [Intel Developer Zone](#).

Intel Software Offerings Components	
Component	Details
Intel DPC++ Compiler	- Standards-based C/ C++ application performance with OpenMP support. - Drop-in compatible with popular compilers, development environments, and operating systems. - Super vectorization and parallelization capabilities using SIMD Data Layout Templates.
Intel Fortran Compiler	- Boost standards-based, co-array Fortran performance. - Extensive support for Fortran standards, OpenMP and more. - Compatible with leading development environments and compilers.
Intel Distribution for Python	- Delivers faster Python application performance in an easy, integrated distribution for Windows, OS X, and Linux. - Accelerates NumPy/ SciPy/ scikit-learn packages with native Intel Performance Libraries such as Intel Math Kernel Libraries for multi-threaded performance benefits.
Intel Math Kernel Library	- Fastest and most-used math library for Intel and compatible processors. - Highly tuned for best performance on older, newer, and future processors before they are released. - De facto standard APIs for simple code integration.
Intel Data Analytics Acceleration Library	- Helps applications make better predictions faster, and analyzes larger data sets with the same compute resources. - Reduces application development time via a wide selection of pre-optimized advanced analytics algorithms. - Includes connectors to popular data sources and can be used with any data platform.
Intel Integrated Performance Primitives	- Highly optimized using Intel Streaming SIMD Extensions (Intel SSE) and Intel Advanced Vector Extensions (Intel AVX, Intel AVX2) instruction sets so your application will perform faster on existing and future Intel processors. - Reduces costs and time associated with software development and maintenance.
Intel Threading Building Blocks	- Widely used C++ template library for task parallelism. - Maps your logical tasks onto threads with full support for nested parallelism. - Uses proven, efficient parallel patterns and work-stealing to support the load balance of unknown task execution time. - Compatible with multiple compilers and Intel compatible processors. - Flow graph feature allows developers to easily express dependency and data flow graphs.
OpenMP	- Performance-oriented implementation of OpenMP 4.0 and initial support for 4.5. - Support for Intel SSE and the latest AVX instruction sets



Configuration Information

Component	Details
Intel VTune Amplifier XE	• Accurate profile C, C++, Fortran, Python, Go, Java or a mix of coding languages. • Diverse data for CPU, GPU, threading, memory, cache and storage. • Fast answers: rich analysis turns into insight.
Intel Advisor	• Vectorize and thread your code or performance dies on modern processors. • Get trip counts, data dependencies, memory access patterns, and more. • Follow an easy optimization workflow with tips for faster code.
Intel Inspector	• Find root-cause memory and threading errors early, before you release. • Quickly debug intermittent races and deadlocks.
Intel MPI Library	• A performance-optimized MPI library supporting the MPI 3.1 standard. • Makes applications perform better on Intel architecture-based clusters with multiple fabric flexibility. • Sustained scalability: low latencies, higher bandwidth and increased processes. • Full hybrid support for multi-core and many-core systems.
Intel Trace Analyzer and Collector	• Profile MPI application to quickly find bottlenecks and achieve high-performance for parallel cluster applications. • Scalable, with low overhead and effective visualization. • Flexible-to-fit workflow: compile, link or run.
Intel Cluster Checker	• Simplified diagnosis of issues to improve cluster functionality and performance. • API to integrate with other software. • Comprehensive cluster environment checking, extensible with custom sets



Summary of Changes

Date	Version History	Action	Description of Change
05-Aug-2024	Version 5	Changed	New SKUs were added and series name / QS name was updated.
02-Oct-2023	Version 4	Changed	New SKUs Service and Support and Configuration Information sections were updated
01-Nov-2021	Version 3	Changed	Configuration Information section was updated.
22-Feb-2021	Version 2	Changed	Corrected SKU Descriptions.
01-Feb-2021	Version 1	New	New QuickSpecs



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