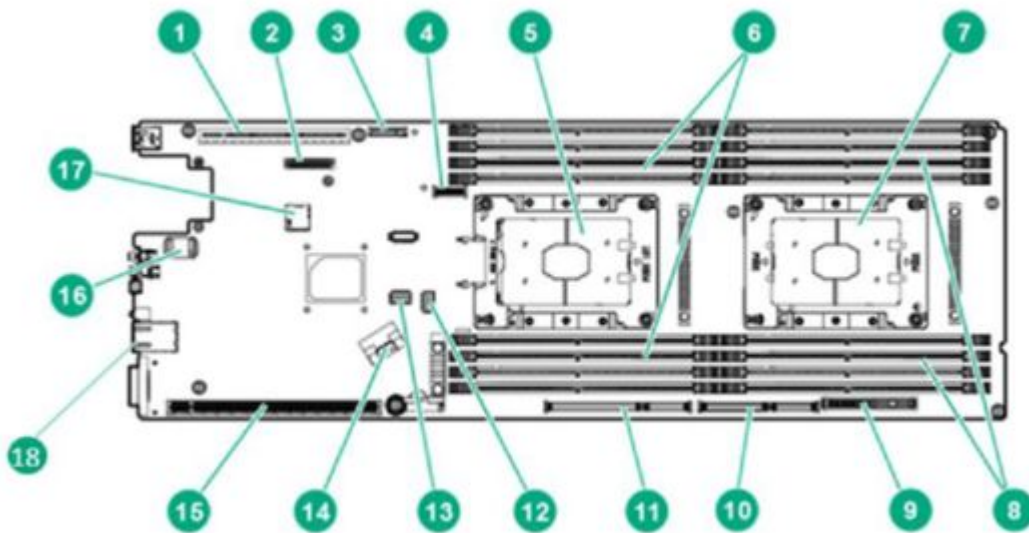


### Overview

### HPE ProLiant DX190r Gen10 server

The HPE ProLiant DX190r Gen10 server along with Nutanix provide a global partnership to deliver hyper-converged solutions in an on premise appliance or through the HPE Greenlake consumption model.. This offering will leverage Nutanix's free AHV hypervisor and Nutanix Enterprise Cloud software to provide customers with a pre-integrated and optimized solution that dramatically lowers total cost of ownership and accelerates operational productivity.

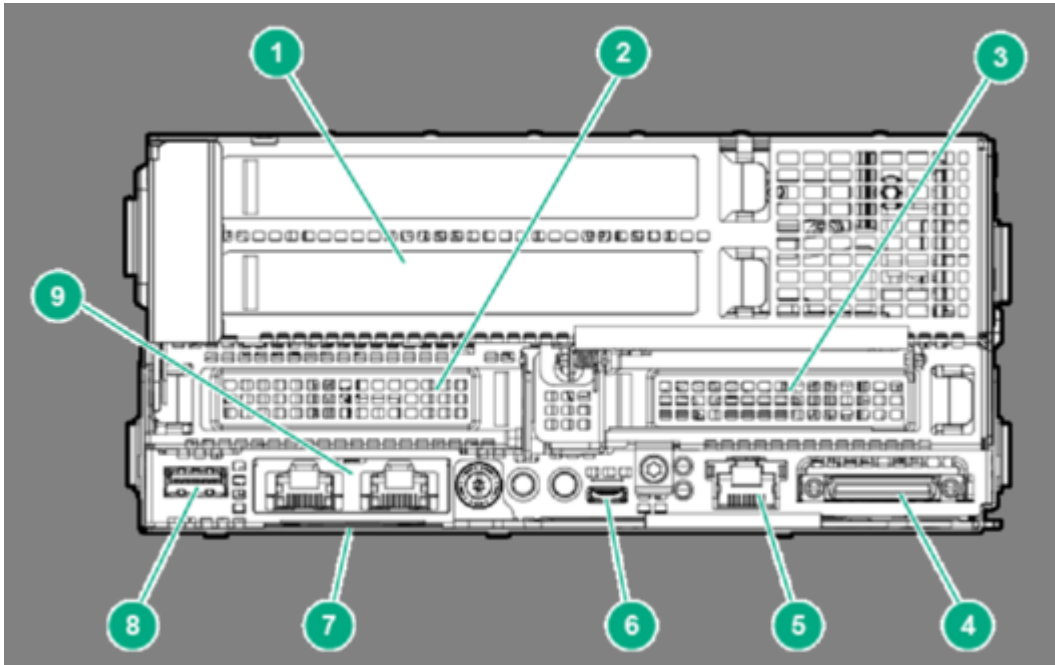
The ProLiant DX190r Gen10 Server is a 2U half-width, 2P server with the same configuration options as the DX170r for CPU and memory, but has additional PCIe slots providing support for additional networking expansion cards.. The dense and flexible HPE ProLiant DX2000 Chassis Chassis can accommodate up to two 2U hot-swap server trays to meet various workload needs while lowering TCO.



Front View

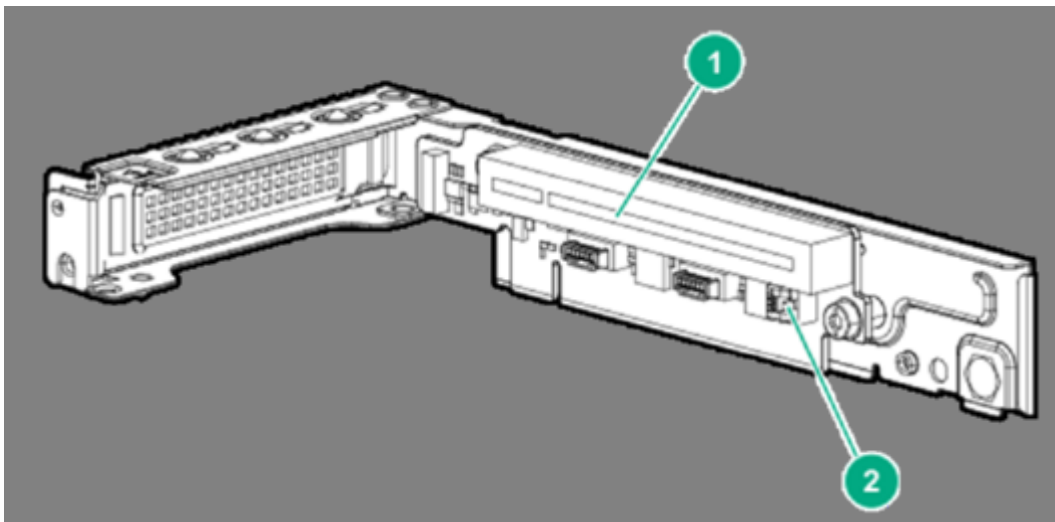
Item	Description	Item	Description
1	Primary riser slot 1	10	Secondary riser slot 4
2	mLOM connector	11	Secondary riser slot 3
3	System battery	12	Slimline connector (SATA x4)
4	M.2 SSD riser connector	13	System maintenance switch
5	Processor 1	14	Slimline connector (SATA x8)
6	DIMMs for processor 1	15	Secondary riser slot 2
7	Processor 2	16	TPM connector
8	DIMMs for processor 2	17	microSD slot
9	Bayonet board slot	18	iLO dedicated port

Overview



2U Node Rear Panel Components

Item	Description	Item	Description
1	Dual Width GPU slot 3	6	iLO service port with micro USB connector
2	Slot 1	7	Node serial number and iLO label pull tab
3	Slot 2	8	USB 3.0 connector
4	SUV connector	9	Media module
5	iLO Management port		

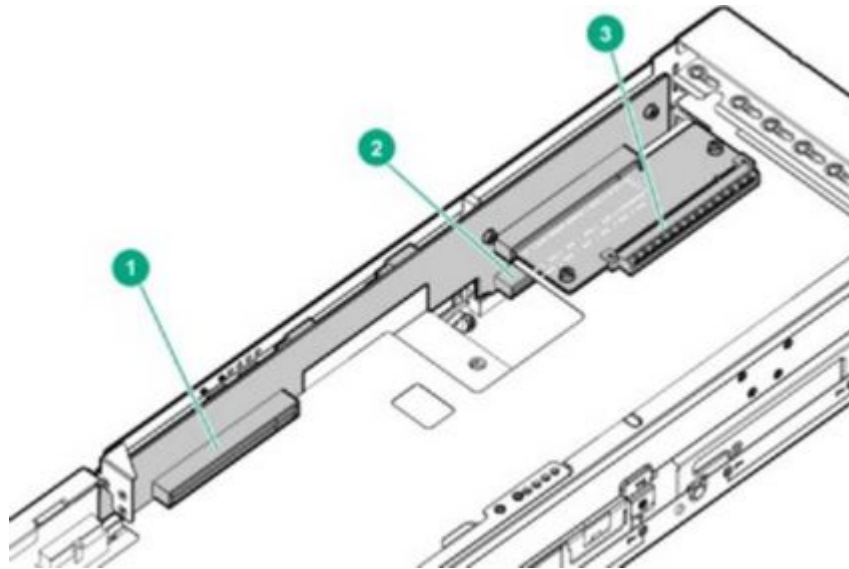


Single-Slot left PCI riser cage assembly

Item	Form factor	Slot number	Slot description
1	Storage controller	1	PCIe3 x16 (16, 8, 4, 1) for Processor 1

**NOTE:** This riser and the HPE Smart Array E208i-a SR Gen10 Controller are included with each HPE ProLiant DX190r server.

### Overview



#### 2U secondary riser for processor 2 cage assembly

Item	Form factor	Slot number	Slot description
1	Optional Card	4	PCIe3 x16 (16, 8, 4, 1) for Processor 2
2	Flexible LOM Slot	2	PCIe3 x16 for Processor 1
3	Optional Card	3	PCIe3 x16 (16, 8, 4, 1) for Processor 2

**NOTE:** This riser is included with each HPE ProLiant DX190r server.

### Standard Features

#### Processors

##### 2<sup>nd</sup> Generation Inteli® Xeon® Scalable Processor Family

Processors Intel Xeon Models	CPU Frequency	Cores	L3 Cache	Power	QPI	DDR4/ MT/s	Memory per socket
Platinum 8253 Processor	2.2 GHz	16	22 MB	125W	3 @ 10.4 GT/s	2933 MT/s	1 TB
Gold 6252 Processor	2.1 GHz	24	35.75 MB	150W	3 @ 10.4 GT/s	2933 MT/s	1 TB
Gold 6248 Processor	2.5 GHz	20	27.50 MB	150W	3 @ 10.4 GT/s	2933 MT/s	1 TB
Gold 6244 Processor	3.6GHz	8	24.75 MB	150W	3 @ 10.4 GT/s	2933 MT/s	1 TB
Gold 6242 Processor	2.8 GHz	16	22.00 MB	150W	3 @ 10.4 GT/s	2933 MT/s	1 TB
Gold 6240 Processor	2.6 GHz	18	24.75 MB	150W	3 @ 10.4 GT/s	2933 MT/s	1 TB
Gold 6238 Processor	2.1 GHz	22	30.25 MB	140W	3 @ 10.4 GT/s	2933 MT/s	1 TB
Gold 6234 Processor	3.3 GHz	8	24.75 MB	130W	3 @ 10.4 GT/s	2933 MT/s	1 TB
Gold 6230 Processor	2.1 GHz	20	27.50 MB	125W	3 @ 10.4 GT/s	2933 MT/s	1 TB
Gold 6226 Processor	2.7 GHz	12	19.25 MB	125W	3 @ 10.4 GT/s	2933 MT/s	1 TB
Gold 5220 Processor	2.2 GHz	18	24.75 MB	125W	2 @ 10.4 GT/s	2666 MT/s	1 TB
Gold 5218 Processor	2.3 GHz	16	22 MB	125W	2 @ 10.4 GT/s	2666 MT/s	1 TB
Gold 5217 Processor	3.0 GHz	8	11 MB	115W	2 @ 10.4 GT/s	2666 MT/s	1 TB
Gold 5215 Processor	2.5 GHz	10	11 MB	85W	2 @ 10.4 GT/s	2666 MT/s	1 TB
Silver 4216 Processor	2.1 GHz	16	22 MB	100W	2 @ 10.4 GT/s	2400 MT/s	1 TB
Silver 4215 Processor	2.5 GHz	8	11 MB	85W	2 @ 10.4 GT/s	2400 MT/s	1 TB
Silver 4214 Processor	2.2 GHz	12	16.5 MB	85W	2 @ 10.4 GT/s	2400 MT/s	1 TB
Silver 4210 Processor	2.2 GHz	10	13.75 MB	85W	2 @ 10.4 GT/s	2400 MT/s	1 TB
Silver 4208 Processor	2.1 GHz	8	11 MB	85W	2 @ 10.4 GT/s	2400 MT/s	1 TB

### Standard Features

#### Chipset

Intel® C622 Chipset (Intel EY82C622 PCH)

**NOTE:** For more information regarding Intel® chipsets, please see the following URL:

<http://www.intel.com/products/server/chipsets/>

#### On System Management Processor

HPE iLO 5 ASIC.

**NOTE:** Read and learn more in the [iLO QuickSpecs](#)

#### Memory

**Type** HPE SmartMemory  
DDR4 Load Reduced (LRDIMM), or Registered (RDIMM)

**DIMM Slots Available** 16 DIMM Slots available

**Maximum (LRDIMM)  
(per server tray)** 2TB, 2<sup>nd</sup> Generation Intel® Xeon® Scalable Processor

**NOTE:** HPE memory from previous generation servers are not fully compatible with the HPE ProLiant DX190r Gen10 server. **NOTE:** To realize the performance memory capabilities listed in this document, HPE SmartMemory is required.

**NOTE:** LRDIMM and RDIMM are distinct memory technologies and cannot be mixed within a server.

**NOTE:** The maximum memory speed is a function of the memory type, memory configuration, and processor model. Please see Memory Population Table or the Online Memory Configuration Tool at:

<http://www.hpe.com/servers/servermemoryconfigurator>

**NOTE:** Memory DIMM availability with a server platform is dependent upon completion of certification testing.

#### Memory Protection

For details on the HPE Server Memory Options RAS feature, visit: <http://www.hpe.com/docs/memory-ras-feature>.

#### Expansion Slots (EE)

Expansion Slot #	Technology	Bus Width*	Source	Connector Width	Form Factor
1	PCIe 3.0	x16	CPU1	x16	Low profile
FlexibleLOM	PCIe 3.0	X8	CPU1	x16	FlexibleLOM
3	PCIe 3.0	X16	CPU1/ CPU2	X16	Full height/max 10.5" long
4	PCIe 3.0	X16	CPU2	X16	Full height/max 10.5" long

**NOTE:**\*Indicates the number of physical electrical lanes running to the connector.

**NOTE:** Expansion slot 1 is preconfigured with the HPE XL1x0r Gen10 Left LP Riser Kit and HPE Smart Array E208i-p SR Gen10 Controller.

**NOTE:** Expansion slot 2 is preconfigured with the HPE DX190r Gen10 FLOM Riser Kit, customers can select from the FLOM network adapters available for the HPE ProLiant DX190r.

**NOTE:** Expansion slots 3 and 4 are available for adding additional networking option cards

### Standard Features

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#### Internal Hard Drives

None, drives are selected with the server but installed in the HPE ProLiant DX2000 Chassis

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#### HPE ProLiant DX2200 12LFF Hard Drive Configurations

**Hybrid SSD/HDD:** 2 SSD and 4 HDD per server

**All SSD:** 2, 4, or 6 SSD per server

**NOTE:** SAS and SATA SSDs cannot be mixed

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#### Interfaces

<b>FlexibleLOM</b>	HPE ProLiant Gen10 servers offer a new networking technology-Flexible Network Technology. The HPE ProLiant Gen10 server offers the customer the choice of 1Gigabit, 10Gigabit, 25 Gigabit, FlexibleLOM solutions depending on workload. For further details on the choices, see FlexibleLOM in the Networking Section of this document.
<b>KVM</b>	Serial USB Video Port (SUV)
<b>USB Ports</b>	2 (external via SUV); 1 USB 3.0 (external);
<b>HPE iLO Remote Management Network Port</b>	Aggregated via HPE ProLiant DX2000 Chassis; or on board dedicated iLO NIC port
<b>Health LED</b>	1
<b>Power</b>	1
<b>UID</b>	1
<b>Do not remove LED</b>	1

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#### Operating Systems and Virtualization Software

Nutanix Acropolis Operating System (AOS): Version 5.10.5 and higher

Nutanix Acropolis Hypervisor (AHV): Version 2017030.279 and higher

VMware vSphere: Version 6.5 U2

**NOTE:** The latest version of AOS and AHV are pre-installed in each server at the factory. vSphere must be installed separately.

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#### Industry Standard Compliance

- ACPI 6.2 Compliant
  - PCIe 3.0 Compliant
  - WOL Support
  - Microsoft® Logo certifications
  - PXE Support
  - USB 3.0 Compliant (internal); USB 2.0 Compliant (external ports via SUV)
  - SMBIOS 3.1
  - UEFI 2.6
  - Redfish API
-

### Standard Features

#### Power Specifications

The HPE ProLiant DX2000 server chassis come preconfigured with two (2) HPE 1800W-2200W Flex Slot Platinum Hot Plug Power Supplies.

To review typical system power ratings use the HPE Power Advisor which is available via the online tool located at URL:

<http://www.hpe.com/servers/powersupplies>

**NOTE:** Power Specification and Technical Content for supported power supplies can be found at:

<https://www.hpe.com/info/qs>

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#### Graphics

Integrated Matrox G200 video standard

- 1280 x 1024 (32 bpp)
  - 1920 x 1200 (16 bpp)
  - HPE iLO 5 On System Management Memory
  - 32 MB Flash
  - 512 MB DDR 3 with ECC (112 MB after ECC and video)
- 

#### Form Factor

The ProLiant DX190r Gen10 Server is a single-slot 2U node for the HPE ProLiant DX2000 Chassis.

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#### Embedded Management

##### HPE Integrated Lights-Out (HPE iLO)

Monitor your servers for ongoing management, service alerting, reporting and remote management with HPE iLO.

Learn more at: <http://www.hpe.com/info/ilo>

**NOTE:** iLO Advanced license with 3 years support is included with each HPE DX190r server.

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#### iLO RESTful API

iLO RESTful API is Redfish API conformance and offers simplified server management automation such as configuration and maintenance tasks based on modern industry standards. Learn more at:

<http://www.hpe.com/info/restfulapi>

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#### Server Utilities

##### Active Health System

The HPE Active Health System (AHS) is an essential component of iLO management portfolio that provides continuous, proactive health monitoring of HPE servers. Learn more at: <http://www.hpe.com/servers/ahs>

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##### Active Health System Viewer

Use the Active Health System Viewer, a web-based portal, to easily read AHS logs and speed problem resolution with HPE self-repair recommendations. Learn more at <http://www.hpe.com/servers/ahsv>

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#### Smart Update

Keep your servers up to date with HPE's Smart Update solution by using Smart Update Manager (SUM) to optimize the firmware and driver updates of the Service Pack for ProLiant (SPP)

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### Standard Features

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#### **iLO Amplifier Pack**

Designed for large enterprise and service provider environments with hundreds of HPE servers, the iLO Amplifier Pack is a free, downloadable open virtual application (OVA) that delivers the power to discover, inventory and update Gen8, Gen9 and Gen10 HPE servers at unmatched speed and scale. Use with an iLO Advanced License to unlock full capabilities.

<http://www.hpe.com/servers/iLOamplifierpack>

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#### **HPE iLO Mobile Application**

Enables the ability to access, deploy, and manage your server anytime from anywhere from select smartphones and mobile devices. <http://www.hpe.com/info/ilo/mobileapp>

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#### **RESTful Interface Tool**

RESTful Interface tool (iLOREST) is a single scripting tool to provision using iLO RESTful API to discover and deploy servers at scale. <http://www.hpe.com/info/resttool>

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#### **Scripting tools**

Provision 1 to many servers using your own scripts to discover and deploy with Scripting Toolkit (STK) for Windows and Linux or Scripting Tools for Windows PowerShell. <http://www.hpe.com/servers/stk> or <http://www.hpe.com/servers/powershell>

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#### **HPE OneView Standard**

HPE OneView Standard can be used for inventory, health monitoring, alerting, and reporting without additional fees. It can monitor multiple HPE Servers generations. The user interface is similar to the HPE OneView Advanced version, but the software-defined functionality is not available.

<http://www.hpe.com/info/oneview>

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#### **HPE Systems Insight Manager (HPE SIM)**

Ideal for environments already using HPE SIM, it allows you to monitor the health of your HPE ProLiant Servers and HPE Integrity Servers. Also provides you with basic support for non-HPE servers. HPE SIM also integrates with Smart Update Manager to provide quick and seamless firmware updates.

[www.hpe.com/info/hpesim](http://www.hpe.com/info/hpesim)

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#### **Server Management**

##### **HPE iLO Advanced**

HPE iLO Advanced licenses offer smart remote functionality without compromise, for all HPE ProLiant servers. The license includes the full integrated remote console, virtual keyboard, video, and mouse (KVM), multi-user collaboration, console record and replay, and GUI-based and scripted virtual media and virtual folders. You can also activate the enhanced security and power management functionality.

<http://www.hpe.com/servers/iloadvanced>

**NOTE:** iLO Advanced license with 3 years support is included with each HPE DX190r server.

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### Standard Features

#### HPE OneView Advanced

HPE iLO Advanced licenses offer smart remote functionality without compromise, for all HPE ProLiant servers. The license includes the full integrated remote console, virtual keyboard, video, and mouse (KVM), multi-user collaboration, console record and replay, and GUI-based and scripted virtual media and virtual folders. You can also activate the enhanced security and power management functionality.

<http://www.hpe.com/servers/iloadvanced>

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#### HPE Performance Cluster Management (HPCM)

HPE Performance Cluster Manager is a fully integrated system management solution offering all the functionalities you need to manage your Linux®-based high performance computing (HPC) clusters. The software provides system setup, hardware monitoring and management, image management and software updates as well as power management for systems of any scale - up to 100,000 nodes.

<http://www.hpe.com/software/hpcm>

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#### HPE Performance Software-Message Passing Interface

The HPE Performance Software-**Message Passing Interface (MPI)** is an MPI development environment designed to enable the development and optimization of high performance computing (HPC) applications. The HPE Performance Software-MPI leverages a scalable MPI library and boosts performance of existing applications without requiring recompilation.

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### Security

- Immutable Silicon Root of Trust
  - Support for Commercial National Security Algorithms (CNSA)
  - Granular control over iLO interfaces
  - Common Access Card (CAC) 2-factor Authentication
  - Tamper-free updates - components digitally signed and verified
  - Secure Recovery - recover critical firmware to known good state on detection of compromised firmware
  - Intrusion Security Kit option
  - Runtime Firmware Validation - Periodically scan essential firmware for compromised code during runtime
- 

### Warranty

This product is covered by a global limited warranty and supported by Hewlett Packard Enterprise Services and a worldwide network of Hewlett Packard Enterprise Authorized Channel Partners (may vary by region). Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HPE Pointnext operational services or customized service agreements. Hard drives have either a one year or three year warranty.

**NOTE:** Server Warranty includes 3 year Parts, 3 year Labor, 3-year on-site support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have Hewlett Packard Enterprise replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at:

<http://www.hpe.com/support/ProLiantServers-warranties>

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### Service and Support

#### HPE Pointnext Service and Support

##### 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.

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#### Included Service and Support

3-Year, Next Business Day Support is included with every HPE ProLiant DX190r System. This service connects you to HPE during business hours for assistance on resolving issues. It guarantees hardware next business day onsite response as well as iLO Advanced Software support with call back within two hours. Simplify your support experience and make HPE your first call to help resolve hardware or iLO Advanced software problems. Nutanix should be your first call for any issues related to the Nutanix software.

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#### Service and Support Enhancement Options

The following enhanced support services are available to tailor your support experience with the needs of your business.

- HPE 3-Year Next Business Day with DMR Hardware Service
- HPE 3-Year 24x7 Hardware Service
- HPE 3-Year 24x7 with DMR Hardware Service
- HPE 5-Year Next Business Day Hardware Service
- HPE 5-Year Next Business Day with DMR Hardware Service
- HPE 5-Year 24x7 Hardware Service
- HPE 5-Year 24x7 with DMR Hardware Service

DMR stands for Defective Media Retention. The defective media retention service allows you to retain defective hard disk or eligible SSD/Flash drive components that you do not want to relinquish due to sensitive data contained within the disk ("Disk or SSD/Flash Drive") covered under this service. All Disk or eligible SSD/Flash Drives on a covered system must participate in the defective media retention. HPE Foundation Care 24x7 gives you access to HPE 24 hours a day, seven days a week for assistance on resolving issues. This service includes need based Hardware onsite response within four hours.

<https://www.hpe.com/h20195/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en>

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#### Other Related Services

##### HPE GreenLake Flex Capacity

With HPE GreenLake Flex Capacity, you get the speed, scalability, and economics of the public cloud in the privacy of your data center. Gain the advantages of the public cloud-consumption-based payment, rapid scalability without worrying about capacity constraints. Reduce the "heavy lifting" needed to operate a data center. And retain the advantages that IT provides the business (i.e., control, security). Deliver the right user experience, choose the right technology for the business, manage privacy and compliance, and manage the cost of IT. And, you have the option to use the public cloud when needed.

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#### HPE Education Services

Keep your IT staff trained making sure they have the right skills to deliver on your business outcomes. Book a class today and learn how to get the most from your technology investment. <http://www.hpe.com/ww/learn>

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### Service and Support

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#### **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 at <http://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.

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

**For more information visit <http://www.hpe.com/services>**

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#### **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.

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### Configuration Information

**NOTE:** This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, Hewlett Packard Enterprise recommends the use of a Hewlett Packard Enterprise approved configurator. Contact your local sales representative for information on configurable product offerings and requirements.

**NOTE:** FIO indicates that this option is only available as a factory installable option.

**NOTE:** HPE ProLiant DX2000 Chassis is required to support the server. Refer to HPE ProLiant DX2000 Chassis QuickSpecs for additional information.

#### Step 1: Base Configuration

##### HPE CTO Model

HPE ProLiant DX190r Gen10 2U Node Configure-to-order Server

P17978-B21

Options included in this model

- HPE XL1x0r Gen10 M2 NGFF Riser
- HPE 240GB SATA MU M.2 2280 DS SSD
- HPE XL1x0r Gen10 Left Low Profile Riser Kit
- HPE XL190r Gen10 FLOM Riser Kit
- HPE XL190r Left E208ip/P408ip Cable Kit
- iLO Advance license with 3 years support
- HPE Smart Array E208i-p SR Gen10 Controller
- Foundation Care Next Business Day 3 year support service

#### Step 2a: Choose Required Options

Please select one -L21 processor required below.

For second processor, please select the same processor model with -B21 from Core Options - HPE Processors section

For example: first processor, select P18018-L21 then for second processor, select P180018-B21.

**NOTE:** 2 processors are required.

**NOTE:** Mixing of 2 different processor models is not supported.

**NOTE:** When 2<sup>nd</sup> Generation Intel Xeon Scalable Processor is selected, then only DDR4-2933 Memory Kit can be selected

**NOTE:** All HPE DX190r processors come with the High Performance Heatsink included.

##### HPE Processors

**SKU**

##### 2<sup>nd</sup> Generation Intel® Xeon

HPE DX1x0r Gen10 Intel Xeon-Platinum 8253 (2.2GHz/16-core/125W) FIO Processor Kit	P18018-L21
HPE DX1x0r Gen10 Intel Xeon-Gold 6252 (2.1GHz/24-core/150W) FIO Processor Kit	P18017-L21
HPE DX1x0r Gen10 Intel Xeon-Gold 6248 (2.5GHz/20-core/150W) FIO Processor Kit	P18016-L21
HPE DX1x0r Gen10 Intel Xeon-Gold 6244 (3.6GHz/8-core/150W) FIO Processor Kit	P18015-L21
HPE DX1x0r Gen10 Intel Xeon-Gold 6242 (2.8GHz/16-core/150W) FIO Processor Kit	P18014-L21
HPE DX1x0r Gen10 Intel Xeon-Gold 6240 (2.6GHz/18-core/150W) FIO Processor Kit	P18013-L21
HPE DX1x0r Gen10 Intel Xeon-Gold 6238 (2.1GHz/22-core/140W) FIO Processor Kit	P18012-L21
HPE DX1x0r Gen10 Intel Xeon-Gold 6234 (3.3GHz/8-core/130W) FIO Processor Kit	P18011-L21
HPE DX1x0r Gen10 Intel Xeon-Gold 6230 (2.1GHz/20-core/125W) FIO Processor Kit	P18010-L21
HPE DX1x0r Gen10 Intel Xeon-Gold 6226 (2.7GHz/12-core/125W) FIO Processor Kit	P18009-L21
HPE DX1x0r Gen10 Intel Xeon-Gold 5220 (2.2GHz/18-core/125W) FIO Processor Kit	P18008-L21
HPE DX1x0r Gen10 Intel Xeon-Gold 5218 (2.3GHz/16-core/125W) FIO Processor Kit	P18007-L21
HPE DX1x0r Gen10 Intel Xeon-Gold 5217 (3.0GHz/8-core/115W) FIO Processor Kit	P18006-L21
HPE DX1x0r Gen10 Intel Xeon-Gold 5215 (2.5GHz/10-core/85W) FIO Processor Kit	P18005-L21

### Configuration Information

#### 2<sup>nd</sup> Generation Intel® Xeon

HPE DX1x0r Gen10 Intel Xeon-Silver 4216 (2.1GHz/16-core/100W) FIO Processor Kit	P18004-L21
HPE DX1x0r Gen10 Intel Xeon-Silver 4215 (2.5GHz/8-core/85W) FIO Processor Kit	P18003-L21
HPE DX1x0r Gen10 Intel Xeon-Silver 4214 (2.2GHz/12-core/85W) FIO Processor Kit	P18002-L21
HPE DX1x0r Gen10 Intel Xeon-Silver 4210 (2.2GHz/10-core/85W) FIO Processor Kit	P18001-L21
HPE DX1x0r Gen10 Intel Xeon-Silver 4208 (2.1GHz/8-core/85W) FIO Processor Kit	P18000-L21

#### Step 2b: Choose Memory Options

**NOTE:** Minimum 2 DIMMs are required per server; up to 8 DIMMs per processor.

**NOTE:** DDR4 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed. For the maximum supported memory speeds for each processor listed above, please reference the 'Memory Speed by Processor Model' table in the Memory section of the QuickSpecs.

#### Registered DIMMs (RDIMMs) for 2<sup>nd</sup> Generation Intel Xeon Scalable Series

HPE DX 16GB (1x16GB) Single Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart FIO Memory Kit	P18448-B21
HPE DX 16GB (1x16GB) Dual Rank x8 DDR4-2933 CAS-21-21-21 Registered Smart FIO Memory Kit	P18449-B21
HPE DX 32GB (1x32GB) Dual Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart FIO Memory Kit	P18450-B21
HPE DX 64GB (1x64GB) Dual Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart FIO Memory Kit	P18453-B21

#### Load Reduced DIMMs (LRDIMMs) for 2<sup>nd</sup> Generation Intel Xeon Scalable Series

HPE DX 64GB (1x64GB) Quad Rank x4 DDR4-2933 CAS-21-21-21 Load Reduced Smart FIO Memory Kit	P18451-B21
HPE DX 128GB (1x128GB) Quad Rank x4 DDR4-2933 CAS-24-21-21 Load Reduced Smart FIO Memory Kit	P18454-B21

**NOTE:** Minimum 2 DIMMs are required per server; up to 8 DIMMs per processor.

**NOTE:** A maximum of 16 DIMMs are supported per DX190r server tray (or 8 DIMMs max per processor).

**NOTE:** LRDIMM and RDIMM are distinct memory technologies and cannot be mixed within a server.

**NOTE:** HPE memory from previous generation servers is not compatible with this server. HPE SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen10. For additional information, please see the HPE SmartMemory QuickSpecs at: <https://www.hpe.com/h20195/v2/GetPDF.aspx/c04355083.pdf>

**NOTE:** Depending on the memory configuration and processor model, the memory speed may run at 2666MHz, 2400MHz, and 2133MHz. Please see Memory Population Table or the Online Memory Configuration Tool at:

<http://h22195.www2.hpe.com/MemoryTool/Home/Legal>

#### Step 3: Choose Additional Options for Factory Integration from Core Options section below

### Core Options

#### HPE Processors

**NOTE:** 2 processors are required. Select processor matching the first processor selection.

#### 2<sup>nd</sup> Generation Intel® Xeon

HPE DX1x0r Gen10 Intel Xeon-Platinum 8253 (2.2GHz/16-core/125W) FIO2 Processor Kit	P18018-B21
HPE DX1x0r Gen10 Intel Xeon-Gold 6252 (2.1GHz/24-core/150W) FIO2 Processor Kit	P18017-B21
HPE DX1x0r Gen10 Intel Xeon-Gold 6248 (2.5GHz/20-core/150W) FIO2 Processor Kit	P18016-B21
HPE DX1x0r Gen10 Intel Xeon-Gold 6244 (3.6GHz/8-core/150W) FIO2 Processor Kit	P18015-B21
HPE DX1x0r Gen10 Intel Xeon-Gold 6242 (2.8GHz/16-core/150W) FIO2 Processor Kit	P18014-B21
HPE DX1x0r Gen10 Intel Xeon-Gold 6240 (2.6GHz/18-core/150W) FIO2 Processor Kit	P18013-B21
HPE DX1x0r Gen10 Intel Xeon-Gold 6238 (2.1GHz/22-core/140W) FIO2 Processor Kit	P18012-B21
HPE DX1x0r Gen10 Intel Xeon-Gold 6234 (3.3GHz/8-core/130W) FIO2 Processor Kit	P18011-B21
HPE DX1x0r Gen10 Intel Xeon-Gold 6230 (2.1GHz/20-core/125W) FIO2 Processor Kit	P18010-B21
HPE DX1x0r Gen10 Intel Xeon-Gold 6226 (2.7GHz/12-core/125W) FIO2 Processor Kit	P18009-B21
HPE DX1x0r Gen10 Intel Xeon-Gold 5220 (2.2GHz/18-core/125W) FIO2 Processor Kit	P18008-B21
HPE DX1x0r Gen10 Intel Xeon-Gold 5218 (2.3GHz/16-core/125W) FIO2 Processor Kit	P18007-B21
HPE DX1x0r Gen10 Intel Xeon-Gold 5217 (3.0GHz/8-core/115W) FIO2 Processor Kit	P18006-B21
HPE DX1x0r Gen10 Intel Xeon-Gold 5215 (2.5GHz/10-core/85W) FIO2 Processor Kit	P18005-B21
HPE DX1x0r Gen10 Intel Xeon-Silver 4216 (2.1GHz/16-core/100W) FIO2 Processor Kit	P18004-B21
HPE DX1x0r Gen10 Intel Xeon-Silver 4215 (2.5GHz/8-core/85W) FIO2 Processor Kit	P18003-B21
HPE DX1x0r Gen10 Intel Xeon-Silver 4214 (2.2GHz/12-core/85W) FIO2 Processor Kit	P18002-B21
HPE DX1x0r Gen10 Intel Xeon-Silver 4210 (2.2GHz/10-core/85W) FIO2 Processor Kit	P18001-B21
HPE DX1x0r Gen10 Intel Xeon-Silver 4208 (2.1GHz/8-core/85W) FIO2 Processor Kit	P18000-L21

#### HPE Memory

##### Registered DIMMs (RDIMMs) for 2<sup>nd</sup> Generation Intel Xeon Scalable Series

HPE DX 16GB (1x16GB) Single Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart FIO Memory Kit	P18448-B21
HPE DX 16GB (1x16GB) Dual Rank x8 DDR4-2933 CAS-21-21-21 Registered Smart FIO Memory Kit	P18449-B21
HPE DX 32GB (1x32GB) Dual Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart FIO Memory Kit	P18450-B21
HPE DX 64GB (1x64GB) Dual Rank x4 DDR4-2933 CAS-21-21-21 Registered Smart FIO Memory Kit	P18453-B21

##### Load Reduced DIMMs (LRDIMMs) for 2<sup>nd</sup> Generation Intel Xeon Scalable Series

HPE DX 64GB (1x64GB) Quad Rank x4 DDR4-2933 CAS-21-21-21 Load Reduced Smart FIO Memory Kit	P18451-B21
HPE DX 128GB (1x128GB) Quad Rank x4 DDR4-2933 CAS-24-21-21 Load Reduced Smart FIO Memory Kit	P18454-B21

**NOTE:** Minimum 1 DIMMs are required per processor; up to 8 DIMMs per processor.

**NOTE:** HPE memory from previous generation servers (DDR3) is not compatible with this server. HPE DDR4 SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen10. For additional information, please see the HPE DDR4 SmartMemory QuickSpecs at:

<http://www8.hpe.com/h20195/v2/GetHTML.aspx?docname=c04380279>

### Core Options

**NOTE:** LRDIMM and RDIMM are distinct memory technologies and cannot be mixed within a server.

**NOTE:** Depending on the memory configuration and processor model, the memory speed may run at 2666MHz, 2400MHz, 2133MHz. Please see Memory Population Table or the Online Memory Configuration Tool at:

<http://h22195.www2.hpe.com/MemoryTool/Home/Legal>

### HPE Networking

#### FlexibleLOM Adapters

HPE DX Ethernet 10Gb 2-port 562FLR-T FIO Adapter	P18458-B21
HPE DX Ethernet 1Gb 4-port 366FLR FIO Adapter	P18459-B21
HPE DX Ethernet 10/25Gb 2-port 640FLR-SFP28 FIO Adapter	P18461-B21

#### Media Module Adapters

HPE DX Ethernet 10Gb 2-port 568FLR-SFP+ Media Module FIO Adapter	P19147-B21
HPE DX Ethernet 1Gb 2-port 368FLR-T Media Module FIO Adapter	P19148-B21
HPE DX Ethernet 10Gb 2-port 568FLR-MMT FIO Adapter	P19149-B21

### HPE Drives

#### Midline - 12G SAS - SFF Drives

HPE DX 2TB SAS 12G Midline 7.2K SFF (2.5in) SC 1yr Wty 512e FIO HDD	P17956-B21
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#### Midline - 12G SAS - LFF Drives

HPE DX 2TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware FIO HDD	P17962-B21
HPE DX 4TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty Digitally Signed Firmware FIO HDD	P17963-B21
HPE DX 6TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty 512e FIO HDD	P17964-B21
HPE DX 8TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty 512e Digitally Signed Firmware FIO HDD	P17965-B21
HPE DX 12TB SAS 12G Midline 7.2K LFF (3.5in) LP 1yr Wty Helium 512e Digitally Signed Firmware FIO HDD	P17966-B21

### SSD Selection

#### Read Intensive - SATA - LFF - Solid State Drives

HPE DX 1.92TB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware FIO SSD	P19093-B21
HPE DX 3.84TB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware FIO SSD	P19097-B21
HPE DX 3.84TB SATA 6G Read Intensive LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware FIO SSD	P19134-B21

#### Read Intensive - SATA - SFF - Solid State Drives

HPE DX 1.92TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware FIO SSD	P17970-B21
HPE DX 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware FIO SSD	P18736-B21

### Core Options

HPE DX 3.84TB SATA 6G Read Intensive SFF (2.5in) SC 3yr Wty Digitally Signed Firmware FIO SSD P19133-B21

#### **Mixed Use - SATA - LFF Solid State Drives**

HPE DX 960GB SATA 6G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware FIO SSD P19090-B21

HPE DX 1.92TB SATA 6G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware FIO SSD P18137-B21

HPE DX 960GB SATA 6G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware FIO SSD P19099-B21

HPE DX 1.92TB SATA 6G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware FIO SSD P19132-B21

HPE DX 800GB SAS 12G Mixed Use LFF (3.5in) LPC 3yr Wty Digitally Signed Firmware FIO SSD P18132-B21

HPE DX 1.6TB SAS 12G Mixed Use LFF (3.5in) SCC 3yr Wty Digitally Signed Firmware FIO SSD P18135-B21

#### **Mixed Use - SATA - SFF - Solid State Drives**

HPE DX 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware FIO SSD P17968-B21

HPE DX 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware FIO SSD P17969-B21

HPE DX 960GB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware FIO SSD P17973-B21

HPE DX 1.92TB SATA 6G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware FIO SSD P18054-B21

HPE DX 800GB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware FIO SSD P18056-B21

HPE DX 1.6TB SAS 12G Mixed Use SFF (2.5in) SC 3yr Wty Digitally Signed Firmware FIO SSD P18057-B21



### Memory

#### HPE Rack Options

##### Rail Kits

HPE 2U Gen9 Hardware Rail Kit	822731-B21
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#### HPE Support Services

HPE 3 Year Next Business Day with Defective Media Retention DX190r Gen10 Hardware Service	HN4Y2E
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HPE 3 Year 24x7 DX190r Gen10 Hardware Service	HN4Y3E
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HPE 3 Year 24x7 with Defective Media Retention DX190r Gen10 Hardware Service	HN4Y4E
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HPE 5 Year Next Business Day DX190r Gen10 Hardware Service	HN4Y5E
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HPE 5 Year Next Business Day with Defective Media Retention DX190r Gen10 Hardware Service	HN4Y6E
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HPE 5 Year 24x7 DX190r Gen10 Hardware Service	HN4Y7E
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HPE 5 Year 24x7 with Defective Media Retention DX190r Gen10 Hardware Service	HN4Y8E
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### Technical Specifications

#### System Unit Specifications

##### Server Dimensions (L x W x D)

3.32 x 7.27 x 27.36 in (8.43 x 18.45 x 69.47 cm)

##### Weight (approximate)

Maximum 25.1 lb (11.39 kg)

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#### System Inlet Temperature Standard Operating Support

10° to 35°C (50° to 95°F) At sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 20°C/hr (36°F/hr). The upper limit and rate of change may be limited by the type and number of options installed.

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#### Extended Ambient Operating Support

5° to 10°C (41° to 50°F) and 35° to 40°C (95° to 104°F) System performance during standard operating support may be reduced if operating with a fan fault or above 30°C (86°F). For approved hardware configurations, the supported system inlet range is extended to be: 5° to 10°C (41° to 50°F) and 35° to 40°C (95° to 104°F) at sea level with an altitude derating of 1.0°C per every 175 m (1.8°F per every 574 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft). The approved hardware configurations for this system are listed at the URL: <http://www.hpe.com/servers/ashrae>

For approved hardware configurations, the supported system inlet range is extended to be: 40° to 45°C (104° to 113°F) at sea level with an altitude derating of 1.0°C per every 125 m (1.8°F per every 410 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft). The approved hardware configurations for this system are listed at the URL: <http://www.hpe.com/servers/ashrae>

System performance may be reduced if operating in the extended ambient operating range or with a fan fault.

-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).

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#### Relative Humidity (non-condensing)

##### Operating

8% to 90% Relative humidity (Rh), 28°C maximum wet bulb temperature, non-condensing.

##### Non-operating

5 to 95% Relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.

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#### Altitude

##### Operating

3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).

##### Non-operating

9144 m (30,000 ft) Maximum allowable altitude change rate is 457 m/min (1500 ft/min).

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### Technical Specifications

#### Acoustic Noise

Listed are the declared A-Weighted sound power levels (**LWAd**) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109). The listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels. Please have your HPE representative provide information from the HPE EMESC website for further technical details regarding the configurations listed below.

**NOTE:** Please have your HPE representative provide information from the HPE EMESC website for further technical details regarding the configurations listed below. **r2200 Chassis.**

#### DX2200 Chassis

Configuration SKU	Entry	Base	Performance
	Idle		
LWAd	6.5 B	7.3 B	8.4 B
LpAm	51 dBA	59 dBA	69 dBA
	Operating		
LWAd	6.5 B	7.6 B	8.8 B
LpAm	51 dBA	62 dBA	73 dBA

#### DX2600 Chassis

Configuration SKU	Entry	Base	Performance
	Idle		
LWAd	6.6 B	7.5 B	8.1 B
LpAm	51 dBA	64 dBA	66 dBA
	Operating		
LWAd	7.1 B	7.8 B	8.7 B
LpAm	57 dBA	63 dBA	70 dBA

**NOTE:** Acoustics levels presented here are generated by the test configuration only. Acoustics levels will vary depending on system configuration. Values are subject to change without notification and are for reference only.

#### Thermal limitations

For a full list of thermal limitations please see the HPE ProLiant DX190r Gen 10 Server User Guide.

[https://support.hpe.com/hpsc/doc/public/display?docId=emr\\_na-a00027947en\\_us&docLocale=en\\_US](https://support.hpe.com/hpsc/doc/public/display?docId=emr_na-a00027947en_us&docLocale=en_US)

#### Environment-friendly Products and Approach - End-of-life Management and Recycling

Hewlett Packard Enterprise offers end-of-life **product return, trade-in, and recycling programs**, in many geographic areas, for our products. Products returned to Hewlett Packard Enterprise will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE Directive (2012/19/EU) 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 Enterprise web site**. These instructions may be used by recyclers and other WEEE treatment facilities as well as Hewlett Packard Enterprise OEM customers who integrate and re-sell Hewlett Packard Enterprise equipment.

### Summary of Changes

Date	Version History	Action	Description of Change
30-Jul-2019	Version 1	New	New QuickSpecs



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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.



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