

Overview

Intel Accelerators for HPE ProLiant Servers

Hewlett Packard Enterprise supports, on select HPE ProLiant servers, computational accelerator modules based on Intel Field Programmable Gate Array (FPGA) technology.

An FPGA can be reprogrammed and updated with new algorithms for different workloads. This flexibility allows a single FPGA to accelerate many different workloads efficiently, and to support future applications without the need to change the hardware. For instance, a FPGA could handle one workload during the morning shift and a different workload during an evening shift. Programmability also allows FPGAs to stay abreast of evolving standards, such as networking protocols, and enables updates to maintain compliance when a standard is finalized—again, without having to re-spin the hardware.

HPE has teamed up with Intel to offer FPGA solutions based on HPE ProLiant DL Gen10 servers, including the HPE ProLiant DL360 and DL380 server platforms with Intel® Arria® 10 GX FPGAs. The HPE ProLiant DL360 offers a 1U dual processor dense compute server with exceptional flexibility and expandability, while the HPE ProLiant DL380 provides a 2U dual processor server with world-class performance and versatility for multiple workloads. HPE servers also offer a unique Silicon Root of Trust to protect against firmware-based cybersecurity threats. The combination of HPE servers with Intel FPGAs provides flexible, industrial-strength compute solutions that can be tuned for specific workloads.

One of the traditional difficulties with FPGAs has been the specialized nature of programming required. In many cases, this has rendered FPGA technology inaccessible to data scientists and application developers. Intel has developed the Acceleration Stack for Intel Xeon CPU with FPGAs to provide a common developer interface for both application and accelerator function developers, and includes drivers, Application Programming Interfaces (APIs) and an FPGA Interface Manager. Together with acceleration libraries and development tools, Intel's Acceleration Stack enables developers to focus on the unique value-add of their solutions.

Intel has also open-sourced the Open Programmable Acceleration Engine (OPAE) technology, a software programming layer that provides a consistent API across Intel FPGA platforms. It is designed for minimal software overhead and latency, while providing an abstraction for hardware-specific FPGA resource details. OPAE is the default software stack for the Intel® Xeon® processor with both integrated and discrete FPGA devices.

The collaboration between HPE and Intel provides industrial-strength FPGA solutions that accelerate business-critical workloads. The supporting software ecosystem is developing at a rapid enough pace to be able to continuously add value to customers in an ever-expanding range of uses cases. The performance, adaptability and power efficiency of FPGAs serve to increase productivity and drive innovation—with rapid ROI and minimized TCO.

For further information, please visit the Intel FPGA Acceleration Hub.


Standard Features

Intel Accelerators

HPE Intel Arria 10 GX FPGA Accelerator

Q9B37A

NOTE: Please see the HPE ProLiant server QuickSpecs for the following servers for configuration rules, including requirements for enablement kits. DL360 Gen10, DL380 Gen10.

HPE Intel Arria 10 GX FPGA Accelerator	
HPE Intel Arria 10 GX FPGA accelerator card for data centers offers both inline and lookaside acceleration. It provides the performance and versatility of FPGA acceleration and is one of several platforms supported by the Acceleration Stack for Intel® Xeon® CPU with FPGAs. The card can be deployed in a variety of servers with its low-profile form factor, low-power dissipation, and passive heat sink. The versatile Intel Programmable Acceleration Card (PAC) with Intel Arria® 10 GX FPGA can be implemented in many market segments, such as big data analytics, artificial intelligence, genomics, video transcoding, cybersecurity, and financial trading.	
Form Factor	
On-Board Memory	8GB DDR4 with Error Correction Code
On-Chip Memory	53Mb
Logic Elements	1,150K
PCIe	Gen3 x8 electrical, x16 mechanical for stability
Power	60W TDP and 70W Peak Power Up to 45W FPGA Power Consumption
Thermal Specifications	Operating Temperature: 203 °F (95°C) Shutdown Temperature: 212°F (100°C)
Supported Servers	DL360 Gen10; DL380 Gen10
Software	RHEL 7.4 Acceleration Stack for Intel Xeon CPU with FPGAs FPGA Interface Manager installed
Interface	1x Quad Small Form Factor Pluggable+ (QSFP+) with 4x 10GbE or 40GbE support
	NOTE: Intel FPGA are supported only on 64-bit versions
Product Positioning	Ultimate performance for data acceleration, highly versatile for all workloads

Supported Cables

The Intel Programmable Acceleration Card (PAC) with Intel Arria 10 GX FPGA has a QSFP+ cage on the front panel which supports one 40GbE or four 10GbE. The table below details the Intel-supported connectors which are required for use with the PAC. Successful functioning of 40GbE and 10GbE requires appropriate physical medium attachment (PMA) settings. These settings may be set by your third-party Accelerator Functional Unit (AFU) provider. If not, or if you are developing your own AFU, run the provided PMA settings script as detailed in the 10Gbps Ethernet AFU Design Example User Guide or 40Gbps Ethernet AFU Design Example User Guide.

- Running 10GbE PAC-to-PAC Test between two connected PACs in the 10Gbps Ethernet Accelerator Functional Unit (AFU) [Design Example User Guide](#)
- Running 40GbE PAC-to-PAC Test between two connected PACs in the 40Gbps Ethernet Accelerator Functional Unit (AFU) [Design Example User Guide](#)

Standard Features

Intel Networking Cable
Intel® Ethernet QSFP+ Twinaxial Cable 1meter
Intel® Ethernet QSFP+ Twinaxial Cable 3meter
QSFP+ to SFP+ Breakout Cable 1meter
QSFP+ to SFP+ Breakout Cable 3meter
Intel® Ethernet QSFP+ Short Range Optics

NOTE: Contact your Sales/Account Representative for sourcing a network cable.

Service and Support

Service and Support

If this is a qualified option, it is covered under the HPE Support Service(s) applied to the HPE ProLiant Server. Please check HPE ProLiant Server documentation for more details on the services for this particular option.

Warranty and Support Services

Warranty and Support Services will extend to include HPE options configured with your server or storage device. The price of support service is not impacted by configuration details. HPE sourced options that are compatible with your product will be covered under your server support at the same level of coverage allowing you to upgrade freely. Installation for HPE options is available as needed. To keep support costs low for everyone, some high value options will require additional support. Additional support is only required on select high value workload accelerators, fibre switches, InfiniBand and UPS batteries over 12KVA. See the specific high value options that require additional support [HERE](#)

Protect your business beyond warranty with HPE Support Services

HPE Pointnext provides a comprehensive portfolio including Advisory and Transformational, Professional, and Operational Services to help accelerate your digital transformation. From the onset of your transformation journey, Advisory and Transformational Services focus on designing the transformation and creating a solution roadmap. Professional Services specializes in creative configurations with flawless and on-time implementation, and on-budget execution. Finally, operational services provides innovative new approaches like Flexible Capacity and Datacenter Care, to keep your business at peak performance. HPE is ready to bring together all the pieces of the puzzle for you, with an eye on the future, and make the complex simple.

Parts and materials

Hewlett Packard Enterprise will provide HPE-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements.

Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product quick-specs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by Hewlett Packard Enterprise due to malfunction.

HPE Support Center

The HPE Support Center is a personalized online support portal with access to information, tools and experts to support HPE business products. Submit support cases online, chat with HPE experts, access support resources or collaborate with peers.

Learn more www.hpe.com/support/hpesc

HPE's Support Center Mobile App* allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime.

HPE Insight Remote Support and HPE Support Center are available at no additional cost with a HPE warranty, HPE Support Service or HPE contractual support agreement.

*HPE Support Center Mobile App is subject to local availability.

For more information

Visit the Hewlett Packard Enterprise Service and Support [website](#).

Summary of Changes

Date	Version History	Action	Description of Change
03-Dec-2018	Version 1	Created	New QuickSpecs



Sign up for updates



© Copyright 2018 Hewlett Packard Enterprise Development LP. The information contained herein is subject to change without notice. The only warranties for Hewlett Packard Enterprise products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. Hewlett Packard Enterprise shall not be liable for technical or editorial errors or omissions contained herein.
Windows and Microsoft are registered trademarks of Microsoft Corp, in the U.S.

a00056115enw - 16330 - Worldwide - V1 - 03-December-2018