

Overview

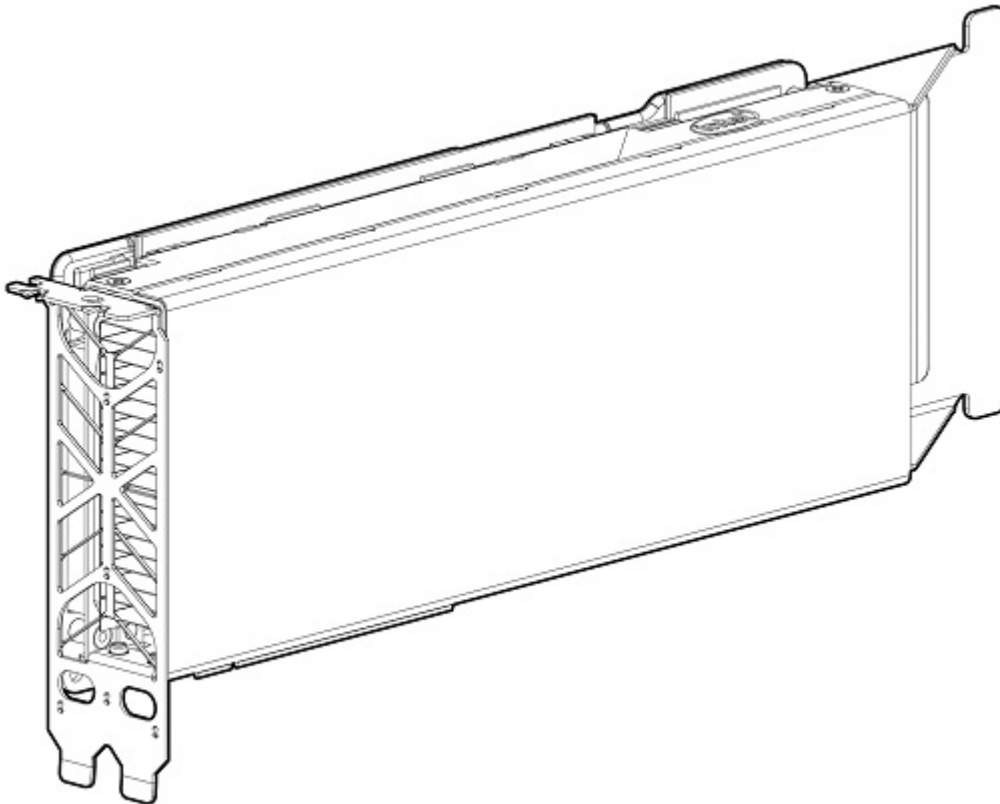
HP supports, on select HP ProLiant servers, computational accelerator modules based on Intel® Xeon Phi™ Coprocessors.

The following Intel Xeon Phi coprocessor products are available from HP, for use in HP ProLiant SL250s and SL270s servers.

- Intel Xeon Phi 5110P Coprocessor Kit (SL250s and SL270s)
- Intel Xeon Phi 7120P Coprocessor Kit (SL250s)

Based on Intel's Many Integrated Core architecture, the Intel Xeon Phi coprocessors enable seamless integration of accelerator computing with HP ProLiant servers for high-performance computing and large data center, scale-out deployments. The Intel Xeon Phi 5110P coprocessor has a peak performance of 1.011 double-precision Tflops with 8 GB of ECC-capable memory. The Intel Xeon Phi 7120P coprocessor has a nominal peak performance of 1.208 double-precision Tflops with 16 GB of ECC-capable memory, and the capacity to exceed this nominal performance through use of a turbo clock mode. These coprocessors deliver all of the standard benefits of accelerator computing while enabling maximum reliability and tight integration with system monitoring and management tools such as HP Insight Cluster Management Utility.

The HP accelerator ecosystem includes HP Cluster Platform specification and qualification, HP-supported accelerator-aware cluster software, and also third-party accelerator-aware cluster software for Intel Xeon Phi coprocessors on HP ProLiant Servers. In particular, the HP Insight Cluster Management Utility (CMU) will monitor and display Intel Xeon Phi coprocessor health sensors such as temperature.



Overview

What's New

- Intel Xeon Phi 7120P Coprocessor Kit

Models

Models

Intel® Xeon® Phi 7120P (16GB/300W) Coprocessor Kit

E2M34A

Intel® Xeon® Phi 5110P (8GB/225W) Coprocessor Kit

C1P87A

NOTE: Please see the HP ProLiant SL250s and SL270s Gen 8 server QuickSpecs for configuration rules including requirements, if any, for enablement kits.

http://h18004.www1.hp.com/products/quickspecs/14232_div/14232_div.html

http://h18004.www1.hp.com/products/quickspecs/14405_div/14405_div.html

Standard Features

Intel Xeon Phi Coprocessors

Performance of Intel Xeon Phi 7120P Coprocessor

- 61 silicon cores, 244 threads
- 512-bit SIMD instructions
- 1.208 Tflops of double-precision peak performance
- GDDR5 memory optimizes performance and reduces data transfers by keeping large data sets in 16 GB local memory that is attached directly to the coprocessor.
- The high speed PCIe Gen 2.0 data transfer maximizes bandwidth between the HP ProLiant server and the Intel Xeon Phi coprocessors

Performance of Intel Xeon Phi 5110P Coprocessor

- 60 silicon cores, 240 threads
- 512-bit SIMD instructions
- 1.011 Tflops of double-precision peak performance
- GDDR5 memory optimizes performance and reduces data transfers by keeping large data sets in 8 GB local memory that is attached directly to the coprocessor.
- The high speed PCIe Gen 2.0 data transfer maximizes bandwidth between the HP ProLiant server and the Intel Xeon Phi coprocessors

Reliability

- ECC Memory meets a critical requirement for computing accuracy and reliability for datacenters and supercomputing centers.
- Passive heatsink design eliminates moving parts and cables, which reduces mean time between failures.

Programming and Management Ecosystem

- The Intel Many Integrated Core (MIC) architecture supports programming models which are compatible with Intel's multicore processors. This permits programmers to develop optimized multicore programs which can immediately run on the Intel Xeon Phi coprocessor.
- Standard Intel development tools can be used for MIC program development.
- HP Insight Cluster Management Utility has incorporated the Intel Xeon Phi environmental sensors into its monitoring features so that cluster-wide accelerator data can be presented in real time, can be stored for historical analysis and can be easily used to set up management alerts.

Supported Operating Systems

NOTE: The Intel Xeon Phi coprocessors are supported only on 64-bit versions of Linux operating systems. The supported operating systems are those below.

RHEL 5

RHEL 6

SLES 11

Supported Servers and Workstation Blades

HP ProLiant SL250 Gen8 (Intel Xeon Phi 5110P and 7120P coprocessors) and HP ProLiant SL270 Gen 8 (Intel Xeon Phi 5110P coprocessor)

HP Warranty

The Intel Xeon Phi coprocessor has a one year parts exchange warranty. For details on HP Qualified Options Limited Warranty visit:

<http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>

Enhancements to warranty services are available for server and chassis through HP Care Pack services.

NOTE: For more information, visit HP Care Pack Services at: <http://www.hp.com/services>

Optional Features

HP High Performance Clusters	HP Cluster Platforms	The Intel Xeon Phi coprocessors are optional components of the HP Cluster Platforms - specifically engineered, factory-integrated large-scale ProLiant clusters optimized for High Performance Computing, with a choice of servers, networks and software. Operating system options include specially priced offerings for Red Hat Enterprise Linux and Novell SLES, as well as Microsoft Windows HPC Server. Compliance to the HP Cluster Platform specification is verified using the HP Cluster Test diagnostic suite, which includes accelerator diagnostics. A Cluster Platform Configurator simplifies ordering. [http://www.hp.com/go/clusters.]
	HP HPC Interconnects	High Performance Computing (HPC) interconnect technologies are available for ProLiant servers as part of the HP Cluster Platform portfolio. These high-speed InfiniBand and Gigabit interconnects are fully supported by HP when integrated within an HP cluster. Flexible, validated solutions can be defined with the help of configuration tools. [http://www.hp.com/techservers/clusters/ucp/index.html]
	HP Cluster Management Utility	HP Insight Cluster Management Utility (CMU) is an HP-licensed and HP-supported suite of tools that are used to manage large-scale Linux ProLiant systems. CMU includes software for the centralized provisioning, management and monitoring of nodes as well as the Intel Xeon Phi coprocessors. CMU makes the administration of clusters user friendly, efficient, and effective. [http://www.hp.com/go/cmu]
	HP HPC Linux Value Pack	HP HPC Linux Value Pack (Value Pack) is an HP-licensed and HP-supported specially priced software bundle for the development and deployment of applications on HPC Cluster Platforms. Value Pack includes the Platform HPC Enterprise Edition suite of tools including the Platform LSF workload scheduler and the HP-MPI parallelization library HP HPC Linux Value Pack

Third Party GPU Cluster and Development Software

More software for applications and development tools for general purpose Intel Xeon Phi coprocessor enabled systems are available every week. Examples of software available from various vendors are listed below.

- PGI Accelerator: Fortran and C Compilers
- CAPS HMPP Compiler
- Intel C++, Fortran compilers, debugger
- Intel Math Kernel library
- Intel VTune, Intel Trace Analyzer and Collector, Intel Inspector XE, Intel Advisor XE
- Roguewave TotalView Dynamic Source Code and Memory Debugging for C, C++ and FORTRAN HPC
- Allinea DDT Distributed Debugging Tool
- Wolfram Mathematica mathematical analysis software
- Altair PBS Professional workload scheduler
- IBM Platform LSF workload scheduler
- Adaptive Computing Moab workload scheduler

Related Options

HP High Performance Cluster Models

HP Insight Cluster Management Utility 1yr 24x7 Flexible License	QL803B
NOTE: This part number can be used to purchase one certificate for multiple licenses with a single activation key. Each license is for one node (server). Customer will receive a printed end user license agreement and license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online in order to obtain a license key. NOTE: For additional license kits please see the QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/12612_div/12612_div.html	
HP Insight Cluster Management Utility 3yr 24x7 Flexible License	BD476A
NOTE: Order a minimum of one license per cluster to purchase media including software and documentation, which will be delivered to the customer, and also licenses CMU management. No license key is delivered or required. NOTE: For additional license kits please see the QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/12612_div/12612_div.html	
HP Insight Cluster Management Utility Media	BD477A
NOTE: For additional license kits please see the QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/12612_div/12612_div.html	
HP High Performance Computing Linux Value Pack 1 Processor Flexible License for ProLiant Servers	TC293B
NOTE: This part number can be used to purchase one certificate for multiple licenses with a single activation key. Each license is for one socket (a.k.a. processor). Customer will receive a printed end user license agreement and license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online in order to obtain a license key. NOTE: For additional license kits please see the QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/13485_div/13485_div.html	
HP High Performance Computing Linux Value Pack Media Kit for ProLiant Servers	TC294A
NOTE: This part number can be used to purchase media including software and documentation, which will be delivered to the customer. NOTE: For additional license kits please see the QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/13485_div/13485_div.html	

Technical Specifications

Form Factor	PCIe x16 form factor double-width	
Double Precision floating point performance (peak)	Intel Xeon Phi 5110P	1.011 Tflops
	Intel Xeon Phi 7120P	1.208 Tflops
Total Dedicated Memory	Intel Xeon Phi 5110P	8GB GDDR5
	Intel Xeon Phi 7120P	16GB GDDR5
Memory Bandwidth	Intel Xeon Phi 5110P	320 GB/sec
	Intel Xeon Phi 7120P	352 GB/sec
Power Consumption	Intel Xeon Phi 5110P	225W TDP
	Intel Xeon Phi 7120P	300W TDP
System Interface	PCIe x16 Gen2	
Thermal Solution	Passive heatsink cooled by host system airflow	

Environment-friendly Products and Approach	End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green . To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.
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The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: <http://www.hp.com/go/green>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

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