

This document does not apply to HPE Superdome servers. For information on HPE Superdome , see the following links:

[HPE Integrity Superdome X](#)  
[HPE Superdome Flex](#)

Information on HPE Synergy supported VMware ESXi OS releases, HPE ESXi Custom Images and HPE Synergy Custom SPPs is available at:

[VMware OS Support Tool for HPE Synergy](#)

Information on HPE Synergy Software Releases is available at:

[HPE Synergy Software Releases - Overview](#)

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## VMware Upgrade Pack v1.4.3 for VMware ESXi 7.0 U3 Release Notes

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### BIOS (Login Required) - System ROM

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ROM Flash Firmware Package - HPE Apollo 2000 Gen10/HPE ProLiant XL170r/XL190r Gen10 (U38) Servers

Version: 2.42\_01-23-2021 (**Recommended**)

Filename: U38\_2.42\_01\_23\_2021.fwpkg

#### Important Note!

##### Important Notes:

None

##### Deliverable Name:

HPE Apollo 2000 Gen10/HPE ProLiant XL170r/XL190r Gen10 System ROM - U38

##### Release Version:

2.42\_01-23-2021

##### Last Recommended or Critical Revision:

2.42\_01-23-2021

##### Previous Revision:

2.40\_10-26-2020

##### Firmware Dependencies:

None

##### Enhancements/New Features:

Updated the support for Fast Fault Tolerant Memory Mode (ADDDC) to improve system uptime.

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC+1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

##### Problems Fixed:

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception under heavy stress with short loops of instructions. This may result in a machine check exception in Bank 3 with MSCOD = 0080 and MCACOD = 0400h, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). This issue only impacts 2nd generation Intel Xeon Scalable Performance processors. This issue is not unique to HPE servers.

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception when high levels of posted interrupt traffic occurs on PCIe. This may result in a machine check exception in Bank 9, 10 or 11 with MSCOD = 000Ch, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x02006A09 (CPUID 50654), 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). As part of this change, a new BIOS/Platform Configuration (RBSU) option in Advanced Performance Options has been added to allow a customer to disable this mitigation. This issue is not unique to HPE servers.

Addressed an extremely rare issue where the Real Time Clock may become corrupted on a server boot. This was typically seen as an unexpected change to the RTC Year field but could impact other parts of the Date and Time. This issue is not unique to HPE servers.

Addressed an issue where the Extended Memory Test is not run when configured in BIOS/Platform Configuration (RBSU) to Enabled. Note that this option is Disabled by default. This issue was introduced in the v2.40 revision of the System ROM.

Addressed an issue where the server system fans may run higher than anticipated when a server is configured with AHCI SATA drives.

Addressed an issue where a bad LRDIMM memory device could be mapped out but was not properly reported in the Integrated Memory Log (IML). This issue only impacted systems configured with LRDIMMs.

##### Known Issues:

None

## Fixes

##### Important Notes:

None

##### Firmware Dependencies:

None

**Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception under heavy stress with short loops of instructions. This may result in a machine check exception in Bank 3 with MSCOD = 0080 and MCACOD = 0400h, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). This issue only impacts 2nd generation Intel Xeon Scalable Performance processors. This issue is not unique to HPE servers.

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Addressed an issue where a bad LRDIMM memory device could be mapped out but was not properly reported in the Integrated Memory Log (IML). This issue only impacted systems configured with LRDIMMs.

**Known Issues:**

None

**Enhancements**

Updated the support for Fast Fault Tolerant Memory Mode (ADDDC) to improve system uptime.

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC+1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

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ROM Flash Firmware Package - HPE Apollo 4200 Gen10/HPE ProLiant XL420 Gen10 (U39) Servers  
Version: 2.42\_01-23-2021 (**Recommended**)  
Filename: U39\_2.42\_01\_23\_2021.fwpkg

**Important Note!**

**Important Notes:**

None

**Deliverable Name:**

HPE Apollo 4200 Gen10/ProLiant XL420 Gen10 System ROM - U39

**Release Version:**

2.42\_01-23-2021

**Last Recommended or Critical Revision:**

2.42\_01-23-2021

**Previous Revision:**

2.40\_10-26-2020

**Firmware Dependencies:**

None

**Enhancements/New Features:**

Updated the support for Fast Fault Tolerant Memory Mode (ADDDC) to improve system uptime.

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC 1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

**Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception under heavy stress with short loops of instructions. This may result in a machine check exception in Bank 3 with MSCOD = 0080 and MCACOD = 0400h, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). This issue only impacts 2nd generation Intel Xeon Scalable Performance processors. This issue is not unique to HPE servers.

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**Known Issues:**

None

**Fixes****Important Notes:**

None

**Firmware Dependencies:**

None

**Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception under heavy stress with short loops of instructions. This may result in a machine check exception in Bank 3 with MSCOD = 0080 and MCACOD = 0400h, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). This issue only impacts 2nd generation Intel Xeon Scalable Performance processors. This issue is not unique to HPE servers.

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Addressed an issue where a bad LRDIMM memory device could be mapped out but was not properly reported in the Integrated Memory Log (IML). This issue only impacted systems configured with LRDIMMs.

**Known Issues:**

None

**Enhancements**

Updated the support for Fast Fault Tolerant Memory Mode (ADDDC) to improve system uptime.

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC 1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

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ROM Flash Firmware Package - HPE Apollo 4510 Gen10/HPE ProLiant XL450 Gen10 (U40) Servers  
Version: 2.42\_01-23-2021 **(Recommended)**  
Filename: U40\_2.42\_01\_23\_2021.fwpkg

**Important Note!****Important Notes:**

None

**Deliverable Name:**

HPE Apollo 4510 Gen10/ProLiant XL450 Gen10 System ROM - U40

**Release Version:**

2.42\_01-23-2021

**Last Recommended or Critical Revision:**

2.42\_01-23-2021

**Previous Revision:**

2.40\_10-26-2020

**Firmware Dependencies:**

None

**Enhancements/New Features:**

Updated the support for Fast Fault Tolerant Memory Mode (ADDDC) to improve system uptime.

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC 1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

**Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception under heavy stress with short loops of instructions. This may result in a machine check exception in Bank 3 with MSCOD = 0080 and MCACOD = 0400h, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). This issue only impacts 2nd generation Intel Xeon Scalable Performance processors. This issue is not unique to HPE servers.

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception when high levels of posted interrupt traffic occurs on PCIe. This may result in a machine check exception in Bank 9, 10 or 11 with MSCOD = 000Ch, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x02006A09 (CPUID 50654), 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). As part of this change, a new BIOS/Platform Configuration (RBSU) option in Advanced Performance Options has been added to allow a customer to

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**Known Issues:**

None

**Fixes**

**Important Notes:**

None

**Firmware Dependencies:**

None

**Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception under heavy stress with short loops of instructions. This may result in a machine check exception in Bank 3 with MSCOD = 0080 and MCACOD = 0400h, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). This issue only impacts 2nd generation Intel Xeon Scalable Performance processors. This issue is not unique to HPE servers.

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**Known Issues:**

None

**Enhancements**

Updated the support for Fast Fault Tolerant Memory Mode (ADDDC) to improve system uptime.

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC 1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

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ROM Flash Firmware Package - HPE DL110 Gen10 Plus Telco (U56) Servers

Version: 1.40\_04-28-2021 **(Recommended)**

Filename: U56\_1.40\_04\_28\_2021.fwpkg

**Important Note!**

**Important Notes:**

None

**Deliverable Name:**

HPE ProLiant DL110 Gen10 Plus Telco Server System ROM - U56

**Release Version:**

1.40\_04-28-2021

**Last Recommended or Critical Revision:**

This is the initial version of the firmware.

**Previous Revision:**

This is the initial version of the firmware.

**Firmware Dependencies:**

None

**Enhancements/New Features:**

This is the initial version of the firmware.

**Problems Fixed:**

None

**Known Issues:**

None

**Enhancements**

**Important Notes:**

None

**Firmware Dependencies:**

None

**Enhancements/New Features:**

This is the initial version of the firmware.

**Known Issues:**

None

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ROM Flash Firmware Package - HPE ProLiant BL460c Gen10 (I41) Servers

Version: 2.42\_01-23-2021 **(Recommended)**

Filename: I41\_2.42\_01\_23\_2021.fwpkg

**Important Note!**

**Important Notes:**

None

**Deliverable Name:**

HPE ProLiant BL460c Gen10 System ROM - I41

**Release Version:**

2.42\_01-23-2021

**Last Recommended or Critical Revision:**

2.42\_01-23-2021

**Previous Revision:**

2.40\_10-26-2020

**Firmware Dependencies:**

None

**Enhancements/New Features:**

Updated the support for Fast Fault Tolerant Memory Mode (ADDDC) to improve system uptime.

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC+1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

**Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception under heavy stress with short loops of instructions. This may result in a machine check exception in Bank 3 with MSCOD = 0080 and MCACOD = 0400h, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). This issue only impacts 2nd generation Intel Xeon Scalable Performance processors. This issue is not unique to HPE servers.

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Addressed an issue where a bad LRDIMM memory device could be mapped out but was not properly reported in the Integrated Memory Log (IML). This issue only impacted systems configured with LRDIMMs.

**Known Issues:**

None

**Fixes**

**Important Notes:**

None

**Firmware Dependencies:**

None

**Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception under heavy stress with short loops of instructions. This may result in a machine check exception in Bank 3 with MSCOD = 0080 and MCACOD = 0400h, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). This issue only impacts 2nd generation Intel Xeon Scalable Performance processors. This issue is not unique to HPE servers.

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**Known Issues:**

None

**Enhancements**

Updated the support for Fast Fault Tolerant Memory Mode (ADDDC) to improve system uptime.

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC+1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

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ROM Flash Firmware Package - HPE ProLiant DL160 Gen10/DL180 Gen10 (U31) Servers

Version: 2.42\_01-23-2021 **(Recommended)**

Filename: U31\_2.42\_01\_23\_2021.fwpkg

**Important Note!****Important Notes:**

None

**Deliverable Name:**

HPE ProLiant DL160 Gen10/DL180 Gen10 System ROM - U31

**Release Version:**

2.42\_01-23-2021

**Last Recommended or Critical Revision:**

2.42\_01-23-2021

**Previous Revision:**

2.40\_10-26-2020

**Firmware Dependencies:**

None

**Enhancements/New Features:**

Updated the support for Fast Fault Tolerant Memory Mode (ADDDC) to improve system uptime.

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC 1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

**Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception under heavy stress with short loops of instructions. This may result in a machine check exception in Bank 3 with MSCOD = 0080 and MCACOD = 0400h, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). This issue only impacts 2nd generation Intel Xeon Scalable Performance processors. This issue is not unique to HPE servers.

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**Known Issues:**

None

## **Fixes**

### **Important Notes:**

None

### **Firmware Dependencies:**

None

### **Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception under heavy stress with short loops of instructions. This may result in a machine check exception in Bank 3 with MSCOD = 0080 and MCACOD = 0400h, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). This issue only impacts 2nd generation Intel Xeon Scalable Performance processors. This issue is not unique to HPE servers.

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### **Known Issues:**

None

## **Enhancements**

Updated the support for Fast Fault Tolerant Memory Mode (ADDDC) to improve system uptime.

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC 1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

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ROM Flash Firmware Package - HPE ProLiant DL20 Gen10 (U43) Servers

Version: 2.20\_10-27-2020 **(Recommended)**

Filename: U43\_2.20\_10\_27\_2020.fwpkg

## **Important Note!**

### **Important Notes:**

This version of the System ROM contains updates aligned with the Intel Product Update (IPU) version IPU.2020.2 guidance.

### **Deliverable Name:**

HPE ProLiant DL20 Gen10 System ROM - U43

### **Release Version:**

2.20\_10-27-2020

### **Last Recommended or Critical Revision:**

2.20\_10-27-2020

### **Previous Revision:**

2.18\_06-24-2020

### **Firmware Dependencies:**

None

### **Enhancements/New Features:**

Added a new BIOS/Platform Configuration (RBSU) option to Memory Options called Refresh Watermarks. When selecting the Low Watermark setting, the memory controller will help reduce susceptibility to a DDR4 RowHammer attack. It is expected that a memory performance impact will be seen when enabling the Low Watermark setting. The default operation of the system has not changed and customers wanting to provide additional RowHammer protection should enable this setting.

Added support to BIOS/Platform Configuration (RBSU) to allow importing and exporting Secure Boot signature lists as a signed binary file. This is useful to import the Microsoft revocation list binary file into the Secure Boot DBX as found on the UEFI forum at <https://uefi.org/revocationlistfile>.

Updated the System ROM support for One Button Secure Erase functionality with the latest HPE option devices.

Updated the RESTful API HPE BIOS Attribute Registry resources to match the latest BIOS/Platform Configuration options.

### **Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides mitigations for security vulnerabilities documented as CVE-2020-8696, CVE-2020-8694 and CVE-2020-8695. These security vulnerabilities are documented in Intel Security Advisory INTEL-SA-00381 and INTEL-SA-00389. The Intel microcode patches included in this release are version 0x000000DE (CPUIDs 906ED, 906EC, 906EB and 906EA). These issues are not unique to HPE servers.

This revision of the System ROM includes the latest revision of the Intel Reference Code which provides mitigations for BIOS advisories and security vulnerabilities documented as CVE-2020-0593. These security vulnerabilities are documented in Intel Security Advisory INTEL-SA-00358. These issues are not unique to HPE servers.

Addressed an issue where the "Minimum Processor Idle Power Package C-State" RBSU option was missing.

**Known Issues:**

None

**Fixes**

**Important Notes:**

This version of the System ROM contains updates aligned with the Intel Product Update (IPU) version IPU.2020.2 guidance.

**Firmware Dependencies:**

None

**Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides mitigations for security vulnerabilities documented as CVE-2020-8696, CVE-2020-8694 and CVE-2020-8695. These security vulnerabilities are documented in Intel Security Advisory INTEL-SA-00381 and INTEL-SA-00389. The Intel microcode patches included in this release are version 0x000000DE (CPUIDs 906ED, 906EC, 906EB and 906EA). These issues are not unique to HPE servers.

This revision of the System ROM includes the latest revision of the Intel Reference Code which provides mitigations for BIOS advisories and security vulnerabilities documented as CVE-2020-0593. These security vulnerabilities are documented in Intel Security Advisory INTEL-SA-00358. These issues are not unique to HPE servers.

Addressed an issue where the "Minimum Processor Idle Power Package C-State" RBSU option was missing.

**Known Issues:**

None

**Enhancements**

Added a new BIOS/Platform Configuration (RBSU) option to Memory Options called Refresh Watermarks. When selecting the Low Watermark setting, the memory controller will help reduce susceptibility to a DDR4 RowHammer attack. It is expected that a memory performance impact will be seen when enabling the Low Watermark setting. The default operation of the system has not changed and customers wanting to provide additional RowHammer protection should enable this setting.

Added support to BIOS/Platform Configuration (RBSU) to allow importing and exporting Secure Boot signature lists as a signed binary file. This is useful to import the Microsoft revocation list binary file into the Secure Boot DBX as found on the UEFI forum at <https://uefi.org/revocationlistfile>.

Updated the System ROM support for One Button Secure Erase functionality with the latest HPE option devices.

Updated the RESTful API HPE BIOS Attribute Registry resources to match the latest BIOS/Platform Configuration options.

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ROM Flash Firmware Package - HPE ProLiant DL325 Gen10 (A41) Servers

Version: 2.42\_07-17-2020 **(Recommended)**

Filename: A41\_2.42\_07\_17\_2020.fwpkg

**Important Note!**

**Important Notes:**

None

**Deliverable Name:**

HPE ProLiant DL325 Gen10 System ROM - A41

**Release Version:**

2.42\_07-17-2020

**Last Recommended or Critical Revision:**

2.42\_07-17-2020

**Previous Revision:**

2.40\_05-11-2020

**Firmware Dependencies:**

None

**Enhancements/New Features:**

Added a new BIOS/Platform Configuration (RBSU) option for DRAM Burst Refresh Mode to provide mitigation for TRRespass and Targeted Row Refresh exploits. This option should be configured to Disabled to mitigate the TRRespass vulnerability. Setting this option to Disabled may have a minimal impact to system performance. The default setting is Enabled.

Added a new BIOS/Platform Configuration (RBSU) option in the Minimum Processor Idle Power Core C-State setting for C1 State. This option allows for power savings during certain workloads without the performance impacts of C6 State.

**Problems Fixed:**

Addressed an issue where uncorrectable memory errors are seen when running memory intensive workloads with LRDIMMs.

Address an issue that could cause a slight degradation of performance.

Resolved an issue with NVMe hot add or removal which may result in an unrecoverable I/O error reported in the Integrated Management Log (IML).

Addressed an issue where the UEFI Shell command GetPciRom may not display information for PCI expansion device drivers.

Addressed an extremely intermittent issue with AMD Epyc 1st Gen processors that would cause a critical error and system reset.

**Known Issues:**

None

**Fixes****Important Notes:**

None

**Firmware Dependencies:**

None

**Problems Fixed:**

Addressed an issue where uncorrectable memory errors are seen when running memory intensive workloads with LRDIMMs.

Address an issue that could cause a slight degradation of performance.

Resolved an issue with NVMe hot add or removal which may result in an unrecoverable I/O error reported in the Integrated Management Log (IML).

Addressed an issue where the UEFI Shell command GetPciRom may not display information for PCI expansion device drivers.

Addressed an extremely intermittent issue with AMD Epyc 1st Gen processors that would cause a critical error and system reset.

**Known Issues:**

None

**Enhancements**

Added a new BIOS/Platform Configuration (RBSU) option for DRAM Burst Refresh Mode to provide mitigation for TRRespass and Targeted Row Refresh exploits. This option should be configured to Disabled to mitigate the TRRespass vulnerability. Setting this option to Disabled may have a minimal impact to system performance. The default setting is Enabled.

Added a new BIOS/Platform Configuration (RBSU) option in the Minimum Processor Idle Power Core C-State setting for C1 State. This option allows for power savings during certain workloads without the performance impacts of C6 State.

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ROM Flash Firmware Package - HPE ProLiant DL360 Gen10 (U32) Servers

Version: 2.42\_01-23-2021 **(Recommended)**

Filename: U32\_2.42\_01\_23\_2021.fwpkg

**Important Note!****Important Notes:**

None

**Deliverable Name:**

HPE ProLiant DL360 Gen10 System ROM - U32

**Release Version:**

2.42\_01-23-2021

**Last Recommended or Critical Revision:**

2.42\_01-23-2021

**Previous Revision:**

2.40\_10-26-2020

**Firmware Dependencies:**

None

**Enhancements/New Features:**

Updated the support for Fast Fault Tolerant Memory Mode (ADDDC) to improve system uptime.

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC 1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

**Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception under heavy stress with short loops of instructions. This may result in a machine check exception in Bank 3 with MSCOD = 0080 and MCACOD = 0400h, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). This issue only impacts 2nd generation Intel Xeon Scalable Performance processors. This issue is not unique to HPE servers.

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception when high levels of posted interrupt traffic occurs on PCIe. This may result in a machine check exception in Bank 9, 10 or 11 with MSCOD = 000Ch, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x02006A09 (CPUID 50654), 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). As part of this change, a new BIOS/Platform Configuration (RBSU) option in Advanced Performance Options has been added to allow a customer to disable this mitigation. This issue is not unique to HPE servers.

Addressed an extremely rare issue where the Real Time Clock may become corrupted on a server boot. This was typically seen as an unexpected change to the RTC Year field but could impact other parts of the Date and Time. This issue is not unique to HPE servers.

Addressed an issue where the Extended Memory Test is not run when configured in BIOS/Platform Configuration (RBSU) to Enabled. Note that this option is Disabled by default. This issue was introduced in the v2.40 revision of the System ROM.

Addressed an issue where the server system fans may run higher than anticipated when a server is configured with AHCI SATA drives.

Addressed an issue where a bad LRDIMM memory device could be mapped out but was not properly reported in the Integrated Memory Log (IML). This issue only impacted systems configured with LRDIMMs.

**Known Issues:**

None

**Fixes**

**Important Notes:**

None

**Firmware Dependencies:**

None

**Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception under heavy stress with short loops of instructions. This may result in a machine check exception in Bank 3 with MSCOD = 0080 and MCACOD = 0400h, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). This issue only impacts 2nd generation Intel Xeon Scalable Performance processors. This issue is not unique to HPE servers.

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception when high levels of posted interrupt traffic occurs on PCIe. This may result in a machine check exception in Bank 9, 10 or 11 with MSCOD = 000Ch, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x02006A09 (CPUID 50654), 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). As part of this change, a new BIOS/Platform Configuration (RBSU) option in Advanced Performance Options has been added to allow a customer to disable this mitigation. This issue is not unique to HPE servers.

Addressed an extremely rare issue where the Real Time Clock may become corrupted on a server boot. This was typically seen as an unexpected change to the RTC Year field but could impact other parts of the Date and Time. This issue is not unique to HPE servers.

Addressed an issue where the Extended Memory Test is not run when configured in BIOS/Platform Configuration (RBSU) to Enabled. Note that this option is Disabled by default. This issue was introduced in the v2.40 revision of the System ROM.

Addressed an issue where the server system fans may run higher than anticipated when a server is configured with AHCI SATA drives.

Addressed an issue where a bad LRDIMM memory device could be mapped out but was not properly reported in the Integrated Memory Log (IML). This issue only impacted systems configured with LRDIMMs.

**Known Issues:**

None

**Enhancements**

Updated the support for Fast Fault Tolerant Memory Mode (ADDDC) to improve system uptime.

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC 1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

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ROM Flash Firmware Package - HPE ProLiant DL380 Gen10 (U30) Servers  
Version: 2.42\_01-23-2021 **(Recommended)**  
Filename: U30\_2.42\_01\_23\_2021.fwpkg

**Important Note!**

**Important Notes:**

None

**Deliverable Name:**

HPE ProLiant DL380 Gen10 System ROM - U30

**Release Version:**

2.42\_01-23-2021

**Last Recommended or Critical Revision:**

2.42\_01-23-2021

**Previous Revision:**

2.40\_10-26-2020

**Firmware Dependencies:**

None

**Enhancements/New Features:**

Updated the support for Fast Fault Tolerant Memory Mode (ADDDC) to improve system uptime.

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC 1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

**Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception under heavy stress with short loops of instructions. This may result in a machine check exception in Bank 3 with MSCOD = 0080 and MCACOD = 0400h, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). This issue only impacts 2nd generation Intel Xeon Scalable Performance processors. This issue is not unique to HPE servers.

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception when high levels of

posted interrupt traffic occurs on PCIe. This may result in a machine check exception in Bank 9, 10 or 11 with MSCOD = 000Ch, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x02006A09 (CPUID 50654), 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). As part of this change, a new BIOS/Platform Configuration (RBSU) option in Advanced Performance Options has been added to allow a customer to disable this mitigation. This issue is not unique to HPE servers.

Addressed an extremely rare issue where the Real Time Clock may become corrupted on a server boot. This was typically seen as an unexpected change to the RTC Year field but could impact other parts of the Date and Time. This issue is not unique to HPE servers.

Addressed an issue where the Extended Memory Test is not run when configured in BIOS/Platform Configuration (RBSU) to Enabled. Note that this option is Disabled by default. This issue was introduced in the v2.40 revision of the System ROM.

Addressed an issue where the server system fans may run higher than anticipated when a server is configured with AHCI SATA drives.

Addressed an issue where a bad LRDIMM memory device could be mapped out but was not properly reported in the Integrated Memory Log (IML). This issue only impacted systems configured with LRDIMMs.

**Known Issues:**

None

**Fixes**

**Important Notes:**

None

**Firmware Dependencies:**

None

**Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception under heavy stress with short loops of instructions. This may result in a machine check exception in Bank 3 with MSCOD = 0080 and MCACOD = 0400h, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). This issue only impacts 2nd generation Intel Xeon Scalable Performance processors. This issue is not unique to HPE servers.

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception when high levels of posted interrupt traffic occurs on PCIe. This may result in a machine check exception in Bank 9, 10 or 11 with MSCOD = 000Ch, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x02006A09 (CPUID 50654), 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). As part of this change, a new BIOS/Platform Configuration (RBSU) option in Advanced Performance Options has been added to allow a customer to disable this mitigation. This issue is not unique to HPE servers.

Addressed an extremely rare issue where the Real Time Clock may become corrupted on a server boot. This was typically seen as an unexpected change to the RTC Year field but could impact other parts of the Date and Time. This issue is not unique to HPE servers.

Addressed an issue where the Extended Memory Test is not run when configured in BIOS/Platform Configuration (RBSU) to Enabled. Note that this option is Disabled by default. This issue was introduced in the v2.40 revision of the System ROM.

Addressed an issue where the server system fans may run higher than anticipated when a server is configured with AHCI SATA drives.

Addressed an issue where a bad LRDIMM memory device could be mapped out but was not properly reported in the Integrated Memory Log (IML). This issue only impacted systems configured with LRDIMMs.

**Known Issues:**

None

**Enhancements**

Updated the support for Fast Fault Tolerant Memory Mode (ADDDC) to improve system uptime.

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC 1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

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ROM Flash Firmware Package - HPE ProLiant DL385 Gen10 (A40) Servers

Version: 2.42\_07-17-2020 **(Recommended)**

Filename: A40\_2.42\_07\_17\_2020.fwpkg

**Important Note!**

**Important Notes:**

None

**Deliverable Name:**

HPE ProLiant DL385 Gen10 System ROM - A40

**Release Version:**

2.42\_07-17-2020

**Last Recommended or Critical Revision:**

2.42\_07-17-2020

**Previous Revision:**

2.40\_05-11-2020

**Firmware Dependencies:**

None

**Enhancements/New Features:**

Added a new BIOS/Platform Configuration (RBSU) option for DRAM Burst Refresh Mode to provide mitigation for TRRespass and Targeted Row Refresh exploits. This option should be configured to Disabled to mitigate the TRRespass vulnerability. Setting this option to Disabled may have a minimal impact to system performance. The default setting is Enabled.

Added a new BIOS/Platform Configuration (RBSU) option in the Minimum Processor Idle Power Core C-State setting for C1 State. This option allows for power savings during certain workloads without the performance impacts of C6 State.

**Problems Fixed:**

Addressed an issue where uncorrectable memory errors are seen when running memory intensive workloads with LRDIMMs.

Address an issue that could cause a slight degradation of performance.

Resolved an issue with NVMe hot add or removal which may result in an unrecoverable I/O error reported in the Integrated Management Log (IML).

Addressed issue where the UEFI Shell command GetPciRom may not display information for PCI expansion device drivers.

Addressed an extremely intermittent issue with AMD Epyc 1st Gen processors that would cause a critical error and system reset.

**Known Issues:**

None

**Fixes**

**Important Notes:**

None

**Firmware Dependencies:**

None

**Problems Fixed:**

Addressed an issue where uncorrectable memory errors are seen when running memory intensive workloads with LRDIMMs.

Address an issue that could cause a slight degradation of performance.

Resolved an issue with NVMe hot add or removal which may result in an unrecoverable I/O error reported in the Integrated Management Log (IML).

Addressed an issue where the UEFI Shell command GetPciRom may not display information for PCI expansion device drivers.

Addressed an extremely intermittent issue with AMD Epyc 1st Gen processors that would cause a critical error and system reset.

**Known Issues:**

None

**Enhancements**

Added a new BIOS/Platform Configuration (RBSU) option for DRAM Burst Refresh Mode to provide mitigation for TRRespass and Targeted Row Refresh exploits. This option should be configured to Disabled to mitigate the TRRespass vulnerability. Setting this option to Disabled may have a minimal impact to system performance. The default setting is Enabled.

Added a new BIOS/Platform Configuration (RBSU) option in the Minimum Processor Idle Power Core C-State setting for C1 State. This option allows for power savings during certain workloads without the performance impacts of C6 State.

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ROM Flash Firmware Package - HPE ProLiant DL560 Gen10/DL580 Gen10 (U34) Servers  
Version: 2.42\_01-23-2021 **(Recommended)**  
Filename: U34\_2.42\_01\_23\_2021.fwpkg

**Important Note!**

**Important Notes:**

None

**Deliverable Name:**

HPE ProLiant DL560 Gen10/DL580 Gen10 System ROM - U34

**Release Version:**

2.42\_01-23-2021

**Last Recommended or Critical Revision:**

2.42\_01-23-2021

**Previous Revision:**

2.40\_10-26-2020

**Firmware Dependencies:**

None

**Enhancements/New Features:**

Updated the support for Fast Fault Tolerant Memory Mode (ADDDC) to improve system uptime.

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC 1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

**Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception under heavy stress with

short loops of instructions. This may result in a machine check exception in Bank 3 with MSCOD = 0080 and MCACOD = 0400h, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). This issue only impacts 2nd generation Intel Xeon Scalable Performance processors. This issue is not unique to HPE servers.

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception when high levels of posted interrupt traffic occurs on PCIe. This may result in a machine check exception in Bank 9, 10 or 11 with MSCOD = 000Ch, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x02006A09 (CPUID 50654), 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). As part of this change, a new BIOS/Platform Configuration (RBSU) option in Advanced Performance Options has been added to allow a customer to disable this mitigation. This issue is not unique to HPE servers.

Addressed an extremely rare issue where the Real Time Clock may become corrupted on a server boot. This was typically seen as an unexpected change to the RTC Year field but could impact other parts of the Date and Time. This issue is not unique to HPE servers.

Addressed an issue where the Extended Memory Test is not run when configured in BIOS/Platform Configuration (RBSU) to Enabled. Note that this option is Disabled by default. This issue was introduced in the v2.40 revision of the System ROM.

Addressed an issue where the server system fans may run higher than anticipated when a server is configured with AHCI SATA drives.

Addressed an issue where a bad LRDIMM memory device could be mapped out but was not properly reported in the Integrated Memory Log (IML). This issue only impacted systems configured with LRDIMMs.

**Known Issues:**

None

**Fixes**

**Important Notes:**

None

**Firmware Dependencies:**

None

**Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception under heavy stress with short loops of instructions. This may result in a machine check exception in Bank 3 with MSCOD = 0080 and MCACOD = 0400h, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). This issue only impacts 2nd generation Intel Xeon Scalable Performance processors. This issue is not unique to HPE servers.

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception when high levels of posted interrupt traffic occurs on PCIe. This may result in a machine check exception in Bank 9, 10 or 11 with MSCOD = 000Ch, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x02006A09 (CPUID 50654), 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). As part of this change, a new BIOS/Platform Configuration (RBSU) option in Advanced Performance Options has been added to allow a customer to disable this mitigation. This issue is not unique to HPE servers.

Addressed an extremely rare issue where the Real Time Clock may become corrupted on a server boot. This was typically seen as an unexpected change to the RTC Year field but could impact other parts of the Date and Time. This issue is not unique to HPE servers.

Addressed an issue where the Extended Memory Test is not run when configured in BIOS/Platform Configuration (RBSU) to Enabled. Note that this option is Disabled by default. This issue was introduced in the v2.40 revision of the System ROM.

Addressed an issue where the server system fans may run higher than anticipated when a server is configured with AHCI SATA drives.

Addressed an issue where a bad LRDIMM memory device could be mapped out but was not properly reported in the Integrated Memory Log (IML). This issue only impacted systems configured with LRDIMMs.

**Known Issues:**

None

**Enhancements**

Updated the support for Fast Fault Tolerant Memory Mode (ADDDC) to improve system uptime.

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC 1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

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ROM Flash Firmware Package - HPE ProLiant MicroServer Gen10 Plus (U48) Servers

Version: 2.20\_10-27-2020 **(Recommended)**

Filename: U48\_2.20\_10\_27\_2020.fwpkg

**Important Note!**

**Important Notes:**

None

**Deliverable Name:**

HPE ProLiant MicroServer Gen10 Plus System ROM - U48

**Release Version:**

2.20\_10-27-2020

**Last Recommended or Critical Revision:**

2.20\_10-27-2020

**Previous Revision:**

2.18\_06-24-2020

**Firmware Dependencies:**

None

**Enhancements/New Features:**

Added a new BIOS/Platform Configuration (RBSU) option to Memory Options called Refresh Watermarks. When selecting the Low Watermark setting, the memory controller will help reduce susceptibility to a DDR4 RowHammer attack. It is expected that a memory performance impact will be seen when enabling the Low Watermark setting. The default operation of the system has not changed and customers wanting to provide additional RowHammer protection should enable this setting.

Added support to BIOS/Platform Configuration (RBSU) to allow importing and exporting Secure Boot signature lists as a signed binary file. This is useful to import the Microsoft revocation list binary file into the Secure Boot DBX as found on the UEFI forum at <https://uefi.org/revocationlistfile>.

Updated the System ROM support for One Button Secure Erase functionality with the latest HPE option devices.

Updated the RESTful API HPE BIOS Attribute Registry resources to match the latest BIOS/Platform Configuration options.

**Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides mitigations for security vulnerabilities documented as CVE-2020-8696, CVE-2020-8694 and CVE-2020-8695. These security vulnerabilities are documented in Intel Security Advisory INTEL-SA-00381 and INTEL-SA-00389. The Intel microcode patches included in this release are version 0x000000DE (CPUIDs 906ED, 906EC, 906EB and 906EA). These issues are not unique to HPE servers.

This revision of the System ROM includes the latest revision of the Intel Reference Code which provides mitigations for BIOS advisories and security vulnerabilities documented as CVE-2020-0593. These security vulnerabilities are documented in Intel Security Advisory INTEL-SA-00358. These issues are not unique to HPE servers.

**Known Issues:**

None

**Fixes**

**Important Notes:**

This version of the System ROM contains updates aligned with the Intel Product Update (IPU) version IPU.2020.2 guidance.

**Firmware Dependencies:**

None

**Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides mitigations for security vulnerabilities documented as CVE-2020-8696, CVE-2020-8694 and CVE-2020-8695. These security vulnerabilities are documented in Intel Security Advisory INTEL-SA-00381 and INTEL-SA-00389. The Intel microcode patches included in this release are version 0x000000DE (CPUIDs 906ED, 906EC, 906EB and 906EA). These issues are not unique to HPE servers.

This revision of the System ROM includes the latest revision of the Intel Reference Code which provides mitigations for BIOS advisories and security vulnerabilities documented as CVE-2020-0593. These security vulnerabilities are documented in Intel Security Advisory INTEL-SA-00358. These issues are not unique to HPE servers.

**Known Issues:**

None

**Enhancements**

Added a new BIOS/Platform Configuration (RBSU) option to Memory Options called Refresh Watermarks. When selecting the Low Watermark setting, the memory controller will help reduce susceptibility to a DDR4 RowHammer attack. It is expected that a memory performance impact will be seen when enabling the Low Watermark setting. The default operation of the system has not changed and customers wanting to provide additional RowHammer protection should enable this setting.

Added support to BIOS/Platform Configuration (RBSU) to allow importing and exporting Secure Boot signature lists as a signed binary file. This is useful to import the Microsoft revocation list binary file into the Secure Boot DBX as found on the UEFI forum at <https://uefi.org/revocationlistfile>.

Updated the System ROM support for One Button Secure Erase functionality with the latest HPE option devices.

Updated the RESTful API HPE BIOS Attribute Registry resources to match the latest BIOS/Platform Configuration options.

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ROM Flash Firmware Package - HPE ProLiant ML110 Gen10 (U33) Servers

Version: 2.42\_01-23-2021 **(Recommended)**

Filename: U33\_2.42\_01\_23\_2021.fwpkg

**Important Note!**

**Important Notes:**

None

**Deliverable Name:**

HPE ProLiant ML110 Gen10 System ROM - U33

**Release Version:**

2.42\_01-23-2021

**Last Recommended or Critical Revision:**

2.42\_01-23-2021

**Previous Revision:**

2.40\_10-26-2020

**Firmware Dependencies:**

None

**Enhancements/New Features:**

Updated the support for Fast Fault Tolerant Memory Mode (ADDDC) to improve system uptime.

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC 1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

**Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception under heavy stress with short loops of instructions. This may result in a machine check exception in Bank 3 with MSCOD = 0080 and MCACOD = 0400h, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). This issue only impacts 2nd generation Intel Xeon Scalable Performance processors. This issue is not unique to HPE servers.

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception when high levels of posted interrupt traffic occurs on PCIe. This may result in a machine check exception in Bank 9, 10 or 11 with MSCOD = 000Ch, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x02006A09 (CPUID 50654), 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). As part of this change, a new BIOS/Platform Configuration (RBSU) option in Advanced Performance Options has been added to allow a customer to disable this mitigation. This issue is not unique to HPE servers.

Addressed an extremely rare issue where the Real Time Clock may become corrupted on a server boot. This was typically seen as an unexpected change to the RTC Year field but could impact other parts of the Date and Time. This issue is not unique to HPE servers.

Addressed an issue where the Extended Memory Test is not run when configured in BIOS/Platform Configuration (RBSU) to Enabled. Note that this option is Disabled by default. This issue was introduced in the v2.40 revision of the System ROM.

Addressed an issue where the server system fans may run higher than anticipated when a server is configured with AHCI SATA drives.

Addressed an issue where a bad LRDIMM memory device could be mapped out but was not properly reported in the Integrated Memory Log (IML). This issue only impacted systems configured with LRDIMMs.

**Known Issues:**

None

**Fixes**

**Important Notes:**

None

**Firmware Dependencies:**

None

**Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception under heavy stress with short loops of instructions. This may result in a machine check exception in Bank 3 with MSCOD = 0080 and MCACOD = 0400h, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). This issue only impacts 2nd generation Intel Xeon Scalable Performance processors. This issue is not unique to HPE servers.

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception when high levels of posted interrupt traffic occurs on PCIe. This may result in a machine check exception in Bank 9, 10 or 11 with MSCOD = 000Ch, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x02006A09 (CPUID 50654), 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). As part of this change, a new BIOS/Platform Configuration (RBSU) option in Advanced Performance Options has been added to allow a customer to disable this mitigation. This issue is not unique to HPE servers.

Addressed an extremely rare issue where the Real Time Clock may become corrupted on a server boot. This was typically seen as an unexpected change to the RTC Year field but could impact other parts of the Date and Time. This issue is not unique to HPE servers.

Addressed an issue where the Extended Memory Test is not run when configured in BIOS/Platform Configuration (RBSU) to Enabled. Note that this option is Disabled by default. This issue was introduced in the v2.40 revision of the System ROM.

Addressed an issue where the server system fans may run higher than anticipated when a server is configured with AHCI SATA drives.

Addressed an issue where a bad LRDIMM memory device could be mapped out but was not properly reported in the Integrated Memory Log (IML). This issue only impacted systems configured with LRDIMMs.

**Known Issues:**

None

**Enhancements**

Updated the support for Fast Fault Tolerant Memory Mode (ADDDC) to improve system uptime.

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC 1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

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ROM Flash Firmware Package - HPE ProLiant ML30 Gen10 (U44) Servers  
Version: 2.20\_10-27-2020 **(Recommended)**  
Filename: U44\_2.20\_10\_27\_2020.fwpkg

**Important Note!**

**Important Notes:**

This version of the System ROM contains updates aligned with the Intel Product Update (IPU) version IPU.2020.2 guidance.

**Deliverable Name:**

HPE ProLiant ML30 Gen10 System ROM - U44

**Release Version:**

2.20\_10-27-2020

**Last Recommended or Critical Revision:**

2.20\_10-27-2020

**Previous Revision:**

2.18\_06-24-2020

**Firmware Dependencies:**

None

**Enhancements/New Features:**

Added a new BIOS/Platform Configuration (RBSU) option to Memory Options called Refresh Watermarks. When selecting the Low Watermark setting, the memory controller will help reduce susceptibility to a DDR4 RowHammer attack. It is expected that a memory performance impact will be seen when enabling the Low Watermark setting. The default operation of the system has not changed and customers wanting to provide additional RowHammer protection should enable this setting.

Added support to BIOS/Platform Configuration (RBSU) to allow importing and exporting Secure Boot signature lists as a signed binary file. This is useful to import the Microsoft revocation list binary file into the Secure Boot DBX as found on the UEFI forum at <https://uefi.org/revocationlistfile>.

Updated the System ROM support for One Button Secure Erase functionality with the latest HPE option devices.

Updated the RESTful API HPE BIOS Attribute Registry resources to match the latest BIOS/Platform Configuration options.

**Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides mitigations for security vulnerabilities documented as CVE-2020-8696, CVE-2020-8694 and CVE-2020-8695. These security vulnerabilities are documented in Intel Security Advisory INTEL-SA-00381 and INTEL-SA-00389. The Intel microcode patches included in this release are version 0x000000DE (CPUIDs 906ED, 906EC, 906EB and 906EA). These issues are not unique to HPE servers.

This revision of the System ROM includes the latest revision of the Intel Reference Code which provides mitigations for BIOS advisories and security vulnerabilities documented as CVE-2020-0593. These security vulnerabilities are documented in Intel Security Advisory INTEL-SA-00358. These issues are not unique to HPE servers.

Addressed an issue where the "Minimum Processor Idle Power Package C-State" RBSU option was missing.

**Known Issues:**

None

**Fixes****Important Notes:**

This version of the System ROM contains updates aligned with the Intel Product Update (IPU) version IPU.2020.2 guidance.

**Firmware Dependencies:**

None

**Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides mitigations for security vulnerabilities documented as CVE-2020-8696, CVE-2020-8694 and CVE-2020-8695. These security vulnerabilities are documented in Intel Security Advisory INTEL-SA-00381 and INTEL-SA-00389. The Intel microcode patches included in this release are version 0x000000DE (CPUIDs 906ED, 906EC, 906EB and 906EA). These issues are not unique to HPE servers.

This revision of the System ROM includes the latest revision of the Intel Reference Code which provides mitigations for BIOS advisories and security vulnerabilities documented as CVE-2020-0593. These security vulnerabilities are documented in Intel Security Advisory INTEL-SA-00358. These issues are not unique to HPE servers.

Addressed an issue where the "Minimum Processor Idle Power Package C-State" RBSU option was missing.

**Known Issues:**

None

**Enhancements**

Added a new BIOS/Platform Configuration (RBSU) option to Memory Options called Refresh Watermarks. When selecting the Low Watermark setting, the memory controller will help reduce susceptibility to a DDR4 RowHammer attack. It is expected that a memory performance impact will be seen when enabling the Low Watermark setting. The default operation of the system has not changed and customers wanting to provide additional RowHammer protection should enable this setting.

Added support to BIOS/Platform Configuration (RBSU) to allow importing and exporting Secure Boot signature lists as a signed binary file. This is useful to import the Microsoft revocation list binary file into the Secure Boot DBX as found on the UEFI forum at <https://uefi.org/revocationlistfile>.

Updated the System ROM support for One Button Secure Erase functionality with the latest HPE option devices.

Updated the RESTful API HPE BIOS Attribute Registry resources to match the latest BIOS/Platform Configuration options.

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ROM Flash Firmware Package - HPE ProLiant ML350 Gen10 (U41) Servers

Version: 2.42\_01-23-2021 **(Recommended)**

Filename: U41\_2.42\_01\_23\_2021.fwpkg

**Important Note!****Important Notes:**

None

**Deliverable Name:**

HPE ProLiant ML350 Gen10 System ROM - U41

**Release Version:**

2.42\_01-23-2021

**Last Recommended or Critical Revision:**

2.42\_01-23-2021

**Previous Revision:**

2.40\_10-26-2020

**Firmware Dependencies:**

None

**Enhancements/New Features:**

Updated the support for Fast Fault Tolerant Memory Mode (ADDDC) to improve system uptime.

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC 1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

**Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception under heavy stress with short loops of instructions. This may result in a machine check exception in Bank 3 with MSCOD = 0080 and MCACOD = 0400h, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). This issue only impacts 2nd generation Intel Xeon Scalable Performance processors. This issue is not unique to HPE servers.

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception when high levels of posted interrupt traffic occurs on PCIe. This may result in a machine check exception in Bank 9, 10 or 11 with MSCOD = 000Ch, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x02006A09 (CPUID 50654), 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). As part of this change, a new BIOS/Platform Configuration (RBSU) option in Advanced Performance Options has been added to allow a customer to disable this mitigation. This issue is not unique to HPE servers.

Addressed an extremely rare issue where the Real Time Clock may become corrupted on a server boot. This was typically seen as an unexpected change to the RTC Year field but could impact other parts of the Date and Time. This issue is not unique to HPE servers.

Addressed an issue where the Extended Memory Test is not run when configured in BIOS/Platform Configuration (RBSU) to Enabled. Note that this option is Disabled by default. This issue was introduced in the v2.40 revision of the System ROM.

Addressed an issue where the server system fans may run higher than anticipated when a server is configured with AHCI SATA drives.

Addressed an issue where a bad LRDIMM memory device could be mapped out but was not properly reported in the Integrated Memory Log (IML). This issue only impacted systems configured with LRDIMMs.

**Known Issues:**

None

**Fixes****Important Notes:**

None

**Firmware Dependencies:**

None

**Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception under heavy stress with short loops of instructions. This may result in a machine check exception in Bank 3 with MSCOD = 0080 and MCACOD = 0400h, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). This issue only impacts 2nd generation Intel Xeon Scalable Performance processors. This issue is not unique to HPE servers.

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception when high levels of posted interrupt traffic occurs on PCIe. This may result in a machine check exception in Bank 9, 10 or 11 with MSCOD = 000Ch, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x02006A09 (CPUID 50654), 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). As part of this change, a new BIOS/Platform Configuration (RBSU) option in Advanced Performance Options has been added to allow a customer to disable this mitigation. This issue is not unique to HPE servers.

Addressed an extremely rare issue where the Real Time Clock may become corrupted on a server boot. This was typically seen as an unexpected change to the RTC Year field but could impact other parts of the Date and Time. This issue is not unique to HPE servers.

Addressed an issue where the Extended Memory Test is not run when configured in BIOS/Platform Configuration (RBSU) to Enabled. Note that this option is Disabled by default. This issue was introduced in the v2.40 revision of the System ROM.

Addressed an issue where the server system fans may run higher than anticipated when a server is configured with AHCI SATA drives.

Addressed an issue where a bad LRDIMM memory device could be mapped out but was not properly reported in the Integrated Memory Log (IML). This issue only impacted systems configured with LRDIMMs.

**Known Issues:**

None

**Enhancements**

Updated the support for Fast Fault Tolerant Memory Mode (ADDDC) to improve system uptime.

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC 1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

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ROM Flash Firmware Package - HPE ProLiant XL220n/XL290n Gen10 Plus 1U Node and 2U Node Configure-to-order Server (U47)

Version: 1.42\_05-27-2021 (Optional)

Filename: U47\_1.42\_05\_27\_2021.fwpkg

**Important Note!**

**Important Notes:**

None

**Deliverable Name:**

HPE ProLiant XL220n/XL290n Gen10 Plus Server System ROM - U47

**Release Version:**

1.42\_05-27-2021

**Last Recommended or Critical Revision:**

1.40\_04-28-2021

**Previous Revision:**

1.40\_04-28-2021

**Firmware Dependencies:**

None

**Enhancements/New Features:**

Added a new BIOS/Platform Configuration (RBSU) option called Enhanced Processor Performance Profile. This option provides additional processor performance profiles that can be used to improve overall performance under certain workloads.

**Problems Fixed:**

Addressed an issue where the system may report an Unsupported Memory Configuration error when Intel Optane Persistent Memory is present with an Intel Xeon Silver 4314 processor. This issue does not impact systems configured with an Intel Xeon Gold or Platinum SKU processor.

**Known Issues:**

None

**Fixes****Important Notes:**

None

**Firmware Dependencies:**

None

**Problems Fixed:**

Addressed an issue where the system may report an Unsupported Memory Configuration error when Intel Optane Persistent Memory is present with an Intel Xeon Silver 4314 processor. This issue does not impact systems configured with an Intel Xeon Gold or Platinum SKU processor.

**Known Issues:**

None

**Enhancements**

Added a new BIOS/Platform Configuration (RBSU) option called Enhanced Processor Performance Profile. This option provides additional processor performance profiles that can be used to improve overall performance under certain workloads.

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ROM Flash Firmware Package - HPE ProLiant XL225n Gen10 Plus (A46) Servers

Version: 2.40\_01-21-2021 **(Optional)**

Filename: A46\_2.40\_01\_21\_2021.fwpkg

**Important Note!****Important Notes:**

None

**Deliverable Name:**

HPE ProLiant XL225n Gen10 Plus System ROM - A46

**Release Version:**

2.40\_01-21-2021

**Last Recommended or Critical Revision:**

1.38\_11-06-2020

**Previous Revision:**

1.38\_11-06-2020

**Firmware Dependencies:**

System Programmable Logic CPLD version 34

**Enhancements/New Features:**

Added support for AMD EPYC 7003 processors.

Added support for BIOS switches to control RAS (handles by OS/Firmware first).

Added support for OCP 3.0 NIC.

**Problems Fixed:**

Addressed an extremely rare issue where the Real Time Clock may become corrupted on a server boot. This was typically seen as an unexpected change to the RTC Year field but could impact other parts of the Date and Time. This issue is not unique to HPE servers.

**Known Issues:**

None

**Fixes**

**Important Notes:**

None

**Firmware Dependencies:**

System Programmable Logic CPLD version 34

**Problems Fixed:**

Addressed an extremely rare issue where the Real Time Clock may become corrupted on a server boot. This was typically seen as an unexpected change to the RTC Year field but could impact other parts of the Date and Time. This issue is not unique to HPE servers.

**Known Issues:**

None

**Enhancements**

Added support for AMD EPYC 7003 processors.

Added support for BIOS switches to control RAS (handles by OS/Firmware first).

Added support for OCP 3.0 NIC.

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ROM Flash Firmware Package - HPE ProLiant XL230k Gen10 (U37) Server  
Version: 2.42\_01-23-2021 **(Recommended)**  
Filename: U37\_2.42\_01\_23\_2021.fwpkg

**Important Note!**

**Important Notes:**

None

**Deliverable Name:**

HPE ProLiant XL230k Gen10 System ROM - U37

**Release Version:**

2.42\_01-23-2021

**Last Recommended or Critical Revision:**

2.42\_01-23-2021

**Previous Revision:**

2.40\_10-26-2020

**Firmware Dependencies:**

None

**Enhancements/New Features:**

Updated the support for Fast Fault Tolerant Memory Mode (ADDDC) to improve system uptime.

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC+1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

**Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception under heavy stress with short loops of instructions. This may result in a machine check exception in Bank 3 with MSCOD = 0080 and MCACOD = 0400h, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). This issue only impacts 2nd generation Intel Xeon Scalable Performance processors. This issue is not unique to HPE servers.

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception when high levels of posted interrupt traffic occurs on PCIe. This may result in a machine check exception in Bank 9, 10 or 11 with MSCOD = 000Ch, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x02006A09 (CPUID 50654), 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). As part of this change, a new BIOS/Platform Configuration (RBSU) option in Advanced Performance Options has been added to allow a customer to disable this mitigation. This issue is not unique to HPE servers.

Addressed an extremely rare issue where the Real Time Clock may become corrupted on a server boot. This was typically seen as an unexpected change to the RTC Year field but could impact other parts of the Date and Time. This issue is not unique to HPE servers.

Addressed an issue where the Extended Memory Test is not run when configured in BIOS/Platform Configuration (RBSU) to Enabled. Note that this option is Disabled by default. This issue was introduced in the v2.40 revision of the System ROM.

Addressed an issue where the server system fans may run higher than anticipated when a server is configured with AHCI SATA drives.

Addressed an issue where a bad LRDIMM memory device could be mapped out but was not properly reported in the Integrated Memory Log (IML). This issue only impacted systems configured with LRDIMMs.

**Known Issues:**

None

**Fixes****Important Notes:**

None

**Firmware Dependencies:**

None

**Problems Fixed:**

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception under heavy stress with short loops of instructions. This may result in a machine check exception in Bank 3 with MSCOD = 0080 and MCACOD = 0400h, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). This issue only impacts 2nd generation Intel Xeon Scalable Performance processors. This issue is not unique to HPE servers.

This revision of the System ROM includes the latest revision of the Intel microcode which provides a fix for a potential machine check exception when high levels of posted interrupt traffic occurs on PCIe. This may result in a machine check exception in Bank 9, 10 or 11 with MSCOD = 000Ch, as logged in the Integrated Management Log (IML). The Intel microcode patches included in this release are versions 0x02006A09 (CPUID 50654), 0x04003005 (CPUID 50656) and 0x05003005 (CPUID 50657). As part of this change, a new BIOS/Platform Configuration (RBSU) option in Advanced Performance Options has been added to allow a customer to disable this mitigation. This issue is not unique to HPE servers.

Addressed an extremely rare issue where the Real Time Clock may become corrupted on a server boot. This was typically seen as an unexpected change to the RTC Year field but could impact other parts of the Date and Time. This issue is not unique to HPE servers.

Addressed an issue where the Extended Memory Test is not run when configured in BIOS/Platform Configuration (RBSU) to Enabled. Note that this option is Disabled by default. This issue was introduced in the v2.40 revision of the System ROM.

Addressed an issue where the server system fans may run higher than anticipated when a server is configured with AHCI SATA drives.

Addressed an issue where a bad LRDIMM memory device could be mapped out but was not properly reported in the Integrated Memory Log (IML). This issue only impacted systems configured with LRDIMMs.

**Known Issues:**

None

**Enhancements**

Updated the support for Fast Fault Tolerant Memory Mode (ADDDC) to improve system uptime.

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC+1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

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ROM Flash Universal Firmware Package - HPE Apollo 6500 Gen10 Plus/HPE ProLiant XL645d Gen10 Plus (A48) Servers

Version: 2.40\_02-24-2021 **(Optional)**

Filename: A48\_2.40\_02\_24\_2021.fwpkg

**Important Note!****Important Notes:**

None

**Deliverable Name:**

HPE Apollo 6500 Gen10 Plus/HPE ProLiant XL645d Gen10 Plus System ROM - A48

**Release Version:**

2.40\_02-24-2021

**Last Recommended or Critical Revision:**

1.38\_12-23-2020

**Previous Revision:**

1.38\_12-23-2020

**Firmware Dependencies:**

None

**Enhancements/New Features:**

Added support for AMD EPYC 7003 processors.

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC+1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

Added a new BIOS/Platform Configuration (RBSU) for Platform RAS Policy to control the Platform Resiliency and Serviceability (RAS) policy. This option controls whether platform firmware or the operating system has control of corrected error handling and reporting.

**Problems Fixed:**

Addressed an extremely rare issue where the Real Time Clock may become corrupted on a server boot. This was typically seen as an unexpected change to the RTC Year field but could impact other parts of the Date and Time. This issue is not unique to HPE servers.

**Known Issues:**

None

## Fixes

### **Important Notes:**

None

### **Firmware Dependencies:**

None

### **Problems Fixed:**

Addressed an extremely rare issue where the Real Time Clock may become corrupted on a server boot. This was typically seen as an unexpected change to the RTC Year field but could impact other parts of the Date and Time. This issue is not unique to HPE servers.

### **Known Issues:**

None

## Enhancements

Added support for AMD EPYC 7003 processors.

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC+1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

Added a new BIOS/Platform Configuration (RBSU) for Platform RAS Policy to control the Platform Resiliency and Serviceability (RAS) policy. This option controls whether platform firmware or the operating system has control of corrected error handling and reporting.

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ROM Flash Universal Firmware Package - HPE Apollo 6500 Gen10 Plus/HPE ProLiant XL675d Gen10 Plus (A47) Servers

Version: 2.40\_02-23-2021 (**Optional**)

Filename: A47\_2.40\_02\_23\_2021.fwpkg

## Important Note!

### **Important Notes:**

None

### **Deliverable Name:**

HPE Apollo 6500 Gen10 Plus/HPE ProLiant XL675d Gen10 Plus System ROM - A47

### **Release Version:**

2.40\_02-23-2021

### **Last Recommended or Critical Revision:**

1.38\_11-06-2020

### **Previous Revision:**

1.38\_11-06-2020

### **Firmware Dependencies:**

HPE ProLiant XL675d Gen10Plus CPLD version 0F

HPE Apollo 6500 Gen10 Plus Chassis CPLD version 0909

### **Enhancements/New Features:**

Added support for AMD EPYC 7003 processors.

Added support for Direct Liquid Cooling solution.

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC+1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

Added a new BIOS/Platform Configuration (RBSU) for Platform RAS Policy to control the Platform Resiliency and Serviceability (RAS) policy. This option controls whether platform firmware or the operating system has control of corrected error handling and reporting.

### **Problems Fixed:**

Addressed an extremely rare issue where the Real Time Clock may become corrupted on a server boot. This was typically seen as an unexpected change to the RTC Year field but could impact other parts of the Date and Time. This issue is not unique to HPE servers.

### **Known Issues:**

None

## Fixes

### **Important Notes:**

None

### **Firmware Dependencies:**

HPE ProLiant XL675d Gen10Plus CPLD version 0F

HPE Apollo 6500 Gen10 Plus Chassis CPLD version 0909

### **Problems Fixed:**

Addressed an extremely rare issue where the Real Time Clock may become corrupted on a server boot. This was typically seen as an unexpected change to the RTC

Year field but could impact other parts of the Date and Time. This issue is not unique to HPE servers.

**Known Issues:**

None

**Enhancements**

Added support for AMD EPYC 7003 processors.

Added support for Direct Liquid Cooling solution.

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC+1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

Added a new BIOS/Platform Configuration (RBSU) for Platform RAS Policy to control the Platform Resiliency and Serviceability (RAS) policy. This option controls whether platform firmware or the operating system has control of corrected error handling and reporting.

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ROM Flash Universal Firmware Package - HPE ProLiant DL325/DL325 v2/DL345 Gen10 Plus (A43) Servers

Version: 2.40\_02-23-2021 **(Optional)**

Filename: A43\_2.40\_02\_23\_2021.fwpkg

**Important Note!**

**Important Notes:**

None

**Deliverable Name:**

HPE ProLiant DL325/DL325 v2/DL345 Gen10 Plus System ROM - A43

**Release Version:**

2.40\_02-23-2021

**Last Recommended or Critical Revision:**

1.38\_10-30-2020

**Previous Revision:**

1.38\_10-30-2020

**Firmware Dependencies:**

None

**Enhancements/New Features:**

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC+1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

Added a new BIOS/Platform Configuration (RBSU) for Platform RAS Policy to control the Platform Resiliency and Serviceability (RAS) policy. This option controls whether platform firmware or the operating system has control of corrected error handling and reporting.

Added driver and option to enable SmartRAID SW RAID support for direct attached NVMe drives.

Added a new BIOS/Platform Configuration (RBSU) option to Virtualization Options called AMD I/O Virtualization Technology. This option replaces the AMD IOMMU and AMD Virtualization Technology options in the prior BIOS release, and combines the functionality into a single setting. In previous releases, the system firmware only used the AMD IOMMU setting for controlling both IOMMU and VT due to operating system issues when these setting were controlled independently. The new setting removes the perception that the two settings are independent.

Changed the BIOS/Platform Configuration (RBSU) option called Infinity Fabric Performance State to be hidden unless Infinity Fabric Power Management is disabled. Also updated the performance state value from Disabled to Auto. Performance state set to Disabled is misleading, as the system behavior will still set the Infinity Fabric to a performance state instead of disabling it.

**Problems Fixed:**

Addressed an extremely rare issue where the Real Time Clock may become corrupted on a server boot. This was typically seen as an unexpected change to the RTC Year field but could impact other parts of the Date and Time. This issue is not unique to HPE servers.

Addressed an issue where the fan runs at a higher than expected speed after upgrading the firmware of HPE Smart Array E208i or E408i to version 3.0.

**Known Issues:**

None

**Fixes**

**Important Notes:**

None

**Firmware Dependencies:**

None

**Problems Fixed:**

Addressed an extremely rare issue where the Real Time Clock may become corrupted on a server boot. This was typically seen as an unexpected change to the RTC Year field but could impact other parts of the Date and Time. This issue is not unique to HPE servers.

Addressed an issue where the fan runs at a higher than expected speed after upgrading the firmware of HPE Smart Array E208i or E408i to version 3.0.

**Known Issues:**

None

## **Enhancements**

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC+1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

Added a new BIOS/Platform Configuration (RBSU) for Platform RAS Policy to control the Platform Resiliency and Serviceability (RAS) policy. This option controls whether platform firmware or the operating system has control of corrected error handling and reporting.

Added driver and option to enable SmartRAID SW RAID support for direct attached NVMe drives.

Added a new BIOS/Platform Configuration (RBSU) option to Virtualization Options called AMD I/O Virtualization Technology. This option replaces the AMD IOMMU and AMD Virtualization Technology options in the prior BIOS release, and combines the functionality into a single setting. In previous releases, the system firmware only used the AMD IOMMU setting for controlling both IOMMU and VT due to operating system issues when these setting were controlled independently. The new setting removes the perception that the two settings are independent.

Changed the BIOS/Platform Configuration (RBSU) option called Infinity Fabric Performance State to be hidden unless Infinity Fabric Power Management is disabled. Also updated the performance state value from Disabled to Auto. Performance state set to Disabled is misleading, as the system behavior will still set the Infinity Fabric to a performance state instead of disabling it.

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ROM Flash Universal Firmware Package - HPE ProLiant DL360/DL380 Gen10 Plus (U46) Servers

Version: 1.40\_04-28-2021 **(Recommended)**

Filename: U46\_1.40\_04\_28\_2021.fwpkg

## **Important Note!**

### **Important Notes:**

None

### **Deliverable Name:**

HPE ProLiant DL360/DL380 Gen10 Plus System ROM - U46

### **Release Version:**

1.40\_04-28-2021

### **Last Recommended or Critical Revision:**

This is the initial version of the firmware.

### **Previous Revision:**

This is the initial version of the firmware.

### **Firmware Dependencies:**

None

### **Enhancements/New Features:**

This is the initial version of the firmware.

### **Problems Fixed:**

None

### **Known Issues:**

None

## **Enhancements**

### **Important Notes:**

None

### **Firmware Dependencies:**

None

### **Enhancements/New Features:**

This is the initial version of the firmware.

### **Known Issues:**

None

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ROM Flash Universal Firmware Package - HPE ProLiant DL365/DL385/DL385 v2 Gen10 Plus (A42) Servers

Version: 2.40\_02-23-2021 **(Optional)**

Filename: A42\_2.40\_02\_23\_2021.fwpkg

## **Important Note!**

### **Important Notes:**

None

### **Deliverable Name:**

HPE ProLiant DL365/DL385/DL385 v2 Gen10 Plus System ROM - A42

### **Release Version:**

2.40\_02-23-2021

**Last Recommended or Critical Revision:**

1.38\_10-30-2020

**Previous Revision:**

1.38\_10-30-2020

**Firmware Dependencies:**

None

**Enhancements/New Features:**

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC+1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

Added a new BIOS/Platform Configuration (RBSU) for Platform RAS Policy to control the Platform Resiliency and Serviceability (RAS) policy. This option controls whether platform firmware or the operating system has control of corrected error handling and reporting.

Added driver and option to enable SmartRAID SW RAID support for direct attached NVMe drives.

Added a new BIOS/Platform Configuration (RBSU) option to Virtualization Options called AMD I/O Virtualization Technology. This option replaces the AMD IOMMU and AMD Virtualization Technology options in the prior BIOS release, and combines the functionality into a single setting. In previous releases, the system firmware only used the AMD IOMMU setting for controlling both IOMMU and VT due to operating system issues when these setting were controlled independently. The new setting removes the perception that the two settings are independent.

Changed the BIOS/Platform Configuration (RBSU) option called Infinity Fabric Performance State to be hidden unless Infinity Fabric Power Management is disabled. Also updated the performance state value from Disabled to Auto. Performance state set to Disabled is misleading, as the system behavior will still set the Infinity Fabric to a performance state instead of disabling it.

**Problems Fixed:**

Addressed an extremely rare issue where the Real Time Clock may become corrupted on a server boot. This was typically seen as an unexpected change to the RTC Year field but could impact other parts of the Date and Time. This issue is not unique to HPE servers.

Addressed an issue where the fan runs at a higher than expected speed after upgrading the firmware of HPE Smart Array E208i or E408i to version 3.0.

**Known Issues:**

None

**Fixes****Important Notes:**

None

**Firmware Dependencies:**

None

**Problems Fixed:**

Addressed an extremely rare issue where the Real Time Clock may become corrupted on a server boot. This was typically seen as an unexpected change to the RTC Year field but could impact other parts of the Date and Time. This issue is not unique to HPE servers.

Addressed an issue where the fan runs at a higher than expected speed after upgrading the firmware of HPE Smart Array E208i or E408i to version 3.0.

**Known Issues:**

None

**Enhancements**

Added support to the BIOS/Platform Configuration (RBSU) Time Zones to add Dublin/London (UTC+1). This support also requires the latest version of iLO Firmware, version 2.40 or later.

Added a new BIOS/Platform Configuration (RBSU) for Platform RAS Policy to control the Platform Resiliency and Serviceability (RAS) policy. This option controls whether platform firmware or the operating system has control of corrected error handling and reporting.

Added driver and option to enable SmartRAID SW RAID support for direct attached NVMe drives.

Added a new BIOS/Platform Configuration (RBSU) option to Virtualization Options called AMD I/O Virtualization Technology. This option replaces the AMD IOMMU and AMD Virtualization Technology options in the prior BIOS release, and combines the functionality into a single setting. In previous releases, the system firmware only used the AMD IOMMU setting for controlling both IOMMU and VT due to operating system issues when these setting were controlled independently. The new setting removes the perception that the two settings are independent.

Changed the BIOS/Platform Configuration (RBSU) option called Infinity Fabric Performance State to be hidden unless Infinity Fabric Power Management is disabled. Also updated the performance state value from Disabled to Auto. Performance state set to Disabled is misleading, as the system behavior will still set the Infinity Fabric to a performance state instead of disabling it.

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ROM Flash Universal Firmware Package - HPE Synergy SY480 Gen10 Plus (I44) Servers

Version: 1.40\_04-28-2021 (**Recommended**)

Filename: I44\_1.40\_04\_28\_2021.fwpkg

**Important Note!****Important Notes:**

None

**Deliverable Name:**

HPE Synergy SY480 Gen10 Plus System ROM - I44

**Release Version:**

1.40\_04-28-2021

**Last Recommended or Critical Revision:**

This is the initial version of the firmware.

**Previous Revision:**

This is the initial version of the firmware.

**Firmware Dependencies:**

None

**Enhancements/New Features:**

This is the initial version of the firmware.

**Problems Fixed:**

None

**Known Issues:**

None

**Enhancements**

**Important Notes:**

None

**Firmware Dependencies:**

None

**Enhancements/New Features:**

This is the initial version of the firmware.

**Known Issues:**

None

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**Driver - Lights-Out Management**

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HPE iLO Native Driver for ESXi 7.0  
Version: 10.7.5 (**Recommended**)  
Filename: ilo-driver\_700.10.7.5.2-1OEM.700.1.0.15843807\_17856914.zip

**Fixes**

- Fixed driver unload function to allow controller to function properly on reload and when Quickboot is enabled.

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**Driver - Network**

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HPE Blade Intel ixgben Driver for VMware vSphere 7.0  
Version: 2020.06.01 (**Optional**)  
Filename: cp041435.compsig; cp041435.zip

**Important Note!**

This component is intended to be used by HPE applications. It is a zip file that contains the same driver deliverable available from the vmware.com and the HPE vibstdepot.hpe.com webpages, plus an HPE specific CPOxxxxx.xml file.

HPE recommends the firmware provided in *HPE Blade Intel Online Firmware Upgrade Utility for VMware*, version 1.1.2 or later, for use with this driver.

**Enhancements**

Initial release.

**Supported Devices and Features**

These drivers support the following network adapters:

- HPE Ethernet 10Gb 2-port 560FLB Adapter
- HPE Ethernet 10Gb 2-port 560M Adapter

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**Driver - Network**

HPE Blade QLogic NX2 10/20 GbE Multifunction Driver for VMware vSphere 7.0  
Version: 2021.09.01 (**Optional**)  
Filename: cp047630.compsig; cp047630.zip

**Important Note!**

This component is intended to be used by HPE applications. It is a zip file that contains the same driver deliverable available from the vmware.com and the HPE vibstdepot.hp.com webpages, plus an HPE specific CPOxxxxx.xml file.

HPE recommends the firmware provided in *HPE Blade QLogic NX2 Online Firmware Upgrade Utility for VMware*, version 1.5.2 or later, for use with this driver.

## **Fixes**

This product addresses a PSOD seen while collecting data dump.  
This product addresses a PSOD seen during uplink reset with failure conditions.  
This product addresses a PSOD seen during device state changes without IDLE state.  
This product addresses a PSOD seen during scheduling fabric login.  
This product addresses a PSOD issue to enhance immediately flush in work queue and unload/quiesce mechanisms.

## **Enhancements**

This product now supports VMware ESXi 7.0 U3.  
This product enhances PLOGI for the HPE XP7 Storage Array.

## **Supported Devices and Features**

These drivers support the following network adapters:

- HPE FlexFabric 10Gb 2-port 534M Adapter
- HPE FlexFabric 10Gb 2-port 536FLB Adapter
- HPE FlexFabric 20Gb 2-port 630FLB Adapter
- HPE FlexFabric 20Gb 2-port 630M Adapter

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HPE Broadcom NetXtreme-E Drivers for VMware vSphere 7.0

Version: 2021.04.05 **(Optional)**

Filename: cp045075.compsig; cp045075.zip

## **Important Note!**

- This component is intended to be used by HPE applications. It is a zip file that contains the same driver deliverable available from the vmware.com and the HPE vibstest.hpe.com webpages, plus an HPE specific CPOxxxxx.xml file.
- HPE recommends the *HPE Broadcom NetXtreme-E Firmware Version*, 218.0.166000 or later, for use with this driver.

## **Fixes**

This product corrects an issue which Purple Screen Of Death (PSOD) while running Virtual SAN (vSAN) over Remote Direct Memory Access (RDMA) traffic due to invalid Completion Queue Element (CQEs)

## **Supported Devices and Features**

This product supports the following network adapters:

- HPE Ethernet 10Gb 2-port 535FLR-T Adapter
- HPE Ethernet 10Gb 2-port 535T Adapter
- HPE Ethernet 10Gb 2-port 537SFP+ Adapter
- HPE Ethernet 10Gb 2-port 537SFP+ FLR Adapter
- HPE Ethernet 10/25Gb 2-port 631FLR-SFP28 Adapter
- HPE Ethernet 10/25Gb 2-port 631SFP28 Adapter

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HPE Intel igbn Driver for VMware vSphere 7.0

Version: 2021.04.05 **(Optional)**

Filename: cp045339.compsig; cp045339.zip

## **Important Note!**

This component is intended to be used by HPE applications. It is a zip file that contains the same driver deliverable available from the vmware.com and the HPE vibstest.hpe.com webpages, plus an HPE specific CPOxxxxx.xml file.

HPE recommends the firmware provided in *HPE Intel Online Firmware Upgrade Utility for VMware*, version 3.14.0 or later, for use with this driver.

## **Fixes**

This product corrects an issue which handling duplex value passed of ESXi command.

## **Supported Devices and Features**

These drivers support the following network adapters:

- HPE Ethernet 1Gb 2-port 361i Adapter
- HPE Ethernet 1Gb 2-port 361T Adapter
- HPE Ethernet 1Gb 2-port 363i Adapter
- HPE Ethernet 1Gb 4-port 366FLR Adapter
- HPE Ethernet 1Gb 4-port 366i Adapter
- HPE Ethernet 1Gb 4-port 366i Communication Board
- HPE Ethernet 1Gb 4-port 366T Adapter

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HPE Intel ixgben Driver for VMware vSphere 7.0

Version: 2020.05.29 **(Optional)**

Filename: cp041297.compsig; cp041297.zip

## **Important Note!**

This component is intended to be used by HPE applications. It is a zip file that contains the same driver deliverable available from the vmware.com and the HPE vibstest.hpe.com webpages, plus an HPE specific CPOxxxxx.xml file.

HPE recommends the firmware provided in *HPE Intel Online Firmware Upgrade Utility for VMware*, version 3.12.50 or later, for use with this driver.

## **Enhancements**

Initial release.

## **Supported Devices and Features**

These drivers support the following network adapters:

- HP Ethernet 10Gb 2-port 560FLR-SFP+ Adapter
- HP Ethernet 10Gb 2-port 560SFP+ Adapter
- HPE Ethernet 10Gb 2-port 562FLR-T Adapter
- HPE Ethernet 10Gb 2-port 562T Adapter

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HPE QLogic FastLinQ 10/25/50 GbE Multifunction Driver for VMware vSphere 7.0

Version: 2021.04.05 **(Optional)**

Filename: cp044976.compsig; cp044976.zip

## **Important Note!**

This component is intended to be used by HPE applications. It is a zip file that contains the same driver deliverable available from the vmware.com and the HPE vibstdepot.hp.com webpages, plus an HPE specific CPOxxxxx.xml file.

HPE recommends the firmware provided in *HPE QLogic FastLinQ Online Firmware Upgrade Utility for VMware*, version 4.13.0 or later, for use with this driver.

## **Fixes**

This product addresses a Purple Screen Of Death (PSOD) seen on systems operating in a complicated VLAN environment.

## **Supported Devices and Features**

This product supports the following network adapters:

- HPE Ethernet 10Gb 2-port 521T Adapter
- HPE Ethernet 10Gb 2-port 524SFP+ Adapter
- HPE Ethernet 10/25Gb 2-port 621SFP28 Adapter
- HPE Ethernet 10/25Gb 2-port 622FLR-SFP28 Converged Network Adapter
- HPE StoreFabric CN1200R-T Converged Network Adapter
- HPE StoreFabric CN1300R Converged Network Adapter

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HPE QLogic NX2 10/20 GbE Multifunction Driver for VMware vSphere 7.0

Version: 2021.04.05 **(Optional)**

Filename: cp045082.compsig; cp045082.zip

## **Important Note!**

This component is intended to be used by HPE applications. It is a zip file that contains the same driver deliverable available from the vmware.com and the HPE vibstdepot.hp.com webpages, plus an HPE specific CPOxxxxx.xml file.

HPE recommends the firmware provided in *HPE QLogic NX2 Online Firmware Upgrade Utility for VMware*, version 1.28.0 or later, for use with this driver.

## **Fixes**

This product addresses a Purple Screen Of Death (PSOD) seen during traffic scheduling.

## **Supported Devices and Features**

These drivers support the following network adapters:

- HPE Ethernet 10Gb 2-port 530T Adapter
- HPE Ethernet 10Gb 2-port 530SFP+ Adapter
- HPE FlexFabric 10Gb 2-port 533FLR-T Adapter
- HPE FlexFabric 10Gb 2-port 534FLR-SFP+ Adapter
- HPE FlexFabric 10Gb 4-port 536FLR-T Adapter
- HPE StoreFabric CN1100R Dual Port Converged Network Adapter
- HPE StoreFabric CN1100R 10GBASE-T Dual Port Converged Network Adapter

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net-mst kernel module driver component for VMware ESXi 7.0

Version: 2020.05.20 (A) **(Recommended)**

Filename: cp046234.compsig; cp046234.zip

## **Important Note!**

This component is intended to be used by HPE applications. It is a zip that contains the same driver deliverable available from the HPE vibstdepot.hp.com webpage, plus an HPE specific CPXXXX.xml file.

## **Prerequisites**

NA

## **Enhancements**

No Enhancement as it is Initial version.

## **Supported Devices and Features**

HPE Part Number	Device Name	PSID
764282-B21	HPE InfiniBand QDR/Ethernet 10Gb 2-port 544+M Adapter	HP_1350110023
764283-B21	HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+M Adapter	HP_1360110017
764284-B21	HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+QSFP Adapter	HP_1370110017
P24837-B21	HPE Ethernet 10/25Gb 2-port 642SFP28 Adapter	HPE0000000054
P11338-B21	HPE Ethernet 10Gb 2-port 548SFP+ Adapter	HP_1200111023
764285-B21	HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+FLR-QSFP Adapter	HP_1380110017
764286-B21	HPE InfiniBand QDR/Ethernet 10Gb 2-port 544+FLR-QSFP Adapter	HP_1390110023
825110-B21	HPE InfiniBand EDR/Ethernet 100Gb 1-port 840QSFP28 Adapter	HP_2180110032
825111-B21	HPE InfiniBand EDR/Ethernet 100Gb 2-port 840QSFP28 Adapter	HP_2190110032
872726-B21	HPE InfiniBand EDR/Ethernet 100Gb 2-port 841QSFP28 Adapter	HPE0000000009
879482-B21	HPE InfiniBand FDR/Ethernet 40/50Gb 2-port 547FLR-QSFP Adapter	HPE0000000022
868779-B21	HPE Synergy 6410C 25/50Gb Ethernet Adapter	HPE0000000006
779793-B21	HPE Ethernet 10Gb 2-port 546SFP+ Adapter	HP_1200111023
779799-B21	HPE Ethernet 10Gb 2-port 546FLR-SFP+ Adapter	HP_2240110004
817749-B21	HPE Ethernet 25Gb 2-port 640FLR-SFP28 Adapter	HP_2690110034
817753-B21	HPE Ethernet 25Gb 2-port 640SFP28 Adapter	HP_2420110034
P21927-B21	HPE Ethernet 100Gb 2-port QSFP28 MCX516A-CCHT Adapter	MT_0000000417
P10112-B21	HPE Ethernet 10/25Gb 2-port SFP28 MCX562A-ACAI OCP3 Adapter	MT_0000000241
P13188-B21	HPE Ethernet 10/25Gb 2-port SFP28 MCX512F-ACHT Adapter	MT_0000000416
P11341-B21	HPE Ethernet 10Gb 2-port SFP+ MCX4621A-ACAB OCP3 Adapter	MT_0000000238
P21930-B21	HPE Ethernet 10Gb 2-port SFP+ MCX4121A-XCHT Adapter	MT_0000000414
P25960-B21	HPE Ethernet 100Gb 2-Port QSFP56 MCX623106AS-CDAT Adapter	MT_0000000437
874253-B21	HPE Ethernet 100Gb 1-port 842QSFP28 Adapter	HPE0000000014
P06154-B21	HPE InfiniBand HDR/Ethernet 200Gb 1-port 940QSFP56 x16 Adapter	HPE0000000034
P06250-B21	HPE InfiniBand HDR100/Ethernet 100Gb 1-port 940QSFP56 x16 Adapter	HPE0000000035
P06251-B21	HPE InfiniBand HDR100/Ethernet 100Gb 2-port 940QSFP56 x16 Adapter	HPE0000000036
P23664-B21	HPE InfiniBand HDR/Ethernet 200Gb 1-port MCX653105A-HDAT QSFP56 x16 Adapter	MT_0000000451
P23665-B21	HPE InfiniBand HDR100/Ethernet 100Gb 1-port MCX653105A-ECAT QSFP56 x16 Adapter	MT_0000000452
P23666-B21	HPE InfiniBand HDR100/Ethernet 100Gb 2-port MCX653106A-ECAT QSFP56 x16 Adapter	MT_0000000453

nmlx4\_en Driver Component for VMware 7.0  
Version: 2020.11.11 (**Recommended**)  
Filename: cp046345.compsig; cp046345.zip

**Important Note!**

**Known Issues:**

- o ConnectX-3 Pro 10G adapter cards incorrectly report support for 40G speed when running the "esxcli network nic get" command.
- o When the port is DOWN, the management interface "port type" field indicates one of the port types supported by the device, in the following order: TP, FIBER, DA, NONE. If the port supports several cable types, the first type in the list mentioned above will be printed.
- o When the port is UP, the management interface port type field (nmlx4\_en\_MgmtIFPortType) indicates which one of all possible supported types is currently connected.
- o Management interface port type field reports SFP-to-RJ45 cable as FIBER.
- o Management interface auto negotiation field is equivalent to "esxcli network nic get -n vnmnicX" field "Pause Autonegotiate".

For further information on the release notes for ESXi 6.5 Driver Version 3.16.11.10 follow the below link:  
[https://www.mellanox.com/page/products\\_dyn?product\\_family=29&mtag=vmware\\_driver](https://www.mellanox.com/page/products_dyn?product_family=29&mtag=vmware_driver)

**Enhancements**

**Changes and New Features in version 3.19.70.1:**

- o Resolved an issue that caused the network adapter traffic to stop.
- o Fixed an internal multicast loopback issue that broke LACP(Link Aggregation Control Protocol) bonding protocol.

**Supported Devices and Features**

HPE Part Number	Device Name	PSID
764282-B21	HPE InfiniBand QDR/Ethernet 10Gb 2-port 544+M Adapter	HP_1350110023
764283-B21	HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+M Adapter	HP_1360110017
764284-B21	HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+QSFP Adapter	HP_1370110017
764285-B21	HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+FLR-QSFP Adapter	HP_1380110017
764286-B21	HPE InfiniBand QDR/Ethernet 10Gb 2-port 544+FLR-QSFP Adapter	HP_1390110023
779793-B21	HPE Ethernet 10Gb 2-port 546SFP+ Adapter	HP_1200111023
779799-B21	HPE Ethernet 10Gb 2-port 546FLR-SFP+ Adapter	HP_2240110004

nmlx4\_en Driver Component for VMware 7.0  
Version: 2020.11.11 (**Recommended**)  
Filename: cp047386.compsig; cp047386.zip

**Important Note!**

## Known Issues:

- ConnectX-3 Pro 10G adapter cards incorrectly report support for 40G speed when running the "esxcli network nic get" command.
- When the port is DOWN, the management interface "port type" field indicates one of the port types supported by the device, in the following order: TP, FIBER, DA, NONE. If the port supports several cable types, the first type in the list mentioned above will be printed.
- When the port is UP, the management interface port type field (nmlx\_en\_MgmtIFPortType) indicates which one of all possible supported types is currently connected.
- Management interface port type field reports SFP-to-RJ45 cable as FIBER.
- Management interface auto negotiation field is equivalent to "esxcli network nic get -n vmnicX" field "Pause Autonegotiate".

For further information on the release notes for ESXi 6.5 Driver Version 3.16.11.10 follow the below link:  
[https://www.mellanox.com/page/products\\_dyn?product\\_family=29&mtag=vmware\\_driver](https://www.mellanox.com/page/products_dyn?product_family=29&mtag=vmware_driver)

## Enhancements

### Changes and New Features in version 3.19.70.1:

- Resolved an issue that caused the network adapter traffic to stop.
- Fixed an internal multicast loopback issue that broke LACP(Link Aggregation Control Protocol) bonding protocol.

## Supported Devices and Features

HPE Part Number	Device Name	PSID
764282-B21	HPE InfiniBand QDR/Ethernet 10Gb 2-port 544+M Adapter	HP_1350110023
764283-B21	HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+M Adapter	HP_1360110017
764284-B21	HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+QSFP Adapter	HP_1370110017
764285-B21	HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+FLR-QSFP Adapter	HP_1380110017
764286-B21	HPE InfiniBand QDR/Ethernet 10Gb 2-port 544+FLR-QSFP Adapter	HP_1390110023
779793-B21	HPE Ethernet 10Gb 2-port 546SFP+ Adapter	HP_1200111023
779799-B21	HPE Ethernet 10Gb 2-port 546FLR-SFP+ Adapter	HP_2240110004

nmlx5\_en Driver Component for VMware 7.0  
Version: 2020.11.11 (**Recommended**)  
Filename: cp046265.compsig; cp046265.zip

## Important Note!

### Known Issues in version 4.19.70.1:

- SR-IOV is not supported while ENS is enabled.
- Live unload of the driver is not supported. Doing so may cause a PSOD if the max\_vfs parameter is set.
- The maximum number of established active RDMA connections (QPs) is currently 5000.
- ENS is currently not supported in ConnectX-6 Dx adapter cards.  
**Workaround:** Use non ENS DVS for ConnectX-6 Dx cards.
- Setting ETS value to 0 may cause WQE timeout.  
**Workaround:** Set ETS value of 1 instead of 0.
- The 'esxcli mellanox uplink link info -u <vmnic\_name>' command reports the 'Auto negotiation' capability always as 'true'.
- SMP MADs (ibnetdiscover, sminfo, iblinkinfo, smpdump, ibqueryerr, ibdiagnet and smpquery) are not supported on the VFs.
- Although the max\_vfs module parameter range is "0-128", due to firmware limitations, the following are the supported VFs per single port devices:
  - ConnectX-4 / ConnectX-5: up to 127

## Enhancements

### Changes and New Features are included in smart component version 2020.11.11:

- Added support for the following adapters:
  - HPE Ethernet 200Gb 1-Port QSFP56 MCX623105AS-VDAT Adapter (HPE Part Number: P10180-B21)

### New features and changes in version 4.19.70.1:

- Disabled the option of shutting down the link due to power limitation.
- Support for trusting Differentiated Services Code Point (DSCP) and setting default value for RoCE traffic.
- New counter that enables the user to query per Virtual Function counters.
- RX out-of-buffer counter to indicate any lack of software receive buffers.
- support for Data Center Bridging Capability Exchange (DCBX) protocol.DCBX works with LLDP to allow switches to exchange information about their Data Center Bridging (DCB) capabilities and configuration and automatically negotiate common Priority-Based Flow Control (PFC) parameters.
- Module parameter to enforce specific RoCE version.
- Support for setting the minimal bandwidth guarantee for traffic classes (TCs).

## Supported Devices and Features

HPE Part Number	Device Name	PSID
825110-B21	HPE InfiniBand EDR/Ethernet 100Gb 1-port 840QSFP28 Adapter	HP_2180110032
825111-B21	HPE InfiniBand EDR/Ethernet 100Gb 2-port 840QSFP28 Adapter	HP_2190110032
872726-B21	HPE InfiniBand EDR/Ethernet 100Gb 2-port 841QSFP28 Adapter	HPE0000000009
879482-B21	HPE InfiniBand FDR/Ethernet 40/50Gb 2-port 547FLR-QSFP Adapter	HPE0000000022
868779-B21	HPE Synergy 6410C 25/50Gb Ethernet Adapter	HPE0000000006

P11338-B21	HPE Ethernet 10Gb 2-port 548SFP+ Adapter	HP_1200111023
817749-B21	HPE Ethernet 25Gb 2-port 640FLR-SFP28 Adapter	HP_2690110034
817753-B21	HPE Ethernet 25Gb 2-port 640SFP28 Adapter	HP_2420110034
P24837-B21	HPE Ethernet 10/25Gb 2-port 642SFP28 Adapter	HPE0000000054
874253-B21	HPE Ethernet 100Gb 1-port 842QSFP28 Adapter	HPE0000000014
P06154-B21	HPE InfiniBand HDR/Ethernet 200Gb 1-port 940QSFP56 x16 Adapter	HPE0000000034
P06250-B21	HPE InfiniBand HDR100/Ethernet 100Gb 1-port 940QSFP56 x16 Adapter	HPE0000000035
P06251-B21	HPE InfiniBand HDR100/Ethernet 100Gb 2-port 940QSFP56 x16 Adapter	HPE0000000036
P10180-B21	HPE Ethernet 200Gb 1-Port QSFP56 MCX623105AS-VDAT Adapter	MT_0000000435

#### VMware ESXi 7.0 MST Drivers Offline Bundle for Mellanox Adapters

Version: 4.14.3.3 **(Recommended)**

Filename: Mellanox-NATIVE-NMST\_4.14.3.3-10EM.700.1.0.15525992\_16211416.zip

#### Prerequisites

NA

#### Enhancements

VM70 nmst 4.14.3.3

#### **Driver - Storage Controller**

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HPE ProLiant Gen10 Smart Array and Gen10 Plus Smart RAID Controller Driver for VMware vSphere 7.0 (Bundle file)

Version: 70.4150.0.119 **(Recommended)**

Filename: Microchip-smartpqj\_70.4150.0.119-10EM.700.1.0.15843807\_18380949.zip

#### Fixes

- o A PSOD issue when system is running MBT Tool
- o Fixed an issue where OS boot may fail during logical volume rebuild.
- o Fixed an issue where logical disks are not exposed to OS.
- o Fixed an issue with log spew during device resets.
- o A PSOD issue with Task Management Function handler
- o Fixed an issue where vSAN logs were showing higher latency for physical disks.
- o Fixed an issue to avoid failing IOs for devices which are offline.
- o Fixed an issue where error messages were printed for ignorable errors.

HPE ProLiant Gen10 Smart Array and Gen10 Plus Smart RAID Controller Driver for VMware vSphere 7.0 (Driver Component).

Version: 2021.09.01 **(Recommended)**

Filename: cp047416.compsig; cp047416.zip

#### Important Note!

This component is intended to be used by HPE applications. It is a zip that contains the same driver deliverable available from the vmware.com, plus an HPE specific CPXXXX.xml file.

#### Fixes

- o A PSOD issue when system is running MBT Tool
- o Fixed an issue where OS boot may fail during logical volume rebuild.
- o Fixed an issue where logical disks are not exposed to OS.
- o Fixed an issue with log spew during device resets.
- o A PSOD issue with Task Management Function handler
- o Fixed an issue where vSAN logs were showing higher latency for physical disks.
- o Fixed an issue to avoid failing IOs for devices which are offline.
- o Fixed an issue where error messages were printed for ignorable errors.

#### **Driver - System Management**

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HPE CRU Native Driver for ESXi 7.0

Version: 7.0.10 **(Recommended)**

Filename: cru\_driver\_700.10.16\_10EM.700.0.0.14828939\_signed\_component\_15675715.zip

#### Enhancements

Support for VMware ESXi 7.0

#### **Firmware - Network**

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Broadcom Firmware Package for BCM5741x adapters

Version: 218.0.166.0 **(Recommended)**

Filename: bcm218.0.166.0.pup.fwpkg

#### Fixes

- o This product addresses a modification on help string of Family Firmware Version.
- o This product addresses an issue about failing to detect firmware version while updating that under operation system.
- o This product addresses an issue about connection lost under pre-OS environment after restart the system from OS.

## Enhancements

- Initial version
- This product brings the support of Data Center Interconnect on supported devices.

## Supported Devices and Features

This product supports the following network adapters:

- HPE Ethernet 10Gb 2-port SFP+ BCM57412 Adapter
- HPE Ethernet 10Gb 2-port SFP+ BCM57412 OCP3 Adapter
- HPE Ethernet 10Gb 2-port BaseT BCM57416 Adapter
- HPE Ethernet 10Gb 2-port BaseT BCM57416 OCP3 Adapter
- HPE Ethernet 10/25Gb 2-port SFP28 BCM57414 Adapter
- HPE Ethernet 10/25Gb 2-port SFP28 BCM57414 OCP3 Adapter

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HPE Blade Firmware Flash for Emulex Mezzanine Converged Network Adapters for VMware vSphere 7.0

Version: 2021.10.01 **(Recommended)**

Filename: CP046755.compsig; CP046755.zip

## Important Note!

This Firmware package contains following firmware versions:

Adapter	Speed	Universal Boot Image	Firmware	UEFI	Boot Bios
HPE FlexFabric 20Gb 2-port 650FLB Adapter	20Gb	12.0.1277.0	12.0.1345.0	12.0.1269.0	12.0.1171.0
HPE FlexFabric 20Gb 2-port 650M Adapter	20Gb	12.0.1277.0	12.0.1345.0	12.0.1269.0	12.0.1171.0

## Prerequisites

Please consult SPOCK for a list of supported configurations available at the following link:

<http://www.hpe.com/storage/spock/>

## Enhancements

Updated CNA (XE100 series) firmware

This Firmware package contains following firmware versions:

Adapter	Speed	Universal Boot Image	Firmware	UEFI	Boot Bios
HPE FlexFabric 20Gb 2-port 650FLB Adapter	20Gb	12.0.1277.0	12.0.1345.0	12.0.1269.0	12.0.1171.0
HPE FlexFabric 20Gb 2-port 650M Adapter	20Gb	12.0.1277.0	12.0.1345.0	12.0.1269.0	12.0.1171.0

## Supported Devices and Features

This component is supported on following Emulex Converged Network Adapters:

### XE100 Series:

- HPE FlexFabric 20Gb 2-port 650FLB Adapter
- HPE FlexFabric 20Gb 2-port 650M Adapter

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HPE Blade Intel Online Firmware Upgrade Utility for VMware

Version: 1.2.3 **(Optional)**

Filename: CP045076.compsig; CP045076.zip

## Important Note!

HPE recommends the *HPE Blade Intel ixgben Driver for VMware*, version 2020.12.09 or later, for use with this firmware.

## Prerequisites

This product requires the appropriate driver for your device and operating system be installed before firmware is updated.

## Enhancements

This product now supports VMware vSphere 7.0 U1.

This product now supports VMware vSphere 6.7 U3.

This product now supports VMware vSphere 6.5 U3.

## Supported Devices and Features

This package supports the following network adapters:

- HPE Ethernet 10Gb 2-port 560FLB Adapter
- HPE Ethernet 10Gb 2-port 560M Adapter

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HPE Blade QLogic NX2 Online Firmware Upgrade Utility for VMware

Version: 1.2.2 **(Optional)**

Filename: CP045077.compsig; CP045077.zip

## Important Note!

HPE recommends the *HPE Blade QLogic NX2 10/20 GbE Multifunction Driver for VMware*, version 2021.04.19 or later, for use with this firmware.

## Prerequisites

This product requires the appropriate driver for your device and operating system be installed before firmware is updated.

## Fixes

This product addresses an issue where powering on the system with any I/O virtualization functionality (NPAR, SR-IOV, etc) enabled results in an Uncorrectable Machine Check Exception (UMCE).  
This product addresses an issue where the WOL option is displayed on the Human Interface Infrastructure (HII) menu for 534M and 630M mezzanine devices, even though WOL is not supported on those devices.

## Enhancements

This product now supports VMware vSphere 7.0 U1.  
This product now supports VMware vSphere 6.7 U3.  
This product now supports VMware vSphere 6.5 U3.

## Supported Devices and Features

This product supports the following network adapters:

- o HPE FlexFabric 10Gb 2-port 534M Adapter
- o HPE FlexFabric 10Gb 2-port 536FLB Adapter
- o HPE FlexFabric 20Gb 2-port 630FLB Adapter
- o HPE FlexFabric 20Gb 2-port 630M Adapter

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HPE Broadcom NetXtreme-E Firmware Package for BCM5741x adapters

Version: 218.0.166000 (**Recommended**)

Filename: bcm218.0.166000.Optimized.pup.fwpkg

## Fixes

- o This product addresses a modification on help string of Family Firmware Version.
- o This product addresses an enhancement on LLDP functional option naming under RBSU and the interactivity of DCB protocol option.
- o This product addresses an issue about lack of MAC address while querying via RedFish.
- o This product addresses an issue about failing to recognize the adapter firmware version under Microsoft Windows(R).
- o This product addresses an issue for receiving PCIe errors while installing SUSE Linux Enterprise Server.
- o This product addresses an issue for packets missing when UDP multicast application is started/stopped.
- o This product addresses an issue for HPE Ethernet 10/25Gb 2-port 631FLR-SFP28 Adapter not linking up during POST.

## Enhancements

Initial version

## Supported Devices and Features

This product supports the following network adapters:

- o HPE Ethernet 10Gb 2-port 537SFP+ Adapter
- o HPE Ethernet 10Gb 2-port 537SFP+ FLR Adapter
- o HPE Ethernet 10Gb 2-port 535T Adapter
- o HPE Ethernet 10Gb 2-port 535FLR-T Adapter
- o HPE Ethernet 10/25Gb 2-port 631SFP28 Adapter
- o HPE Ethernet 10/25Gb 2-port 631FLR-SFP28 Adapter

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HPE Broadcom NX1 Online Firmware Upgrade Utility for VMware

Version: 1.28.6 (**Optional**)

Filename: CP045013.compsig; CP045013.zip

## Important Note!

This software package contains combo image v20.18.31 with the following firmware versions:

NIC	Boot Code Version	PXE Version	NCSI Version	UEFI Version	CCM Version
HPE Ethernet 1Gb 2-port 330i Adapter (22BD)	2.10	21.6.0	1.5.27	21.6.12	218.0.10.0
HPE Ethernet 1Gb 4-port 331i Adapter (22BE) HPE Ethernet 1Gb 4-port 331FLR Adapter HPE Ethernet 1Gb 4-port 331T Adapter	1.46	21.6.0	1.5.27	21.6.12	218.0.10.0
HPE Ethernet 1Gb 2-port 332i Adapter (22E8) HPE Ethernet 1Gb 2-port 332T Adapter	1.40	21.6.0	1.5.27	21.6.12	218.0.10.0

## Prerequisites

This product requires the appropriate driver for your device and operating system be installed before firmware is updated.

## Fixes

- This product addresses an issue about lack of information under AHS log.
- This product addresses an RSOD issue which appeared intermittently during POST after having a warm reboot.

This product addresses a modification on help string of Family Firmware Version.

### Supported Devices and Features

This product supports the following network adapters:

- o HPE Ethernet 1Gb 2-port 330i Adapter (22BD)
- o HPE Ethernet 1Gb 4-port 331i Adapter (22BE)
- o HPE Ethernet 1Gb 4-port 331FLR Adapter
- o HPE Ethernet 1Gb 4-port 331T Adapter
- o HPE Ethernet 1Gb 2-port 332i Adapter (22E8)
- o HPE Ethernet 1Gb 2-port 332T Adapter

HPE Firmware Flash for Emulex Converged Network Adapters for VMware vSphere 7.0

Version: 2021.10.01 **(Recommended)**

Filename: CP046766.compsig; CP046766.zip

### Important Note!

This Firmware package contains following firmware version:

Adapter	Speed	Universal Boot Image	Firmware	UEFI	Boot BIOS
HPE CN1200E Dual Port Converged Network Adapter	20Gb	12.0.1277.0	12.0.1345.0	12.0.1269.0	12.0.1171.0
HPE CN1200E-T Dual Port Adapter	20Gb	12.0.1277.0	12.0.1345.0	12.0.1269.0	12.0.1171.0

### Prerequisites

Please consult SPOCK for a list of supported configurations available at the following link:

<http://www.hpe.com/storage/spock/>

### Enhancements

This Firmware package contains following firmware version:

Adapter	Speed	Universal Boot Image	Firmware	UEFI	Boot BIOS
HPE CN1200E Dual Port Converged Network Adapter	20Gb	12.0.1277.0	12.0.1345.0	12.0.1269.0	12.0.1171.0
HPE CN1200E-T Dual Port Adapter	20Gb	12.0.1277.0	12.0.1345.0	12.0.1269.0	12.0.1171.0

### Supported Devices and Features

This component is supported on following Emulex Converged Network Adapters:

#### XE100 Series:

- HPE CN1200E Dual Port Converged Network Adapter
- HPE CN1200E-T Dual Port Converged Network Adapter

HPE Intel Online Firmware Upgrade Utility for VMware

Version: 3.14.5 **(Optional)**

Filename: CP045036.compsig; CP045036.zip

### Important Note!

This software package contains the following firmware versions for the below listed supported network adapters:

NIC	EEPROM/NVM Version	OROM Version	Single NVM Version
HPE Ethernet 1Gb 2-port 361i Adapter	8000106F	1.2836.0	N/A
HPE Ethernet 1Gb 2-port 361T Adapter	80000F91	1.2836.0	N/A
HPE Ethernet 1Gb 2-port 363i Adapter	80000D00	1.2836.0	N/A
HPE Ethernet 1Gb 4-port 366i Communication Board	80000EBF	1.2836.0	N/A
HPE Ethernet 1Gb 4-port 366i Adapter	8000105E	1.2836.0	N/A
HPE Ethernet 1Gb 4-port 366FLR Adapter	80001060	1.2836.0	N/A
HPE Ethernet 1Gb 4-port 366T Adapter	8000105F	1.2836.0	N/A
HPE Ethernet 1Gb 2-port 368i Adapter	800027FA	1.2836.0	N/A
HPE Ethernet 1Gb 2-port 368FLR-MMT Adapter	800027F8	1.2836.0	N/A
HPE Ethernet 1Gb 4-port 369i Adapter	800027FB	1.2836.0	N/A
HPE Ethernet 10Gb 2-port 560FLR-SFP+ Adapter	80000838	1.2836.0	N/A
HPE Ethernet 10Gb 2-port 560SFP+ Adapter	80000835	1.2836.0	N/A
HPE Ethernet 10Gb 2-port 561T Adapter	80000636	1.2836.0	N/A
HPE Ethernet 10Gb 2-port 561FLR-T Adapter	800005B6	1.2836.0	N/A

HPE Ethernet 10Gb 2-port 568i Adapter	800027FC	1.2836.0	N/A
HPE Ethernet 10Gb 2-port 568FLR-MMSFP+ Adapter	800027F8	1.2836.0	N/A
HPE Ethernet 10Gb 2-port 568FLR-MMT Adapter	800027F8	1.2836.0	N/A
HPE Ethernet 10Gb 2-port 563i Adapter	800035C0	1.1375.0	N/A
HPE Ethernet 10Gb 2-port 562FLR-SFP+ Adapter	80009655	1.2836.0	10.54.7
HPE Ethernet 10Gb 2-port 562FLR-T Adapter	8000137D	1.2836.0	10.54.4
HPE Ethernet 10Gb 2-port 562SFP+ Adapter	800095AA	1.2836.0	10.54.7
HPE Ethernet 10Gb 2-port 562T Adapter	8000137C	1.2836.0	10.54.4

The combo image v1.2836.0 includes: Boot Agent: 1GbE - v1.5.88, 10GbE - v2.4.44, 40GbE - v1.1.18 & UEFI Drivers: 1GbE - v9.4.06, 10GbE - v7.8.13, 40GbE - v4.4.12

The combo image v1.1375.0 includes: Boot Agent: 1GbE - v1.5.72, 10GbE - v2.3.46, 40GbE - v1.0.21 & UEFI Drivers: 1GbE - v6.9.13, 10GbE - v5.0.20, 40GbE - v1.5.14

Single NVM Version is new firmware format which represent an unified version in place of the previously used EEPROM/NVM Version or OROM version.

### **Prerequisites**

This product requires the appropriate driver for your device and operating system be installed before firmware is updated.

### **Fixes**

This product addresses an issue where Systems Insight Display (SID) modul is green when there's no Network connection.

### **Supported Devices and Features**

This package supports the following network adapters:

- o HPE Ethernet 1Gb 2-port 361i Adapter
- o HPE Ethernet 1Gb 2-port 361T Adapter
- o HPE Ethernet 1Gb 2-port 363i Adapter
- o HPE Ethernet 1Gb 2-port 368FLR-MMT Adapter
- o HPE Ethernet 1Gb 2-port 368i Adapter
- o HPE Ethernet 1Gb 4-port 366FLR Adapter
- o HPE Ethernet 1Gb 4-port 366i Adapter
- o HPE Ethernet 1Gb 4-port 366i Communication Board
- o HPE Ethernet 1Gb 4-port 366T Adapter
- o HPE Ethernet 1Gb 4-port 369i Adapter
- o HPE Ethernet 10Gb 2-port 560FLR-SFP+ Adapter
- o HPE Ethernet 10Gb 2-port 560SFP+ Adapter
- o HPE Ethernet 10Gb 2-port 561FLR-T Adapter
- o HPE Ethernet 10Gb 2-port 561T Adapter
- o HPE Ethernet 10Gb 2-port 562FLR-SFP+ Adapter
- o HPE Ethernet 10Gb 2-port 562FLR-T Adapter
- o HPE Ethernet 10Gb 2-port 562SFP+ Adapter
- o HPE Ethernet 10Gb 2-port 562T Adapter
- o HPE Ethernet 10Gb 2-port 568FLR-MMSFP+ Adapter
- o HPE Ethernet 10Gb 2-port 568FLR-MMT Adapter
- o HPE Ethernet 10Gb 2-port 568i Adapter

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HPE QLogic FastLinQ Online Firmware Upgrade Utility for VMware

Version: 4.13.8 **(Optional)**

Filename: CP044811.compsig; CP044811.zip

### **Important Note!**

HPE recommends *HPE QLogic FastLinQ 10/25/50GbE Multifunction Drivers for VMware*, versions 2021.04.05 or later, for use with this firmware.

This software package contains combo image version v8.55.12 includes:

- Boot Code (MFW): 8.55.21.0
- UEFI: 4.1.11.2
- PXE: 2.0.19

The users will only see the combo image versions in the interactive mode firmware update or while using HPSUM/SPP to update the firmware on the supported adapters.

### **Prerequisites**

This product requires the appropriate driver for your device and operating system be installed before firmware is updated.

### **Enhancements**

This product contains support PLDM firmware upgrade base improvements.

### **Supported Devices and Features**

This product supports the following network adapters:

- HPE Ethernet 10Gb 2-port 521T Adapter
- HPE Ethernet 10Gb 2-port 524SFP+ Adapter
- HPE Ethernet 10/25Gb 2-port 621SFP28 Adapter
- HPE Ethernet 10/25Gb 2-port 622FLR-SFP28 Converged Network Adapter
- HPE StoreFabric CN1200R-T Converged Network Adapter
- HPE StoreFabric CN1300R Converged Network Adapter

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## HPE QLogic NX2 Online Firmware Upgrade Utility for VMware

Version: 1.28.6 **(Optional)**

Filename: CP044814.compsig; CP044814.zip

### **Important Note!**

HPE recommends HPE QLogic NX2 10/20GbE Multifunction Drivers for VMware, versions 2021.04.05 or later, for use with this firmware.

This software package contains combo image v7.18.80 with the following firmware versions:

NIC	Boot Code Version	PXE Version	UEFI Version	iSCSI Version	FCoE Version	CCM Version	L2 Version
HPE Ethernet 10Gb 2-port 530SFP+ Adapter HPE Ethernet 10Gb 2-port 530T Adapter	7.16.03	7.14.13	8.8.2	n/a	n/a	7.14.4	7.12.25
HPE Ethernet 10Gb 2-port 533FLR-T Adapter HPE FlexFabric 10Gb 2-port 534FLR-SFP+ Adapter HPE FlexFabric 10Gb 4-port 536FLR-T Adapter HPE StoreFabric CN1100R Dual Port Converged Network Adapter HPE StoreFabric CN1100R-T Converged Network Adapter	7.16.03	7.14.13	8.8.2	7.14.0	7.14.3	7.14.4	7.12.25

### **Prerequisites**

This product requires the appropriate driver for your device and operating system be installed before firmware is updated.

### **Fixes**

This product addresses an issue that platform would be randomly waked up by WOL packet.

### **Supported Devices and Features**

This product supports the following network adapters:

- o HPE Ethernet 10Gb 2-port 530SFP+ Adapter
- o HPE Ethernet 10Gb 2-port 530T Adapter
- o HPE Ethernet 10Gb 2-port 533FLR-T Adapter
- o HPE FlexFabric 10Gb 2-port 534FLR-SFP+ Adapter
- o HPE FlexFabric 10Gb 4-port 536FLR-T Adapter
- o HPE StoreFabric CN1100R Dual Port Converged Network Adapter
- o HPE StoreFabric CN1100R-T Converged Network Adapter

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## Intel Firmware Package For E810-CQDA2 Ethernet 100Gb 2-port QSFP28 Adapter

Version: 2.24 **(Recommended)**

Filename: HPE\_E810\_CQDA2\_2p24\_PLDMoMCTP\_800059DB.fwpkg

### **Enhancements**

Initial version

### **Supported Devices and Features**

This product supports the following network adapters:

- o Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 Adapter for HPE

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## Intel Firmware Package For E810-CQDA2 Ethernet 100Gb 2-port QSFP28 OCP3 Adapter

Version: 2.24 **(Recommended)**

Filename: HPE\_E810\_CQDA2\_OCP\_2p24\_NCSlwPLDMoMCTP\_800059D4.fwpkg

### **Enhancements**

Initial version

### **Supported Devices and Features**

This product supports the following network adapters:

- o Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 OCP3 Adapter for HPE

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## Intel Firmware Package For E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 Adapter

Version: 2.24 **(Recommended)**

Filename: HPE\_E810\_XXVDA2\_SD\_2p24\_PLDMoMCTP\_800059DF.fwpkg

### **Enhancements**

Initial version

### **Supported Devices and Features**

This product supports the following network adapters:

- Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE

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Intel Firmware Package For E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter  
Version: 2.24 **(Recommended)**  
Filename: HPE\_E810\_XXVDA2\_SD\_OCP\_2p24\_NCSIwPLDMoMCTP\_800059DE.fwpkg

#### **Enhancements**

Initial version

#### **Supported Devices and Features**

This product supports the following network adapters:

- Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE

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Intel Firmware Package For E810-XXVDA4 Ethernet 10/25Gb 4-port SFP28 Adapter  
Version: 2.24 **(Recommended)**  
Filename: HPE\_E810\_XXVDA4\_FH\_2p24\_PLDMoMCTP\_800059D9.fwpkg

#### **Enhancements**

Initial version

#### **Supported Devices and Features**

This product supports the following network adapters:

- Intel E810-XXVDA4 Ethernet 10/25Gb 4-port SFP28 Adapter for HPE

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Intel Online Firmware Upgrade Utility for VMware  
Version: 3.15.50 **(Optional)**  
Filename: CP047124.compsig; CP047124.zip

#### **Important Note!**

This software package contains the following firmware versions for the below listed supported network adapters:

<b>NIC</b>	<b>EEPROM/NVM Version</b>	<b>OROM Version</b>	<b>NVM Version</b>
HPE Ethernet 10Gb 2-port SFP+ OCP3 X710-DA2 Adapter	8000A4FF	1.2829.0	8.10
HPE Ethernet 10Gb 2-port SFP+ X710-DA2 Adapter	8000A3DE	1.2829.0	8.10
Intel I350-T4 Ethernet 1Gb 4-port BASE-T Adapter	80001099	1.2839.0	N/A
Intel I350-T4 Ethernet 1Gb 4-port BASE-T OCP3 Adapter	80001097	1.2839.0	N/A
Intel(R) I350 Gigabit Network Connection (2-port)	8000108E	1.2839.0	N/A
Intel(R) I350 Gigabit Network Connection (4-port)	8000108F	1.2839.0	N/A

The combo image v1.2829.0 includes: Boot Agent: I40E - v1.1.18& UEFI Drivers: 40GbE - v4.4.12.

The combo image v1.2839.0 includes: Boot Agent: 1GbE - v1.5.88 & UEFI Drivers: 1GbE - v9.4.06.

#### **Prerequisites**

This product requires the appropriate driver for your device and operating system be installed before firmware is updated.

#### **Fixes**

This product corrects an issue where iLO returns invalid JSON response format.

#### **Supported Devices and Features**

This package supports the following network adapters:

- Intel(R) I350 Gigabit Network Connection (2-port)
- Intel(R) I350 Gigabit Network Connection (4-port)
- HPE Ethernet 1Gb 4-port BaseT I350-T4 Adapter
- HPE Ethernet 1Gb 4-port BaseT I350-T4 OCP3 Adapter
- HPE Ethernet 10Gb 2-port SFP+ X710-DA2 OCP3 Adapter
- HPE Ethernet 10Gb 2-port SFP+ X710-DA2 Adapter

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Marvell FastLinQ Online Firmware Upgrade Utility for VMware  
Version: 4.13.9 **(Optional)**  
Filename: CP044970.compsig; CP044970.zip

#### **Important Note!**

This software package contains combo image v8.55.12. This combo image includes:

- o PXE: 2.0.19
- o Boot Code (MFW): 8.55.22.0
- o UEFI: 6.1.8.2

### **Prerequisites**

This product requires the appropriate driver for your device and operating system be installed before firmware is updated.

### **Fixes**

- o This product contains support PLDM firmware upgrade base improvements.
- o This product addresses an overheat issue on the network adapters as below,

HPE Ethernet 10Gb 2-port BaseT QL41132HLRJ Adapter  
HPE Ethernet 10Gb 2-port BaseT QL41132HQRJ OCP3 Adapter

### **Enhancements**

This product now supported NPAR enabling option.

### **Supported Devices and Features**

This product supports the following network adapters:

- o HPE Ethernet 10/25Gb 2-port SFP28 QL41232HQCU OCP3 Adapter
- o HPE Ethernet 10/25Gb 2-port SFP28 QL41232HLCU Adapter
- o HPE Ethernet 10Gb 4-port SFP+ QL41134HLCU Adapter
- o HPE Ethernet 10Gb 2-port BaseT QL41132HLRJ Adapter
- o HPE Ethernet 10Gb 2-port BaseT QL41132HQRJ OCP3 Adapter
- o HPE Ethernet 10Gb 2-port SFP+ QL41132HQCU OCP3 Adapter
- o HPE Ethernet 10Gb 2-port SFP+ QL41132HLCU Adapter

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Mellanox Firmware Package(FWPKG) for HPE Ethernet 100Gb 1-port QSFP28 MCX515A-CCAT PCIe3 x16 Adapter

Version: 16.29.1016 (**Recommended**)

Filename: 16\_29\_1016-MCX515A-CCA\_HPE\_Ax.pldm.fwpkg

### **Important Note!**

#### **Known Issues with firmware version 16.29.1016:**

- o Multi-APP QoS is not supported when LAG is configured.
- o When Emulated PCIe Switch is enabled, and more than 8 PFs are enabled, the OS boot process might halt.
- o When Emulated PCIe Switch is enabled, and the OS does resource reallocation, the OS boot process might halt.
- o Unable to complete migration when virtio device is in high traffic load (20/20 MPPS) as although vDPA hardware offload solution can support higher speed than the software solution, it needs to enable QEMU auto-converge to complete migration.
- o Using the Eye-Opening tool might cause degradation in the link speed or link down events.
- o Sub 1sec firmware update (fast reset flow) is not supported when updating from previous releases to the current one. Doing so may cause network disconnection events.
- o On systems with high PCIe latency (2us or above), lower bandwidth may be experienced.

### **Prerequisites**

FWPKG will work only if the firmware version flashed on the adapter is 16.27.1016 or later and iLO5 firmware version must be 2.30 or higher.

### **Fixes**

#### **The following issues have been fixed in version 16.29.1016:**

- o Changed the default value of DCQCN's (Data center- Quantized Congestion Notification) NP parameter min\_time\_between\_cnps to 4 on all devices to support larger scalability of cluster.
- o An issue that prevented VXLAN packets with svlan/cvlan tag from being matched.
- o The eth\_wqe\_too\_small counter to count ODP (On-Demand Paging) page used to fail.
- o An issue related to raising 100GbE link on ConnectX-6 VPI 100Gb/s adapter cards.
- o When MKEY\_BY\_NAME was enabled by NVCONFIG and a large number of VFs are configured, VM restart (VF/PF FLR) will take longer than when MKEY\_BY\_NAME is disabled.
- o Low performance occurred after enabling the RoCE Accelerator capability.
- o On rare cases, a fatal error related to errors from the PCI transport layer might be reported during FLR.

### **Enhancements**

#### **New Feature and Changes in Version 16.29.1016:**

- o Ethernet wqe\_too\_small Mode: New counter per vPort that counts the number of packets that reached the Ethernet RQ but cannot fit into the WQE due to their large size. Additionally, we added the option to control if such packet will cause "CQE with Error" or "CQE MOCK".
- o UCX can now enable AR by exposing Out-Of-Ordering bitmask per SL with "ooo\_per\_sl" field in the HCA\_VPORT context. It can be also queried by running the QUERY\_HCA\_VPORT\_CONTEXT command.
- o PCIe Rx modifications to prevent the adapter cards from disappearing from the system.
- o Hardware steering dump output used for debugging and troubleshooting.

#### **Added support for the following features:**

- o HW support for Flow Metering to utilize Advanced Steering Operation (ASO). HW Flow Meter allows higher scale, more accuracy, and better performance compare to the FW Flow Metering.
- o Trust level for VFs. Once the VF is trusted, it will get a set of trusted capabilities.
- o Steering DP hash flow groups.
- o ignore\_flow\_level is now enabled by the TRUST LEVEL access registry.

The cq\_overrun counter: The counter represents the number of times CQs enter an error state due to overflow that occur when the device tries to post a CQE into a full CQ buffer.

- o Enabled the capability to allow Virtual Functions to send Pause Frames packets. (Beta)
- o Enabled 10/25GbE auto-sensing with 3rd party when using 10/25GbE optical cables.
- o 2 new Mini CQE formats:
  - Responder Mini CQE With Flow Tag Layout.
  - Responder Mini CQE With I3\_I4\_info Layout.

## Supported Devices and Features

HPE Part Number	Mellanox Ethernet Only Adapters	PSID
P31246-B21	HPE Ethernet 100Gb 1-port QSFP28 PCIe3 x16 MCX515A-CCAT Adapter	MT_0000000

Mellanox Firmware Package(FWPKG) for HPE Ethernet 100Gb 2-Port QSFP56 MCX623106AS-CDAT Adapter

Version: 22.29.1016 (**Recommended**)

Filename: 22\_29\_1016-MCX623106AS-CDA\_Ax.pldm.fwPKG

## Important Note!

### Known Issues with firmware version 22.29.1016:

- o Multi-APP QoS is not supported when LAG is configured.
- o When Emulated PCIe Switch is enabled, and more than 8 PFs are enabled, the OS boot process might halt.
- o When Emulated PCIe Switch is enabled, and the OS does resource reallocation, the OS boot process might halt.
- o Unable to complete migration when virtio device is in high traffic load (20/20 MPPS) as although vDPA hardware offload solution can support higher speed than the software solution, it needs to enable QEMU auto-converge to complete migration.
- o Using the Eye-Opening tool might cause degradation in the link speed or link down events.
- o Sub 1sec firmware update (fast reset flow) is not supported when updating from previous releases to the current one. Doing so may cause network disconnection events.
- o On systems with high PCIe latency (2us or above), lower bandwidth may be experienced.

## Prerequisites

FWPKG will work only if the firmware version flashed on the adapter is 22.27.1016 or later and iLO5 firmware version must be 2.30 or higher.

## Fixes

### The following issues have been fixed in version 22.29.1016:

- o Changed the default value of DCQCN's (Data center- Quantized Congestion Notification) NP parameter min\_time\_between\_cnps to 4 on all devices to support larger scalability of cluster.
- o An issue that prevented VXLAN packets with svlan/cvlan tag from being matched.
- o The eth\_wqe\_too\_small counter to count ODP (On-Demand Paging) page used to fail.
- o An issue related to raising 100GbE link on ConnectX-6 VPI 100Gb/s adapter cards.
- o When MKEY\_BY\_NAME was enabled by NVCONFIG and a large number of VFs are configured, VM restart (VF/PF FLR) will take longer than when MKEY\_BY\_NAME is disabled.
- o Low performance occurred after enabling the RoCE Accelerator capability.
- o On rare cases, a fatal error related to errors from the PCI transport layer might be reported during FLR
- o "iperf3" and "iperf3 -l 512" issue fixed from having traffic for virtio hardware offload solution.

## Enhancements

### New Features and Changes in Version 22.29.1016:

- o Improved NRZ link performance (RX algorithm).
- o Improved NRZ link-up time (25G\50G\100G speeds).
- o UCX can now enable AR by exposing Out-Of-Ordering bitmask per SL with "ooo\_per\_sl" field in the HCA\_VPORT context. It can be also queried by running the QUERY\_HCA\_VPORT\_CONTEXT command.
- o Optimized vDPA performance for PPS in scalability of up to 127 devices per port.
- o When using a Multi-Host device, the firmware can now discover who is the external SmartNIC host (the Embedded CPU PF (ECPF) ) with the highest index that is responsible for performing offload activities to the adapter card
- o Hardware steering dump output used for debugging and troubleshooting.

### Added support for the following features:

- o Eye-Opening: supported only when using NRZ signal. (Beta)
- o Option to allow applications to build their own QoS tree over the NIC hierarchy by connecting QPs to responder/requestor Queue Groups.
- o "InfiniBand" properties set to the Network Device Function Redfish object.
- o Direct Packet Placement (DPP): DPP is a receive side transport service in which the Ethernet packets are scattered to the memory according to a packet sequence number (PSN) carried by the packet, and not by their arrival order. To enable DPP offload, the software should create a special RQ by using the CREATE\_RQ command and set DPP relevant attributes.
- o Trust level for VFs. Once the VF is trusted, it will get a set of trusted capabilities.
- o Error statistics and reporting for vDPA.
- o IPv6 TSO offload.

## Supported Devices and Features

HPE Part Number	Mellanox Ethernet Only Adapters	PSID
P25960-B21	HPE Ethernet 100Gb 2-Port QSFP56 MCX623106AS-CDAT Adapter	MT_0000000437

### **Important Note!**

#### **Known Issues with firmware version 22.29.1016:**

- Multi-APP QoS is not supported when LAG is configured.
- When Emulated PCIe Switch is enabled, and more than 8 PFs are enabled, the OS boot process might halt.
- When Emulated PCIe Switch is enabled, and the OS does resource reallocation, the OS boot process might halt.
- Unable to complete migration when virtio device is in high traffic load (20/20 MPPS) as although vDPA hardware offload solution can support higher speed than the software solution, it needs to enable QEMU auto-converge to complete migration.
- Using the Eye-Opening tool might cause degradation in the link speed or link down events.
- Sub 1sec firmware update (fast reset flow) is not supported when updating from previous releases to the current one. Doing so may cause network disconnection events.
- On systems with high PCIe latency (2us or above), lower bandwidth may be experienced.

### **Prerequisites**

FWPKG will work only if the firmware version flashed on the adapter is 22.27.1016 or later and iLO5 firmware version must be 2.30 or higher.

### **Fixes**

#### **The following issues have been fixed in version 22.29.1016:**

- Changed the default value of DCQCN's (Data center- Quantized Congestion Notification) NP parameter min\_time\_between\_cnps to 4 on all devices to support larger scalability of cluster.
- An issue that prevented VXLAN packets with svlan/cvlan tag from being matched.
- The eth\_wqe\_too\_small counter to count ODP (On-Demand Paging) page used to fail.
- An issue related to raising 100GbE link on ConnectX-6 VPI 100Gb/s adapter cards.
- When MKEY\_BY\_NAME was enabled by NVCONFIG and a large number of VFs are configured, VM restart (VF/PF FLR) will take longer than when MKEY\_BY\_NAME is disabled.
- Low performance occurred after enabling the RoCE Accelerator capability.
- On rare cases, a fatal error related to errors from the PCI transport layer might be reported during FLR
- "iperf3" and "iperf3 -l 512" issue fixed from having traffic for virtio hardware offload solution.

### **Enhancements**

#### **New Features and Changes in Version 22.29.1016:**

- Improved NRZ link performance (RX algorithm).
- Improved NRZ link-up time (25G\50G\100G speeds).
- UCX can now enable AR by exposing Out-Of-Ordering bitmask per SL with "ooo\_per\_sl" field in the HCA\_VPORT context. It can be also queried by running the QUERY\_HCA\_VPORT\_CONTEXT command.
- Optimized vDPA performance for PPS in scalability of up to 127 devices per port.
- When using a Multi-Host device, the firmware can now discover who is the external SmartNIC host (the Embedded CPU PF (ECPF) ) with the highest index that is responsible for performing offload activities to the adapter card
- Hardware steering dump output used for debugging and troubleshooting.

#### **Added support for the following features:**

- Eye-Opening: supported only when using NRZ signal. (Beta)
- Option to allow applications to build their own QoS tree over the NIC hierarchy by connecting QPs to responder/requestor Queue Groups.
- "InfiniBand" properties set to the Network Device Function Redfish object.
- Direct Packet Placement (DPP): DPP is a receive side transport service in which the Ethernet packets are scattered to the memory according to a packet sequence number (PSN) carried by the packet, and not by their arrival order. To enable DPP offload, the software should create a special RQ by using the CREATE\_RQ command and set DPP relevant attributes.
- Trust level for VFs. Once the VF is trusted, it will get a set of trusted capabilities.
- Error statistics and reporting for vDPA.
- IPv6 TSO offload.

### **Supported Devices and Features**

HPE Part Number	Mellanox Ethernet Only Adapters	PSID
P10180-B21	HPE Ethernet 200Gb 1-port QSFP56 MCX623105AS-VDAT Adapter	MT_0000000435

### **Prerequisites**

FWPKG will work only if the firmware version flashed on the adapter is 20.27.1016 or later and iLO5 firmware version must be 2.30 or higher.

### **Fixes**

#### **The following issues have been fixed in version 20.29.1016:**

- Changed the default value of DCQCN's (Data center- Quantized Congestion Notification) NP parameter min\_time\_between\_cnps to 4 on all devices to support larger scalability of cluster.
- An issue that prevented VXLAN packets with svlan/cvlan tag from being matched.
- The eth\_wqe\_too\_small counter to count ODP (On-Demand Paging) page used to fail.
- An issue related to raising 100GbE link on ConnectX-6 VPI 100Gb/s adapter cards.

- When MKEY\_BY\_NAME was enabled by NVCONFIG and a large number of VFs are configured, VM restart (VF/PF FLR) will take longer than when MKEY\_BY\_NAME is disabled.
- Low performance occurred after enabling the RoCE Accelerator capability.
- On rare cases, a fatal error related to errors from the PCI transport layer might be reported during FLR.

## Enhancements

### New Features and Changes in Version 20.29.1016:

Added support for following features:

- LinkX module burning via MFT toolset. The new capability enables direct firmware burning from the internal flash storage to reduce the bandwidth and accelerate the burning process, including burning several modules at a time.
- An option to allow applications to build their own QoS tree over the NIC hierarchy by connecting QPs to responder/requestor Queue Groups.
- Improved NRZ link performance (RX algorithm).
- Improved NRZ link-up time (25G\50G\100G speeds).
- Enabled the options to control different Tx sets for the same attribute when connecting a Mellanox-Mellanox vs Mellanox to 3rd party HCA.
- "InfiniBand" properties set to the Network Device Function Redfish object.
- Direct Packet Placement (DPP): DPP is a receive side transport service in which the Ethernet packets are scattered to the memory according to a packet sequence number (PSN) carried by the packet, and not by their arrival order.
- To enable DPP offload, the software should create a special RQ by using the CREATE\_RQ command, and set DPP relevant attributes.
- Added trust level for VFs. Once the VF is trusted, it will get a set of trusted capabilities.
- UCX can now enable AR by exposing Out-Of-Ordering bitmask per SL with "ooo\_per\_sl" field in the HCA\_VPORT context. It can be also queried by running the QUERY\_HCA\_VPORT\_CONTEXT command.
- Enhanced IB Congestion Control to support lower minimum rate. Now it uses destination-lid to classify flows to handle larger scale, and achieve better results in GPCNeT benchmark.
- Hardware steering dump output used for debugging and troubleshooting.

## Supported Devices and Features

HPE Part Number	Mellanox Ethernet Only Adapters	PSID
P23664-B21	HPE InfiniBand HDR/Ethernet 200Gb 1-port MCX653105A-HDAT QSFP56 x16 Adapter	MT_0000000451

Mellanox Firmware Package(FWPKG) for HPE InfiniBand HDR/Ethernet 200Gb 1-port QSFP56 MCX653435A-HDAI OCP3 PCIe4 x16 Adapter

Version: 20.29.1016 (**Recommended**)

Filename: 20\_29\_1016-MCX653435A-HDA\_HPE\_Ax.pldm.fwpgk

## Prerequisites

FWPKG will work only if the firmware version flashed on the adapter is 20.27.1016 or later and iLO5 firmware version must be 2.30 or higher.

## Fixes

### The following issues have been fixed in version 20.29.1016:

- Changed the default value of DCQCN's (Data center- Quantized Congestion Notification) NP parameter min\_time\_between\_cnps to 4 on all devices to support larger scalability of cluster.
- An issue that prevented VXLAN packets with svlan/cvlan tag from being matched.
- The eth\_wqe\_too\_small counter to count ODP (On-Demand Paging) page used to fail.
- An issue related to raising 100GbE link on ConnectX-6 VPI 100Gb/s adapter cards.
- When MKEY\_BY\_NAME was enabled by NVCONFIG and a large number of VFs are configured, VM restart (VF/PF FLR) will take longer than when MKEY\_BY\_NAME is disabled.
- Low performance occurred after enabling the RoCE Accelerator capability.
- On rare cases, a fatal error related to errors from the PCI transport layer might be reported during FLR.

## Enhancements

### New Features and Changes in Version 20.29.1016:

Added support for following features:

- LinkX module burning via MFT toolset. The new capability enables direct firmware burning from the internal flash storage to reduce the bandwidth and accelerate the burning process, including burning several modules at a time.
- An option to allow applications to build their own QoS tree over the NIC hierarchy by connecting QPs to responder/requestor Queue Groups.
- Improved NRZ link performance (RX algorithm).
- Improved NRZ link-up time (25G\50G\100G speeds).
- Enabled the options to control different Tx sets for the same attribute when connecting a Mellanox-Mellanox vs Mellanox to 3rd party HCA.
- "InfiniBand" properties set to the Network Device Function Redfish object.
- Direct Packet Placement (DPP): DPP is a receive side transport service in which the Ethernet packets are scattered to the memory according to a packet sequence number (PSN) carried by the packet, and not by their arrival order.
- To enable DPP offload, the software should create a special RQ by using the CREATE\_RQ command, and set DPP relevant attributes.
- Added trust level for VFs. Once the VF is trusted, it will get a set of trusted capabilities.
- UCX can now enable AR by exposing Out-Of-Ordering bitmask per SL with "ooo\_per\_sl" field in the HCA\_VPORT context. It can be also queried by running the QUERY\_HCA\_VPORT\_CONTEXT command.
- Enhanced IB Congestion Control to support lower minimum rate. Now it uses destination-lid to classify flows to handle larger scale, and achieve better results in GPCNeT benchmark.
- Hardware steering dump output used for debugging and troubleshooting.

## Supported Devices and Features

HPE Part Number	Mellanox Ethernet Only Adapters	PSID
P31323-B21	HPE InfiniBand HDR/Ethernet 200Gb 1-port QSFP56 PCIe4 x16 OCP3 MCX653435A-HDAI Adapter	MT_0000000592

**Important Note!**

ConnectX-6 VPI supports having one port as InfiniBand and the other port as Ethernet according to the following matrix of combinations.

Port #2 - InfiniBand				
Port #1 – Ethernet	HDR/HDR100	EDR	FDR	QDR
50GbE	supported	not supported	not supported	supported
100GbE/25GbE	supported	not supported	not supported	supported
40GbE/10GbE	supported	not supported	not supported	supported
1GbE	supported	not supported	not supported	supported

Port #2 - Ethernet				
Port #1 - InfiniBand	50GbE	100GbE/25GbE	40GbE/10GbE	1GbE
HDR / HDR100	supported	supported	not supported	supported
EDR	supported	supported	not supported	supported
FDR	not supported	not supported	not supported	not supported
QDR/SDR	supported	supported	not supported	supported

**Prerequisites**

FWPKG will work only if the firmware version flashed on the adapter is 20.27.1016 or later and iLO5 firmware version must be 2.30 or higher.

**Fixes**

The following issues have been fixed in version 20.29.1016:

1. Changed the default value of DCQCN's (Data center- Quantized Congestion Notification) NP parameter min\_time\_between\_cnps to 4 on all devices to support larger scalability of cluster.
2. An issue that prevented VXLAN packets with svlan/cvlan tag from being matched.
3. The eth\_wqe\_too\_small counter to count ODP (On-Demand Paging) page used to fail.
4. An issue related to raising 100GbE link on ConnectX-6 VPI 100Gb/s adapter cards.
5. When MKEY\_BY\_NAME was enabled by NVCONFIG and a large number of VFs are configured, VM restart (VF/PF FLR) will take longer than when MKEY\_BY\_NAME is disabled.
6. Low performance occurred after enabling the RoCE Accelerator capability.
7. On rare cases, a fatal error related to errors from the PCI transport layer might be reported during FLR.

**Enhancements**

**New Features and Changes in Version 20.29.1016:**

Added support for following features:

- LinkX module burning via MFT toolset. The new capability enables direct firmware burning from the internal flash storage to reduce the bandwidth and accelerate the burning process, including burning several modules at a time.
- An option to allow applications to build their own QoS tree over the NIC hierarchy by connecting QPs to responder/requestor Queue Groups.
- Improved NRZ link performance (RX algorithm).
- Improved NRZ link-up time (25G\50G\100G speeds).
- Enabled the options to control different Tx sets for the same attribute when connecting a Mellanox-Mellanox vs Mellanox to 3rd party HCA.
- "InfiniBand" properties set to the Network Device Function Redfish object.
- Direct Packet Placement (DPP): DPP is a receive side transport service in which the Ethernet packets are scattered to the memory according to a packet sequence number (PSN) carried by the packet, and not by their arrival order.
- To enable DPP offload, the software should create a special RQ by using the CREATE\_RQ command, and set DPP relevant attributes.
- Added trust level for VFs. Once the VF is trusted, it will get a set of trusted capabilities.
- UCX can now enable AR by exposing Out-Of-Ordering bitmask per SL with "ooo\_per\_sl" field in the HCA\_VPORT context. It can be also queried by running the QUERY\_HCA\_VPORT\_CONTEXT command.
- Enhanced IB Congestion Control to support lower minimum rate. Now it uses destination-lid to classify flows to handle larger scale, and achieve better results in GPCNeT benchmark.
- Hardware steering dump output used for debugging and troubleshooting.

**Supported Devices and Features**

HPE Part Number	Mellanox Ethernet Only Adapters	PSID
P31324-B21	HPE InfiniBand HDR/Ethernet 200Gb 2-port QSFP56 PCIe4 x16 MCX653106A-HDAT Adapter	MT_0000000594

**Important Note!**

ConnectX-6 VPI supports having one port as InfiniBand and the other port as Ethernet according to the following matrix of combinations.

Port #2 - InfiniBand				
Port #1 – Ethernet	HDR/HDR100	EDR	FDR	QDR

50GbE	supported	not supported	not supported	supported
100GbE/25GbE	supported	not supported	not supported	supported
40GbE/10GbE	supported	not supported	not supported	supported
1GbE	supported	not supported	not supported	supported

Port #2 - Ethernet				
Port #1 - InfiniBand	50GbE	100GbE/25GbE	40GbE/10GbE	1GbE
HDR / HDR100	supported	supported	not supported	supported
EDR	supported	supported	not supported	supported
FDR	not supported	not supported	not supported	not supported
QDR/SDR	supported	supported	not supported	supported

### Prerequisites

FWPKG will work only if the firmware version flashed on the adapter is 20.27.1016 or later and iLO5 firmware version must be 2.30 or higher.

### Fixes

The following issues have been fixed in version 20.29.1016:

1. Changed the default value of DCQCN's (Data center- Quantized Congestion Notification) NP parameter min\_time\_between\_cnps to 4 on all devices to support larger scalability of cluster.
2. An issue that prevented VXLAN packets with svlan/cvlan tag from being matched.
3. The eth\_wqe\_too\_small counter to count ODP (On-Demand Paging) page used to fail.
4. An issue related to raising 100GbE link on ConnectX-6 VPI 100Gb/s adapter cards.
5. When MKEY\_BY\_NAME was enabled by NVCONFIG and a large number of VFs are configured, VM restart (VF/PF FLR) will take longer than when MKEY\_BY\_NAME is disabled.
6. Low performance occurred after enabling the RoCE Accelerator capability.
7. On rare cases, a fatal error related to errors from the PCI transport layer might be reported during FLR.

### Enhancements

**New Features and Changes in Version 20.29.1016:**

Added support for following features:

- o LinkX module burning via MFT toolset. The new capability enables direct firmware burning from the internal flash storage to reduce the bandwidth and accelerate the burning process, including burning several modules at a time.
- o An option to allow applications to build their own QoS tree over the NIC hierarchy by connecting QPs to responder/requestor Queue Groups.
- o Improved NRZ link performance (RX algorithm).
- o Improved NRZ link-up time (25G\50G\100G speeds).
- o Enabled the options to control different Tx sets for the same attribute when connecting a Mellanox-Mellanox vs Mellanox to 3rd party HCA.
- o "InfiniBand" properties set to the Network Device Function Redfish object.
- o Direct Packet Placement (DPP): DPP is a receive side transport service in which the Ethernet packets are scattered to the memory according to a packet sequence number (PSN) carried by the packet, and not by their arrival order.
- o To enable DPP offload, the software should create a special RQ by using the CREATE\_RQ command, and set DPP relevant attributes.
- o Added trust level for VFs. Once the VF is trusted, it will get a set of trusted capabilities.
- o UCX can now enable AR by exposing Out-Of-Ordering bitmask per SL with "ooo\_per\_sl" field in the HCA\_VPORT context. It can be also queried by running the QUERY\_HCA\_VPORT\_CONTEXT command.
- o Enhanced IB Congestion Control to support lower minimum rate. Now it uses destination-lid to classify flows to handle larger scale, and achieve better results in GPCNeT benchmark.
- o Hardware steering dump output used for debugging and troubleshooting.

### Supported Devices and Features

HPE Part Number	Mellanox Ethernet Only Adapters	PSID
P31348-B21	HPE InfiniBand HDR/Ethernet 200Gb 2-port PCIe4 x16 OCP3 QSFP56 MCX653436A-HDAI Adapter	MT_0000000593

Mellanox Firmware Package (FWPKG) for HPE InfiniBand HDR100/Ethernet 100Gb 1-port MCX653105A-ECAT QSFP56 x16 Adapter

Version: 20.29.1016 (**Recommended**)

Filename: 20\_29\_1016-MCX653105A-ECA\_HPE\_Ax.pldm.fwpkg

### Prerequisites

FWPKG will work only if the firmware version flashed on the adapter is 20.27.1016 or later and iLO5 firmware version must be 2.30 or higher.

### Fixes

The following issues have been fixed in version 20.29.1016:

1. Changed the default value of DCQCN's (Data center- Quantized Congestion Notification) NP parameter min\_time\_between\_cnps to 4 on all devices to support larger scalability of cluster.
2. An issue that prevented VXLAN packets with svlan/cvlan tag from being matched.
3. The eth\_wqe\_too\_small counter to count ODP (On-Demand Paging) page used to fail.
4. An issue related to raising 100GbE link on ConnectX-6 VPI 100Gb/s adapter cards.
5. When MKEY\_BY\_NAME was enabled by NVCONFIG and a large number of VFs are configured, VM restart (VF/PF FLR) will take longer than when MKEY\_BY\_NAME is disabled.
6. Low performance occurred after enabling the RoCE Accelerator capability.
7. On rare cases, a fatal error related to errors from the PCI transport layer might be reported during FLR.

### Enhancements

## New Features and Changes in Version 20.29.1016:

Added support for following features:

- LinkX module burning via MFT toolset. The new capability enables direct firmware burning from the internal flash storage to reduce the bandwidth and accelerate the burning process, including burning several modules at a time.
- An option to allow applications to build their own QoS tree over the NIC hierarchy by connecting QPs to responder/requestor Queue Groups.
- Improved NRZ link performance (RX algorithm).
- Improved NRZ link-up time (25G\50G\100G speeds).
- Enabled the options to control different Tx sets for the same attribute when connecting a Mellanox-Mellanox vs Mellanox to 3rd party HCA.
- "InfiniBand" properties set to the Network Device Function Redfish object.
- Direct Packet Placement (DPP): DPP is a receive side transport service in which the Ethernet packets are scattered to the memory according to a packet sequence number (PSN) carried by the packet, and not by their arrival order.
- To enable DPP offload, the software should create a special RQ by using the CREATE\_RQ command, and set DPP relevant attributes.
- Added trust level for VFs. Once the VF is trusted, it will get a set of trusted capabilities.
- UCX can now enable AR by exposing Out-Of-Ordering bitmask per SL with "ooo\_per\_sl" field in the HCA\_VPORT context. It can be also queried by running the QUERY\_HCA\_VPORT\_CONTEXT command.
- Enhanced IB Congestion Control to support lower minimum rate. Now it uses destination-lid to classify flows to handle larger scale, and achieve better results in GPCNeT benchmark.
- Hardware steering dump output used for debugging and troubleshooting.

## Supported Devices and Features

HPE Part Number	Mellanox Ethernet Only Adapters	PSID
P23665-B21	HPE InfiniBand HDR100/Ethernet 100Gb 1-port MCX653105A-ECAT QSFP56 x16 Adapter	MT_0000000452

Mellanox Firmware Package(FWPKG) for HPE InfiniBand HDR100/Ethernet 100Gb 2-port MCX653106A-ECAT QSFP56 x16 Adapter

Version: 20.29.1016 (**Recommended**)

Filename: 20\_29\_1016-MCX653106A-ECA\_HPE\_Ax.pldm.fwpkg

## Important Note!

ConnectX-6 VPI supports having one port as InfiniBand and the other port as Ethernet according to the following matrix of combinations.

Port #2 - InfiniBand				
Port #1 – Ethernet	HDR/HDR100	EDR	FDR	QDR
50GbE	supported	not supported	not supported	supported
100GbE/25GbE	supported	not supported	not supported	supported
40GbE/10GbE	supported	not supported	not supported	supported
1GbE	supported	not supported	not supported	supported

Port #2 - Ethernet				
Port #1 - InfiniBand	50GbE	100GbE/25GbE	40GbE/10GbE	1GbE
HDR / HDR100	supported	supported	not supported	supported
EDR	supported	supported	not supported	supported
FDR	not supported	not supported	not supported	not supported
QDR/SDR	supported	supported	not supported	supported

## Prerequisites

FWPKG will work only if the firmware version flashed on the adapter is 20.27.1016 or later and iLO5 firmware version must be 2.30 or higher.

## Fixes

The following issues have been fixed in version 20.29.1016:

1. Changed the default value of DCQCN's (Data center- Quantized Congestion Notification) NP parameter min\_time\_between\_cnps to 4 on all devices to support larger scalability of cluster.
2. An issue that prevented VXLAN packets with svlan/cvlan tag from being matched.
3. The eth\_wqe\_too\_small counter to count ODP (On-Demand Paging) page used to fail.
4. An issue related to raising 100GbE link on ConnectX-6 VPI 100Gb/s adapter cards.
5. When MKEY\_BY\_NAME was enabled by NVCONFIG and a large number of VFs are configured, VM restart (VF/PF FLR) will take longer than when MKEY\_BY\_NAME is disabled.
6. Low performance occurred after enabling the RoCE Accelerator capability.
7. On rare cases, a fatal error related to errors from the PCI transport layer might be reported during FLR.

## Enhancements

**New Features and Changes in Version 20.29.1016:**

Added support for following features:

- LinkX module burning via MFT toolset. The new capability enables direct firmware burning from the internal flash storage to reduce the bandwidth and accelerate the burning process, including burning several modules at a time.
- An option to allow applications to build their own QoS tree over the NIC hierarchy by connecting QPs to responder/requestor Queue Groups.
- Improved NRZ link performance (RX algorithm).
- Improved NRZ link-up time (25G\50G\100G speeds).
- Enabled the options to control different Tx sets for the same attribute when connecting a Mellanox-Mellanox vs Mellanox to 3rd party HCA.
- "InfiniBand" properties set to the Network Device Function Redfish object.

- o Direct Packet Placement (DPP): DPP is a receive side transport service in which the Ethernet packets are scattered to the memory according to a packet sequence number (PSN) carried by the packet, and not by their arrival order.
- o To enable DPP offload, the software should create a special RQ by using the CREATE\_RQ command, and set DPP relevant attributes.
- o Added trust level for VFs. Once the VF is trusted, it will get a set of trusted capabilities.
- o UCX can now enable AR by exposing Out-Of-Ordering bitmask per SL with "ooo\_per\_sl" field in the HCA\_VPORT context. It can be also queried by running the QUERY\_HCA\_VPORT\_CONTEXT command.
- o Enhanced IB Congestion Control to support lower minimum rate. Now it uses destination-lid to classify flows to handle larger scale, and achieve better results in GPCNeT benchmark.
- o Hardware steering dump output used for debugging and troubleshooting.

### Supported Devices and Features

HPE Part Number	Mellanox Ethernet Only Adapters	PSID
P23666-B21	HPE InfiniBand HDR100/Ethernet 100Gb 2-port MCX653106A-ECAT QSFP56 x16 Adapter	MT_0000000453

Online Firmware Upgrade Utility (ESXi 7.0) for HPE Ethernet 10Gb 2-port 548SFP+ Adapter  
 Version: 1.0.1 **(Recommended)**  
 Filename: CP045199.compsig: CP045199.zip

### Important Note!

**No known issues were included in firmware version 14.29.1016:**

### Prerequisites

Use iLO5 firmware version 2.30 or higher with ConnectX4 firmware version 14.28.1002. Thermal sensor reporting on the adapter will not be functional with older versions of iLO5 firmware.

### Fixes

**Following issues have been fixed in version 14.29.1016:**

- o An issue that caused the sent packet to hang while the device entered FLR mode.
- o Enabled Bar configuration bitwise by applying the write\_en bitmask.
- o A rare case where the device froze while running the sw reset flow under heavy stress and with many open resources.
- o Low PXE performance while using the VSC to trigger the send\_ring\_doorbells.
- o An error that prevented the completions (CQ) from being completed due to a race condition in the firmware transport error handlers, and the error stressors, where the error stressors would hang the firmware transport error handler flow.
- o An issue that caused the fragmented IP packets to drop was fixed.

### Enhancements

**Firmware for the following device is updated to 14.29.1016:**

P11338-B21 (HPE Ethernet 10Gb 2-port 548SFP+ Adapter)

**Following New features and Changes are included in version 14.29.1016:**

- o Added mlxconfig support for power reduction: PCI CAP AUTO\_POWER\_SAVE\_LINK\_DOWN
  - PCI CAP
  - AUTO\_POWER\_SAVE\_LINK\_DOWN
- o Added the following segments, as appeared in the PRM, to the Resource Dump:
  - PRM\_QUERY\_QP
  - PRM\_QUERY\_CQ
  - PRM\_QUERY\_MKEY
  - QUERY\_VNIC\_ENV

### Supported Devices and Features

HPE Part Number	Mellanox Ethernet Only Adapters	PSID
P11338-B21	HPE Ethernet 10Gb 2-port 548SFP+ Adapter	HPE0000000038

Online Firmware Upgrade Utility (ESXi 7.0) for HPE Mellanox Ethernet only adapters  
 Version: 1.0.1 **(Recommended)**  
 Filename: CP045194.compsig: CP045194.zip

### Important Note!

The Firmware Upgrade Utility has been split into 2 packages for Mellanox Ethernet Only NIC adapters, one supporting Synergy platforms and the other supporting ProLiant and Apollo platforms. This package supports Mellanox Ethernet Only NIC adapters on ProLiant and Apollo servers.

**Known Issues for FW version 2.42.5044 :**

- o When using the QSFP module RTX320-581, and performing a driver restart for the firmware upgrade/downgrade to take effect, the link does not come up.
- o Enabling/disabling cq\_timestamp using mlxconfig is not supported.
- o In a card with 2 separate LEDs scheme (a Phy LED and a logic LED) only the Phy LED will lit. Meaning, the orange LES will not be active while the ETH link is in an idle mode.
- o In SR-IOV setup, using mlxconfig when the PF is passed through to a VM requires a reboot of the Hypervisor.
- o Downgrade to previous GA requires server reboot. Downgrading from v2.30.8000 or later to an earlier version than 2.30.8000 requires server reboot. Reboot the

- server.
- On ConnectX-3 Ethernet adapter cards, there is a mismatch between the GUID value returned by firmware management tools and that returned by fabric/driver utilities that read the GUID via device firmware (e.g., using ibstat). Mlxburn/flint return 0xffff as GUID while the utilities return a value derived from the MAC address. For all driver/firmware/software purposes, the latter value should be used.
- SBR should be asserted for a minimum of 50 milliseconds for the ConnectX®-3 adapters
- On Pilot1 SL230, PCIe link occasionally does not come up at Gen3 speed
- RH6.3 Inbox driver causes kernel panic when SR-IOV is enabled on VPI cards due to driver compatibility issue.
- In advanced steering mode, side band management connectivity may be lost when having more than 8 QP per mcg.
- When SR-IOV is disabled in the system BIOS, a PCI issue is noticed in Ubuntu v12.04.3 with Linux kernel v3.8 which affects NICs of several manufacturers including Mellanox's, preventing them from operating.
- MFT tools might leave the flash semaphore locked if the tool operation is forced stopped. The locked semaphore prevents the firmware from accessing the flash and causes firmware hang.
- Cable Info MAD reports a wrong cable info when using the MC2210411-SR4 module
- Gen2 failure at temperature sweep up to 10C/min (for MT27518A1-FDIR-BV only).
- PCIe Gen2 link unstable at temperature sweep of 10C/min for MT27518A1-FDIR-BV
- Bloom filter is currently not supported.
- Firmware downgrade message When downgrading from firmware v2.11.0000 and using MFT 3.0.0-3
- RM#DMFS should not be enabled when working with InfiniBand on MLNX\_OFED-2.0.3
- RM#VPD read-only fields are writable.
- Increasing SymbolErrorCounter When working in VPI mode with port1 FDR and port2 40G, error counters misbehave and increase rapidly
- Setting the device to 128Byte CQ/EQ stride will cause misbehavior of sideband management resulting in communication loss.
- CQ and EQ cannot be configured to different stride sizes.
- ConnectX-3 Pro VF device ID is presented the same as ConnectX-3 VF device ID due to driver limitations.
- RSOD while running PXE (legacy) on G9 servers. This occurs only when PXE boot fails and BIOS boots from HDD. Currently it is pending BIOS fix.
- Changing port protocol from ETH to IB on port with NCSI/IPMI enabled while the port is connected to ETH switch is not supported.
- RDV over IPv6 is currently not functional.
- Sniffer QP cannot be removed from the regular rule after adding the QP with insertion scheme equals to "push to that rule"
- Since only a single Boot Entry Vector (BEV) per PCI Physical Function is supported, disabling the first port causes the second port to disappear as well.
- The NIC does not notify the driver of a link-down incident when a cable is unplugged from a NIC port with 56GbE port link.
- 56GbE link is not raised when using 100GbE optic cables.
- When working with MLNX\_OFED v3.3-1.0.0.0, server reboot could get stuck due to a kernel panic in `mlx-4_en_get_drvinfo()` that is called from asynchronous event handler.
- 832298: When running `ibdump`, loopback traffic is mirroring into the kernel driver.
- AHS reports wrong MTU size
- RM#846523: MAC address that are set from the OS using `ifconfig` are not reflected in the OCBB buffer

#### Known Issues for FW version 14.29.1016 and 16.29.1016:

- Sub 1sec firmware update (fast reset flow) is not supported when updating from previous releases to the current one. Doing so may cause network disconnection events.  
**Workaround:** Use full reset flow for firmware upgrade/downgrade.
- On systems with high PCIe latency (2us or above), lower bandwidth may be experienced.  
**Workaround:** If such issue is observed:
  - Enable ZTT to overcome the high latency. Run: `mlxconfig -d set ZERO_TOUCH_TUNING_ENABLE=1`
  - Reset or power cycle the firmware for change to take effect
- The following are the Steering Dump limitations:
  - Supported only on ConnectX-5 adapter cards
  - Requires passing the version (FW/Stelib/MFT) and device type to stelib
  - Re-format is not supported
  - Advanced multi-port feature is not supported -LAG/ROCE\_AFFILIATION/MPFS\_LB/ESW\_LB (only traffic vhma <-> wire)
    - Packet types supported:
      - Layer 2 Eth
      - Layer 3 IPv4/IPv6/Grh
      - Layer 4 TCP/UDP/Bth/GreV0/GreV1
      - Tunneling VXLAN/Geneve/GREv0/Mpls
    - FlexParser protocols are not supported (e.g AliVxlan/VxlanGpe etc..).
    - Compiles only on x86
  - Congestion Control may not work properly if the card supports two ports and each PF for each port is not raised at the same time.

#### Known Issues for FW version 14.29.1016:

- Low performance might be experienced when upgrading from previous firmware version to 14.29.1000 when using "Fast FW Reset".

#### Known Issues for FW version 16.29.1016:

- When `PER_PF_NUM_SF=1` (per PF configurations are used for SFs), if the number of SFs configured for a PF is 0 (`PF_TOTAL_SF=0`), then the firmware wrongly opens BAR2 with size 128KB.
- Multi-APP QoS is not supported when LAG is configured.
- When configuring adapter card's Level Scheduling, a QoS tree leaf (`QUEUE_GROUP`) configured with default `rate_limit` and default `bw_share`, may not obey the QoS restrictions imposed by any of the leaf's ancestors.  
**Workaround:** To prevent such a case, configure at least one of the following QoS attributes of a leaf: `max_average_bw` or `bw_share`.
- Occasionally, Tag Matching RNDV and NVME emulation wasn't behaving as expected.

#### Prerequisites

Use iLO5 firmware version 2.30 or higher with ConnectX4/ConnectX5 firmware version 14.28.1002/16.28.1002 respectively. Thermal sensor reporting on the adapter will not be functional with older versions of iLO5 firmware.

#### Fixes

##### Fixes submitted in version 2.42.5044 :

- An issue that prevented the firmware from detecting a `link_down` event thus preventing the IB bond interface from going to a failover mode.

##### Following issues have been fixed in firmware version 14.29.1016:

- Changed the default value of DCQCN's (Data center- Quantized Congestion Notification) NP parameter `min_time_between_cnps` to 4 on all devices to support larger scalability of cluster.
- An issue that caused packets to drop due to header size issues and/or failing checks. The issue was caused due to a Linux issue that caused VFs to set the wrong header size value in `wqe_inline_header_mode` input.
- When `MKEY_BY_NAME` was enabled by `NVCONFIG` and a large number of VFs were configured, VM restart (VF/PF FLR) will take longer than when `MKEY_BY_NAME` is disabled.
- On rare cases, a fatal error related to errors from the PCI transport layer might be reported during FLR.

An issue that caused the device to go to dead IRISC as one of the firmware semaphores could not be released when a speed change or port state change was triggered.

**Following issues have been fixed in firmware version 16.29.1016:**

- o Changed the default value of DCQCN's (Data center- Quantized Congestion Notification) NP parameter min\_time\_between\_cnps to 4 on all devices to support larger scalability of cluster.
- o An issue that prevented VXLAN packets with svlan/ cvlan tag from being matched.
- o The eth\_wqe\_too\_small counter to count ODP page used to fail.
- o When MKEY\_BY\_NAME was enabled by NVCONFIG and a large number of VFs are configured, VM restart (VF/PF FLR) will take longer than when MKEY\_BY\_NAME is disabled.
- o An issue that resulted in low performance after enabling the RoCE Accelerator capability.
- o On rare cases, a fatal error related to errors from the PCI transport layer might be reported during FLR.
- o The chassis manager calculation for Multi-Host and Socket-Direct adapter cards to allow running NC-SI commands by the chassis manager BMC. Now the chassis manager is count as BMC with index 0, regardless of how many BMC there are.
- o An issue that caused the device to go to dead IRISC as one of the firmware semaphores could not be released when a speed change or port state change was triggered.

**Enhancements**

**Firmware for the following devices are updated to 2.42.5044 :**

- 779799-B21 (HPE Ethernet 10G 2-port 546FLR-SFP+ Adapter)
- 779793-B21 (HPE Ethernet 10G 2-port 546SFP+ Adapter)

**Firmware for the following devices are updated to 14.29.1016:**

- 817749-B21 (HPE Ethernet 25Gb 2-port 640FLR-SFP28 Adapter)

**Firmware for the following devices are updated to 14.29.1016:**

- 817753-B21 (HPE Ethernet 25Gb 2-port 640SFP28 Adapter)

**Firmware for the following device is updated to 16.29.1016:**

- 874253-B21 (HPE Ethernet 100Gb 1-port 842QSFP28 Adapter)

**New features and changes in version 14.29.1016:**

Added support for the following features:

- o A new counter per vPort that counts the number of packets that reached the Ethernet RQ but cannot fit into the WQE due to their large size. Additionally, we added the option to control if such packet will cause "CQE with Error" or "CQE MOCK".
- o cq\_omerrun counter: This counter represents the number of times CQs enter an error state due to overflow that occur when the device tries to post a CQE into a full CQ buffer.
- o Enabled the capability to allow Virtual Functions to send Pause Frames packets.
- o Enabled 10/25GbE auto-sensing with 3rd party when using 10/25GbE optical cables.
- o Hardware steering dump output used for debugging and troubleshooting.

**New features and changes in version 16.28.1016:**

Added support for following features:

- o An option to allow applications to build their own QoS tree over the NIC hierarchy by connecting QPs to responder/requestor Queue Groups.
- o "InfiniBand" properties set to the Network Device Function Redfish object.
- o HW support for Flow Metering to utilize Advanced Steering Operation (ASO). HW Flow Meter allows higher scale, more accuracy, and better performance compare to the FW Flow Metering.
- o Trust level for VFs. Once the VF is trusted, it will get a set of trusted capabilities.
- o 2 new Mini CQE formats: Responder Mini CQE With Flow Tag Layout Responder Mini CQE With I3\_I4\_info Layout
- o UCX can now enable AR by exposing Out-Of-Ordering bitmask per SL with "ooo\_per\_sl" field in the HCA\_VPORT context. It can be also queried by running the QUERY\_HCA\_VPORT\_CONTEXT command.
- o Steering DP hash flow groups.
- o A new counter per vPort that counts the number of packets that reached the Ethernet RQ but cannot fit into the WQE due to their large size. Additionally, we added the option to control if such packet will cause "CQE with Error" or "CQE MOCK".
- o PCIe Rx modifications to prevent the adapter cards from disappearing from the system.
- o ignore\_flow\_level is now enabled by the TRUST LEVEL access registry.
- o cq\_omerrun counter. The counter represents the number of times CQs enter an error state due to overflow that occur when the device tries to post a CQE into a full CQ buffer.
- o [Beta] Enabled the capability to allow Virtual Functions to send Pause Frames packets.
- o Enabled 10/25GbE auto-sensing with 3rd party when using 10/25GbE optical cables.
- o Hardware steering dump output used for debugging and troubleshooting.

**Supported Devices and Features**

HPE Part Number	Mellanox Ethernet Only Adapters	PSID
779793-B21	HPE Ethernet 10Gb 2-port 546SFP+ Adapter	HP_1200111023
779799-B21	HPE Ethernet 10Gb 2-port 546FLR-SFP+ Adapter	HP_2240110004
817749-B21	HPE Ethernet 25Gb 2-port 640FLR-SFP28 Adapter	HP_2690110034
817753-B21	HPE Ethernet 25Gb 2-port 640SFP28 Adapter	HP_2420110034
874253-B21	HPE Ethernet 100Gb 1-port 842QSFP28 Adapter	HPE000000014

Online Firmware Upgrade Utility (ESXi 7.0) for HPE Mellanox VPI (Ethernet and Infiniband mode) ConnectX4 and ConnectX5 devices on VMware ESXi 7.0  
 Version: 1.0.1 (Recommended)  
 Filename: CP045147.compsig; CP045147.zip

**Important Note!**

**Known Issues with firmware version 12.28.1002:**

- o When MKEY\_BY\_NAME is enabled by NVCONFIG and a large number of VFs are configured, VM restart (VF/PF FLR) will take longer than when MKEY\_BY\_NAME is disabled.

### Known Issues with firmware version 16.29.1016:

- Multi-APP QoS is not supported when LAG is configured.
- Sub 1sec firmware update (fast reset flow) is not supported when updating from previous releases to the current one. Doing so may cause network disconnection events.  
**Workaround:** Use full reset flow for firmware upgrade/downgrade.
- On systems with high PCIe latency (2us or above), lower bandwidth may be experienced.  
**Workaround:** If such issue is observed:
  - Enable ZTT to overcome the high latency. Run: `mlxconfig -d set ZERO_TOUCH_TUNING_ENABLE=1`
  - Reset or power cycle the firmware for change to take effect
- When `PER_PF_NUM_SF=1` (per PF configurations are used for SFs), if the number of SFs configured for a PF is 0 (`PF_TOTAL_SF=0`), then the firmware wrongly opens BAR2 with size 128KB.
- The following are the Steering Dump limitations:
  - Supported only on ConnectX-5 adapter cards
  - Requires passing the version (FW/Stelib/MFT) and device type to stelib
  - Re-format is not supported
  - Advanced multi-port feature is not supported `-LAG/ROCE_AFFILIATION/MPFS_LB/ESW_LB` (only traffic `vhca <-> wire`)
    - Packet types supported:
      - Layer 2 Eth
      - Layer 3 IPv4/IPv6/Grh
      - Layer 4 TCP/UDP/Bth/GreV0/GreV1
      - Tunneling VXLAN/Geneve/GREv0/Mpls
  - FlexParser protocols are not supported (e.g. AliVxlan/VxlanGpe etc..).
  - Compiles only on x86
- When configuring adapter card's Level Scheduling, a QoS tree leaf (`QUEUE_GROUP`) configured with default `rate_limit` and default `bw_share`, may not obey the QoS restrictions imposed by any of the leaf's ancestors.  
**Workaround:** To prevent such a case, configure at least one of the following QoS attributes of a leaf: `max_average_bw` or `bw_share`.
- Occasionally, Tag Matching RNDV and NVME emulation wasn't behaving as expected.
- Congestion Control may not work properly if the card supports two ports and each PF for each port is not raised at the same time.

### Fixes

#### Following issues have been fixed in firmware version 16.29.1016:

- An issue that prevented VXLAN packets with `svlan/ cvlan` tag from being matched.
- An issue that caused the `eth_wqe_too_small` counter to count ODP (On-Demand Paging) page faults.
- When `MKEY_BY_NAME` was enabled by `NVCONFIG` and a large number of VFs are configured, VM restart (VF/PF FLR) will take longer than when `MKEY_BY_NAME` is disabled.
- An issue that resulted in low performance after enabling the RoCE Accelerator capability. Note: The fix is available when all ports are set as Ethernet.
- On rare cases, a fatal error related to errors from the PCI transport layer might be reported during FLR.
- The chassis manager calculation for Multi-Host and Socket-Direct adapter cards to allow running NC-SI commands by the chassis manager BMC. Now the chassis manager is count as BMC with index 0, regardless of how many BMC there are.
- An issue that caused the device to go to down IRISC as one of the firmware semaphores could not be released when a speed change or port state change was triggered.

#### Following issues have been fixed in firmware version 12.28.1002:

- An issue that caused the DCR to be destroyed before the retry option managed to work when the retry timeout is too big. In this case the DCR' time-to-live was increased, and the maximum retry timeout was decreased.
- Increased PHY power consumption limit to 1.5w.
- An issue that caused `PortCounters.PortRcvErr / PPCNT.infiniband_counters.PortRcvErr` not to report port icrc errors.

### Enhancements

#### Firmware for the following devices are updated to 12.28.1002:

825110-B21 (HPE InfiniBand EDR/Ethernet 100Gb 1-port 840QSFP28 Adapter)  
825111-B21 (HPE InfiniBand EDR/Ethernet 100Gb 2-port 840QSFP28 Adapter)

#### New Feature and Changes in Version 12.28.1002:

- Increased the maximum XRQ number to 512.

#### Firmware for the following devices are updated to 16.29.1016:

879482-B21 (HPE InfiniBand FDR/Ethernet 40/50Gb 2-port 547FLR-QSFP Adapter)  
872726-B21 (HPE InfiniBand EDR/Ethernet 100Gb 2-port 841QSFP28 Adapter)

#### New Feature and Changes in Version 16.29.1016:

Added support for the following features:

- Changed the default value of DCQCN's (Data center- Quantized Congestion Notification) NP parameter `min_time_between_cnps` to 4 on all devices to support larger scalability of cluster.
- An option to allow applications to build their own QoS tree over the NIC hierarchy by connecting QPs to responder/requestor Queue Groups.
- "InfiniBand" properties set to the Network Device Function Redfish object.
- HW support for Flow Metering to utilize Advanced Steering Operation (ASO). HW Flow Meter allows higher scale, more accuracy, and better performance compared to the FW Flow Metering.
- Trust level for VFs. Once the VF is trusted, it will get a set of trusted capabilities.
- 2 new Mini COE formats: Responder Mini COE With Flow Tag Layout Responder Mini COE With I3\_I4\_info Layout
- UCX can now enable AR by exposing Out-Of-Ordering bitmask per SL with "ooo\_per\_sl" field in the HCA\_VPORT context. It can be also queried by running the `QUERY_HCA_VPORT_CONTEXT` command.
- Steering DP hash flow groups.
- A new counter per vPort that counts the number of packets that reached the Ethernet RQ but cannot fit into the WQE due to their large size. Additionally, we added the option to control if such packet will cause "COE with Error" or "COE MOCK".
- PCIe Rx modifications to prevent the adapter cards from disappearing from the system.
- `ignore_flow_level` is now enabled by the TRUST LEVEL access registry.
- `cq_overnrun` counter. The counter represents the number of times CQs enter an error state due to overflow that occur when the device tries to post a COE into a full CQ buffer.
- [Beta] Enabled the capability to allow Virtual Functions to send Pause Frames packets.
- Enabled 10/25GbE auto-sensing with 3rd party when using 10/25GbE optical cables.
- Hardware steering dump output used for debugging and troubleshooting.

## Supported Devices and Features

HPE Part Number	Device Name	PSID
825110-B21	HPE InfiniBand EDR/Ethernet 100Gb 1-port 840QSFP28 Adapter	HP_2180110032
825111-B21	HPE InfiniBand EDR/Ethernet 100Gb 2-port 840QSFP28 Adapter	HP_2190110032
872726-B21	HPE InfiniBand EDR/Ethernet 100Gb 2-port 841QSFP28 Adapter	HPE0000000009
879482-B21	HPE InfiniBand FDR/Ethernet 40/50Gb 2-port 547FLR-QSFP Adapter	HPE0000000022

Online Firmware Upgrade Utility (ESXi 7.0) for HPE Mellanox VPI (Ethernet and Infiniband mode) ConnectX6 devices on VMware ESXi 7.0

Version: 1.0.1 (**Recommended**)

Filename: CP044871.compsig; CP044871.zip

## Important Note!

ConnectX-6 VPI supports having one port as InfiniBand and the other port as Ethernet according to the following matrix of combinations.

Port #2 - InfiniBand				
Port #1 - Ethernet	HDR/HDR100	EDR	FDR	QDR
50GbE	supported	not supported	not supported	supported
100GbE/25GbE	supported	not supported	not supported	supported
40GbE/10GbE	supported	not supported	not supported	supported
1GbE	supported	not supported	not supported	supported

Port #2 - Ethernet				
Port #1 - InfiniBand	50GbE	100GbE/25GbE	40GbE/10GbE	1GbE
HDR / HDR100	supported	supported	not supported	supported
EDR	supported	supported	not supported	supported
FDR	not supported	not supported	not supported	not supported
QDR/SDR	supported	supported	not supported	supported

## Prerequisites

Use iLO5 firmware version 2.30 or higher with ConnectX6 firmware version 20.27.6008. Thermal sensor reporting on the adapter will not be functional with older versions of iLO5 firmware.

## Fixes

The following issues have been fixed in version 20.29.1016:

- Changed the default value of DCQCN's (Data center- Quantized Congestion Notification) NP parameter min\_time\_between\_cnps to 4 on all devices to support larger scalability of cluster.
- An issue that prevented VXLAN packets with svlan/cvlan tag from being matched.
- The eth\_wqe\_too\_small counter to count ODP (On-Demand Paging) page used to fail.
- An issue related to raising 100GbE link on ConnectX-6 VPI 100Gb/s adapter cards.
- When MKEY\_BY\_NAME was enabled by NVCONFIG and a large number of VFs are configured, VM restart (VF/PF FLR) will take longer than when MKEY\_BY\_NAME is disabled.
- Low performance occurred after enabling the RoCE Accelerator capability.
- On rare cases, a fatal error related to errors from the PCI transport layer might be reported during FLR.

## Enhancements

Firmware for the following devices are updated to 20.29.1016:

HPE InfiniBand HDR/Ethernet 200Gb 1-port 940QSFP56 x16 Adapter - P06154-B21  
HPE InfiniBand HDR100/Ethernet 100Gb 1-port 940QSFP56 x16 Adapter - P06250-B21  
HPE InfiniBand HDR100/Ethernet 100Gb 2-port 940QSFP56 x16 Adapter - P06251-B21

New Features and Changes in Version 20.29.1016:

Added support for following features:

- LinkX module burning via MFT toolset. The new capability enables direct firmware burning from the internal flash storage to reduce the bandwidth and accelerate the burning process, including burning several modules at a time.
- An option to allow applications to build their own QoS tree over the NIC hierarchy by connecting QPs to responder/requestor Queue Groups.
- Improved NRZ link performance (RX algorithm).
- Improved NRZ link-up time (25G/50G/100G speeds).
- Enabled the options to control different Tx sets for the same attribute when connecting a Mellanox-Mellanox vs Mellanox to 3rd party HCA.
- "InfiniBand" properties set to the Network Device Function Redfish object.
- Direct Packet Placement (DPP): DPP is a receive side transport service in which the Ethernet packets are scattered to the memory according to a packet sequence number (PSN) carried by the packet, and not by their arrival order.
- To enable DPP offload, the software should create a special RQ by using the CREATE\_RQ command, and set DPP relevant attributes.
- Added trust level for VFs. Once the VF is trusted, it will get a set of trusted capabilities.
- UCX can now enable AR by exposing Out-Of-Ordering bitmask per SL with "ooo\_per\_sl" field in the HCA\_VPORT context. It can be also queried by running the QUERY\_HCA\_VPORT\_CONTEXT command.
- Enhanced IB Congestion Control to support lower minimum rate. Now it uses destination-lid to classify flows to handle larger scale, and achieve better results in GPCNeT benchmark.
- Hardware steering dump output used for debugging and troubleshooting.

## Supported Devices and Features

HPE Part Number	Device Name	PSID
P06154-B21	HPE InfiniBand HDR/Ethernet 200Gb 1-port 940QSFP56 x16 Adapter	HPE0000000034
P06250-B21	HPE InfiniBand HDR100/Ethernet 100Gb 1-port 940QSFP56 x16 Adapter	HPE0000000035
P06251-B21	HPE InfiniBand HDR100/Ethernet 100Gb 2-port 940QSFP56 x16 Adapter	HPE0000000036

Online Firmware Upgrade Utility (ESXi 7.0) for HPE Mellanox VPI (Ethernet and Infiniband mode) devices on VMware ESXi 7.0

Version: 1.0.1 (**Recommended**)

Filename: CP045904.compsig: CP045904.zip

### Important Note!

#### Known Issues in firmware 2.42.5000, 2.42.5056, 2.42.5700:

- When using the Quad Small Form-factor Pluggable (QSFP) module RTX320-581, and performing a driver restart for the firmware upgrade/downgrade to take effect, the link does not come up.  
**Workaround:** Reboot the server.
- Enabling/disabling cq\_timestamp using mlxconfig is not supported.
- In a card with 2 separate LEDs scheme (a Phy LED and a logic LED) only the Phy LED will lit. Meaning, the orange LED will not be active while the ETH link is in an idle mode.
- In SR-IOV setup, using mlxconfig when the Packet Filter (PF) is passed through to a VM requires a reboot of the Hypervisor.
- Downgrading from v2.30.8000 or later to an earlier version than 2.30.8000 requires server reboot.  
**Workaround:** Reboot the server.
- On ConnectX-3 Ethernet adapter cards, there is a mismatch between the GUID value returned by firmware management tools and that returned by fabric/driver utilities that read the GUID via device firmware (e.g., using ibstat). Mlxburn/flint return 0xffff as GUID while the utilities return a value derived from the MAC address. For all driver/firmware/software purposes, the latter value should be used.  
**Workaround:** Please use the GUID value returned by the fabric/driver utilities (not 0xffff).
- SBR should be asserted for a minimum of 50 milliseconds for the ConnectX-3 adapters.
- On Pilot1 SL230, PCIe link occasionally does not come up at Gen3 speed.
- RHEL6.3 Inbox driver causes kernel panic when SRIOV is enabled on VPI cards due to driver compatibility issue.  
**Workaround:** Set the "do\_- sense=false" parameter in the [IB\_TAB] i.
- In advanced steering mode, side band management connectivity may be lost when having more than 8 QP per mcg.
- When SR-IOV is disabled in the system BIOS, a PCI issue is noticed in Ubuntu v12.04.3 with Linux kernel v3.8 which affects NICs of several manufacturers including Mellanox's, preventing them from operating.  
**Workaround:** Enable SR-IOV in the BIOS.
- Mellanox Firmware Tools (MFT) might leave the flash semaphore locked if the tool operation is forced stopped. The locked semaphore prevents the firmware from accessing the flash and causes firmware hang.  
**Workaround:** Clear the semaphore using MFT command: 'flint -clear\_semaphore'
- Cable Info MAD reports a wrong cable info when using the MC2210411-SR4 module.
- Gen2 failure at temperature sweep up to 10C/min (for MT27518A1-FDIR-BV only)..
- PCIe Gen2 link unstable at temperature sweep of 10C/min for MT27518A1-FDIR-BV.
- Bloom filter is currently not supported.
- When downgrading from firmware v2.11.0000 and using MFT 3.0.0-3, the following message is displayed due to the mlxconfig tool: You are trying to override configurable FW by non-configurable FW. If you continue, old FW configurations will be cleared, do you want to continue ? (y/n) [n] : y You are trying to restore default configuration, do you want to continue ? (y/n) [n] : y.
- DMFS should not be enabled when working with InfiniBand on MLNX\_OFED-2.0.3
- ConnectX®-3 Pro VF device ID is presented the same as ConnectX®-3 VF device ID due to driver limitations.  
**Workaround:** Use the physical function device ID to identify the device.
- Virtual Product Data (VPD) read-only fields are writable.  
**Workaround:** Do not write to read-only fields if you wish to preserve them.
- When working in Virtual Path Identifier (VPI) mode with port1 FDR and port2 40G, error counters misbehave and increase rapidly.
- Setting the device to 128Byte CQ/EQ stride will cause misbehavior of sideband management resulting in communication loss.
- CQ and EQ cannot be configured to different stride sizes.
- Changing port protocol from ETH to IB on port with NCSI/IPMI enabled while the port is connected to ETH switch is not supported.  
**Workaround:** 1. Unplug the cable from the switch 2. Restart driver 3. Change the protocol via the appropriate tools.
- Adapter card MCX349A-XCCN may experience longer linkup times of a few seconds with specific switches.
- Adapter card MCX349A-XCCN does not respond to ethtool "identify" command (ethtool -p/--identify).
- Remote Desktop Protocol (RDP) over IPv6 is currently not functional.  
**Workaround:** Set the default RoCE mode in the software to RoCE v2 (also when not using RoCE)
- Sniffer QP cannot be removed from the regular rule after adding the QP with insertion scheme equals to "push to that rule".
- Since only a single Boot Entry Vector (BEV) per PCI Physical Function is supported, disabling the first port causes the second port to disappear as well.
- The NIC does not notify the driver of a link-down incident when a cable is unplugged from a NIC port with 56GbE port link.
- 56GbE link is not raised when using 100GbE optic cables.
- When working with MLNX\_OFED v3.3-1.0.0.0, server reboot could get stuck due to a kernel panic in mlx4\_en\_get\_drvinfo() that is called from asynchronous event handler.
- When running ibdump, loopback traffic is mirroring into the kernel driver.
- MAC address that are set from the OS using ifconfig are not reflected in the OCBB buffer.
- The adapter card cannot raise a 10G link vs. a 40GE capable switch port in C7000 enclosure. It can raise a 1G Link and only if the switch port allows it.
- MTUSB communication via I2C header on primary I2C bus is supported only in live-fish mode.

### Fixes

#### Fixes in version 2.42.5000:

- PortRcvPkts counter was prevented from being cleared after resetting it.
- The system Timed Out on the configuration cycle of the Virtual Functions (VFs) when more than 10 Virtual Functions performed FLR and the completion Time Out value was configured to a range of less than 16 msec.
- The server hangs and results in NMI when running "mlxftop -d mt4103\_pci\_cr0" while restarting the driver in parallel (from a different thread). In this case, the downstream bridge over the device reported completion timeout error.
- In flow\_steering, BMC could not receive a ping over IPV6 after running bmc\_reboot.
- While closing the HCA, the RX packet caused bad access to resources that did not exist, and consequently caused the QPCGW or the irisc to get stuck.
- The master SMLID and the LID was either 0 or 0xFFFF when the port was neither active nor armed.
- ibdump could not capture all MADs packets.
- link did not go up after reboot.
- Fixed a rare issue that cause the PCIe configuration cycle that arrived during the time of sw\_reset to generate 2 completions.
- Network Controller Sideband Interface (NC-SI) did not work when adding the disable\_static\_steering\_ini field in the ini file, due to memory allocation issue for this field in the scratchpad.

#### Fixes in version 2.42.5056:

Fixed an issue that resulted in reading from invalid I/O address on handover from UEFI boot to OS boot, when a port was configured as InfiniBand on a VPI adapter device.

## Enhancements

### Firmware for the following devices are updated to 2.42.5000:

764282-B21  
764286-B21

### Firmware for the following devices are updated to 2.42.5056:

764283-B21  
764284-B21

### Firmware for the following device is updated to 2.42.5700:

764285-B21

### New features in firmware version 2.42.5000:

- o Added support for the following features.
  - new TLV: CX3\_GLOBAL\_CONF to enable/disable timestamp on incoming packets through mlxconfig configuration.
  - User MAC configuration.
  - Automatically collecting mstdump before driver reset.
  - A mechanism to detect DEAD\_IRISC (plastic) from TPT (iron) and raise an assert.
  - A new field is added to "set port" command which notifies the firmware what is the user\_mtu size.
- o Improved the debug ability for command timeout cases.

### New features and changes in firmware version 2.42.5700.

- o Modified the mlx\_cmd\_get\_mlx\_link\_status command return value to return "Link Type = Ethernet" in Ethernet adapter cards.

## Supported Devices and Features

### Supported Devices:

HPE Part Number	Device Name	PSID
764282-B21	HPE InfiniBand QDR/Ethernet 10Gb 2-port 544+M Adapter	HPE_1350110023
764283-B21	HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+M Adapter	HPE_1360110017
764284-B21	HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+QSFP Adapter	HPE_1370110017
764285-B21	HPE InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+FLR-QSFP Adapter	HPE_1380110017
764286-B21	HPE InfiniBand QDR/Ethernet 10Gb 2-port 544+FLR-QSFP Adapter	HPE_1390110023

Online Firmware Upgrade Utility (ESXi 7.0) for Mellanox Open Ethernet cards

Version: 1.0.1 **(Recommended)**

Filename: CP045142.zip; CP045142\_part1.compsig; CP045142\_part2.compsig

## Important Note!

### Known Issues in firmware 14.29.1016:

- Sub 1sec firmware update (fast reset flow) is not supported when updating from previous releases to the current one. Doing so may cause network disconnection events.  
Workaround: Use full reset flow for firmware upgrade/downgrade.
- On systems with high PCIe latency (2us or above), lower bandwidth may be experienced.  
Workaround: If such issue is observed:
  - Enable ZTT to overcome the high latency. Run: `mlxconfig -d <mst device> set ZERO_TOUCH_TUNING_ENABLE=1`
  - Reset or power cycle the firmware for change to take effect
  - Low performance might be experienced when upgrading from previous firmware version to 14.29.1000 when using "Fast FW Reset".
- The following are the Steering Dump limitations:
  - Supported only on ConnectX-5 adapter cards.
  - Requires passing the version (FW/Stelib/MFT) and device type to stelib.
  - Re-format is not supported
  - Advanced multi-port feature is not supported – LAG/ROCE\_AFFILIATION/MPFS\_LB/ ESW\_LB (only traffic vhca <-> wire).
    - Packet types supported:
      - Layer 2 Eth
      - Layer 3 IPv4/IPv6/Grh
      - Layer 4 TCP/UDP/Bth/GreV0/GreV1
      - Tunneling VXLAN/Geneve/GREv0/Mpls FlexParser protocols are not supported (e.g AliVxlan/VxlanGpe etc..).
  - FlexParser protocols are not supported (e.g AliVxlan/VxlanGpe etc..).
  - Compiles only on x86
- Congestion Control may not work properly if the card supports two ports and each PF for each port is not raised at the same time.

### Known Issues with firmware version 16.29.1016:

- Multi-APP QoS is not supported when LAG is configured.
- When PER\_PF\_NUM\_SF=1 (per PF configurations are used for SFs), if the number of SFs configured for a PF is 0 (PF\_TOTAL\_SF=0), then the firmware wrongly opens BAR2 with size 128KB.  
Workaround: N/A
- When configuring adapter card's Level Scheduling, a QoS tree leaf (QUEUE\_GROUP) configured with default rate\_limit and default bw\_share, may not obey the QoS restrictions imposed by any of the leaf's ancestors.  
Workaround: To prevent such a case, configure at least one of the following QoS attributes of a leaf: max\_average\_bw or bw\_share.
- Occasionally, Tag Matching RNDV and NVME emulation was not behaving as expected.  
Workaround: N/A

Note: On Adapter Firmware rewrite scenario, SUM will always discover the Mellanox Open adapter firmware smart component as applicable and select it for deployment if the server iLO5 firmware version is older than 2.30.

## Fixes

**Following issues have been fixed in firmware version 14.29.1016 and 16.29.1016:**

- o Changed the default value of DCQCN's NP parameter min\_time\_between\_cnps to 4 on all devices to support larger scalability of cluster.
- o An issue that caused packets to drop due to header size issues and/or failing checks. This issue was caused due to a Linux issue that caused VFs to set the wrong header size value in wqe\_inline\_header\_mode input.
- o When MKEY\_BY\_NAME was enabled by NVCONFIG and a large number of VFs are configured, VM restart (VF/PF FLR) might take longer than when MKEY\_BY\_NAME was disabled.
- o In rare cases, a fatal error related to errors from the PCI transport layer might be reported during FLR.
- o An issue that caused the device to go to dead IRISC as one of the firmware semaphores could not be released when a speed change or port state change was triggered.

**Following issues have been fixed in firmware version 16.29.1016:**

- o An issue that caused the eth\_wqe\_too\_small counter to count ODP page faults.
- o A low performance was observed after enabling the RoCE Accelerator capability.

**Enhancements**

**Firmware for the following devices is updated to 14.29.1016:**

P21930-B21 (HPE Ethernet 10Gb 2-port SFP+ MCX4121A-XCAT Adapter)  
 P11341-B21 (HPE Ethernet 10Gb 2-port SFP+ MCX4621A-ACAB OCP3 Adapter)

**Firmware for the following devices is updated to 16.29.1016:**

P13188-B21 (HPE Ethernet 10/25Gb 2-port SFP28 MCX512F-ACAT Adapter)  
 P21927-B21 (HPE Ethernet 100Gb 2-Port QSFP28 MCX516A-CCHT Adapter)  
 P10112-B21 (HPE Ethernet 10/25Gb 2-port SFP28 MCX562A-ACAI OCP3 Adapter)

**This release contains important reliability improvements and security hardening enhancements. Upgrade the firmware of the device to this release to improve the devices' firmware security and reliability.**

**New Feature and Changes in Version 14.29.1016 and 16.29.1016:**

- Ethernet wqe\_too\_small Mode: A per vPort that counts the number of packets that reached the Ethernet RQ but cannot fit into the WQE due to their large size. Additionally, we added the option to control if such packet will cause "COE with Error" or "COE MOCK".
- Hardware steering dump output used for debugging and troubleshooting.

Added support for the following features:

- cq\_overrun counter: The counter represents the number of times CQs enter an error state due to overflow that occur when the device tries to post a COE into a full CQ buffer.
- Enabled the capability to allow Virtual Functions to send Pause Frames packets. (Beta)
- Enabled 10/25GbE auto-sensing with 3rd party when using 10/25GbE optical cables.

**New Feature and Changes in Version 16.29.1016:**

- Hardware steering dump output used for debugging and troubleshooting.

Added support for the following features:

- HW support for Flow Metering to utilize Advanced Steering Operation (ASO). HW Flow Meter allows higher scale, more accuracy, and better performance compare to the FW Flow Metering.
- Trust level for VFs. Once the VF is trusted, it will get a set of trusted capabilities.
- 2 new Mini COE formats:
  - Responder Mini COE With Flow Tag Layout.
  - Responder Mini COE With I3\_I4\_info Layout.
- Steering DP hash flow groups.
- ignore\_flow\_level is now enabled by the TRUST LEVEL access registry.

**Supported Devices and Features**

HPE Part Number	Mellanox Ethernet Only Adapters	PSID
P21930-B21	HPE Ethernet 10Gb 2-port SFP+ MCX4121A-XCAT Adapter	MT_0000000414
P11341-B21	HPE Ethernet 10Gb 2-port SFP+ MCX4621A-ACAB OCP3 Adapter	MT_0000000238
P13188-B21	HPE Ethernet 10/25Gb 2-port SFP28 MCX512F-ACAT Adapter	MT_0000000416
P10112-B21	HPE Ethernet 10/25Gb 2-port SFP28 MCX562A-ACAI OCP3 Adapter	MT_0000000241
P21927-B21	HPE Ethernet 100Gb 2-port QSFP28 MCX516A-CCHT Adapter	MT_0000000417

Online Firmware Upgrade Utility (ESXi 7.0) for Mellanox Open VPI (Ethernet and Infiniband mode) ConnectX6 devices on VMware ESXi 7.0  
 Version: 1.0.1 **(Recommended)**  
 Filename: CP044866.compsig; CP044866.zip

**Important Note!**

ConnectX-6 VPI supports having one port as InfiniBand and the other port as Ethernet according to the following matrix of combinations.

Port #2 - InfiniBand				
Port #1 - Ethernet	HDR/HDR100	EDR	FDR	QDR
50GbE	supported	not supported	not supported	supported
100GbE/25GbE	supported	not supported	not supported	supported
40GbE/10GbE	supported	not supported	not supported	supported
1GbE	supported	not supported	not supported	supported

Port #2 - Ethernet				
Port #1 - InfiniBand	50GbE	100GbE/25GbE	40GbE/10GbE	1GbE

<b>HDR / HDR100</b>	supported	supported	not supported	supported
<b>EDR</b>	supported	supported	not supported	supported
<b>FDR</b>	not supported	not supported	not supported	not supported
<b>QDR/SDR</b>	supported	supported	not supported	supported

### Prerequisites

Use iLO5 firmware version 2.30 or higher with ConnectX5/ConnectX6 firmware version 20.27.6202. Thermal sensor reporting on the adapter will not be functional with older versions of iLO5 firmware.

### Fixes

The following issues have been fixed in version 20.29.1016:

- o Changed the default value of DCQCN's (Data center- Quantized Congestion Notification) NP parameter min\_time\_between\_cnps to 4 on all devices to support larger scalability of cluster.
- o An issue that prevented VXLAN packets with svlan/cvlan tag from being matched.
- o The eth\_wqe\_too\_small counter to count ODP (On-Demand Paging) page used to fail.
- o An issue related to raising 100GbE link on ConnectX-6 VPI 100Gb/s adapter cards.
- o When MKEY\_BY\_NAME was enabled by NVCONFIG and a large number of VFs are configured, VM restart (VF/PF FLR) will take longer than when MKEY\_BY\_NAME is disabled.
- o Low performance occurred after enabling the RoCE Accelerator capability.
- o On rare cases, a fatal error related to errors from the PCI transport layer might be reported during FLR.

### Enhancements

Firmware for the following devices are updated to 20.29.1016:

- o HPE InfiniBand HDR/Ethernet 200Gb 1-port MCX653105A-HDAT QSFP56 x16 Adapter - P23664-B21
- o HPE InfiniBand HDR100/Ethernet 100Gb 1-port MCX653105A-ECAT QSFP56 x16 Adapter - P23665-B21
- o HPE InfiniBand HDR100/Ethernet 100Gb 2-port MCX653106A-ECAT QSFP56 x16 Adapter - P23666-B21

New Features and Changes in Version 20.29.1016:

Added support for following features:

- o LinkX module burning via MFT toolset. The new capability enables direct firmware burning from the internal flash storage to reduce the bandwidth and accelerate the burning process, including burning several modules at a time.
- o An option to allow applications to build their own QoS tree over the NIC hierarchy by connecting QPs to responder/requestor Queue Groups.
- o Improved NRZ link performance (RX algorithm).
- o Improved NRZ link-up time (25G\50G\100G speeds).
- o Enabled the options to control different Tx sets for the same attribute when connecting a Mellanox-Mellanox vs Mellanox to 3rd party HCA.
- o "InfiniBand" properties set to the Network Device Function Redfish object.
- o Direct Packet Placement (DPP): DPP is a receive side transport service in which the Ethernet packets are scattered to the memory according to a packet sequence number (PSN) carried by the packet, and not by their arrival order.
- o To enable DPP offload, the software should create a special RQ by using the CREATE\_RQ command, and set DPP relevant attributes.
- o Added trust level for VFs. Once the VF is trusted, it will get a set of trusted capabilities.
- o UCX can now enable AR by exposing Out-Of-Ordering bitmask per SL with "ooo\_per\_sl" field in the HCA\_VPORT context. It can be also queried by running the QUERY\_HCA\_VPORT\_CONTEXT command.
- o Enhanced IB Congestion Control to support lower minimum rate. Now it uses destination-lid to classify flows to handle larger scale, and achieve better results in GPCNeT benchmark.
- o Hardware steering dump output used for debugging and troubleshooting.

### Supported Devices and Features

HPE Part Number	Device Name	PSID
P23664-B21	HPE InfiniBand HDR/Ethernet 200Gb 1-port MCX653105A-HDAT QSFP56 x16 Adapter	MT_0000000451
P23665-B21	HPE InfiniBand HDR100/Ethernet 100Gb 1-port MCX653105A-ECAT QSFP56 x16 Adapter	MT_0000000452
P23666-B21	HPE InfiniBand HDR100/Ethernet 100Gb 2-port MCX653106A-ECAT QSFP56 x16 Adapter	MT_0000000453

### Firmware - NVDIMM

Firmware package for HPE Persistent Memory featuring Intel Optane DC Persistent Memory on HPE Gen10 Servers

Version: 01.02.00.5435 (B) **(Recommended)**

Filename: dcpmm\_01.02.00.5435.fwpkg

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### Important Note!

This software package contains Intel Optane DC Persistent Memory Firmware version 1.2.0.5435

### Enhancements

- o This product contains mainly performance improvements.
- o This product now supports Red Hat Enterprise Linux 8, SUSE Linux Enterprise Server 12 and VMware ESXi 7.0.

### Supported Devices and Features

This package supports the following Memory Devices:

- o HPE 512GB 2666 Persistent Memory Kit featuring Intel Optane DC Persistent Memory
- o HPE 256GB 2666 Persistent Memory Kit featuring Intel Optane DC Persistent Memory
- o HPE 128GB 2666 Persistent Memory Kit featuring Intel Optane DC Persistent Memory

## Firmware - Storage Controller

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HPE D3600/D3700/D3610/D3710 12Gb SAS Disk Enclosure ROM Flash Component for VMware (ESXi)

Version: 5.04 (B) (**Recommended**)

Filename: CP045788.compsig; CP045788.md5; CP045788.zip

### Important Note!

**IMPORTANT:** Firmware updates must be performed during a system maintenance window, with all I/O to the system halted. In single domain configuration, if user hosts an OS in D3000(or any storage box) and flash the SEPs, it will hang/crash everytime as SmartComponent will reset the SEPs after flash/codeload.

**WARNING!** Do not power cycle or restart during the firmware update as this can result in loss of capabilities for this unit. It typically takes several minutes for the firmware to load.

**NOTE:** All firmware flash progress messages are logged to /var/cpq/D3000.log and flash summary is logged to /var/cpq/Component.log.

### Prerequisites

**IMPORTANT:** Firmware updates must be performed during a system maintenance window, with all I/O to the system halted.

**WARNING!** Do not power cycle or restart during the firmware update as this can result in loss of capabilities for this unit. It typically takes several minutes for the firmware to load.

**NOTE:** All firmware flash progress messages are logged to /var/cpq/D3000.log and flash summary is logged to /var/cpq/Component.log.

### Fixes

#### The following fixes were incorporated in this version:

- The Enabled-ClusterS2D command now completes successfully when executed on a SATA drive within a D3610 disk enclosure for a NonStop solution.
- The smart carrier, which is the drive case for SAS drives, now authenticates in the D3610/D3710 drive enclosure.
- Added new 7-segment error codes E0 and E1 to report issues with Fan modules A and B, respectively. These new codes only apply to the D3610/D3710 and only display when running firmware 5.04.
- If the storage enclosure processor within the I/O module fails, a hard reset (power down and then power up) is executed to ensure the processor comes back online.

Please refer to the [Release Notes](#) for the complete listing of fixes, enhancements, known issues and work-arounds corresponding to this firmware.

### Supported Devices and Features

The D3600 / D3700 / D3610 / D3710 Enclosure can be attached to any of the following HPE Storage Controllers and Host Bus Adapters :

- Smart Array P841 Controller
- Smart Array P441 Controller
- Smart HBA H241
- Smart Array P741m Controller
- Smart Array P408e-p Controller
- Smart Array E208e-p Controller
- Smart Array P408e-m Controller

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HPE D6020 12Gb SAS Disk Enclosure ROM Flash Component for VMware (ESXi)

Version: 2.74 (I) (**Recommended**)

Filename: CP045969.compsig; CP045969.md5; CP045969.zip

### Important Note!

**IMPORTANT:** Firmware updates must be performed during a system maintenance window, with all I/O to the system halted. In single domain configuration, if user hosts an OS in D6020(or any storage box) and flash the SEPs, it will hang/crash everytime as SmartComponent will reset the SEPs after flash/codeload.

**WARNING!** Do not power cycle or restart during the firmware update as this can result in loss of capabilities for this unit. It typically takes several minutes for the firmware to load.

**NOTE:** All firmware flash progress messages are logged to /var/cpq/D6020.log and flash summary is logged to /var/cpq/Component.log.

### Prerequisites

**IMPORTANT:** Firmware updates must be performed during a system maintenance window, with all I/O to the system halted.

**WARNING!** Do not power cycle or restart during the firmware update as this can result in loss of capabilities for this unit. It typically takes several minutes for the firmware to load.

**NOTE:** All firmware flash progress messages are logged to /var/cpq/D6020.log and flash summary is logged to /var/cpq/Component.log.

### Fixes

#### The following fixes were incorporated in this version:

- Temperature sensors logic inside gSEP model and SES database
- When an IOM is pulled the surviving IOM reports false critical temperatures

Please refer to the [Release Notes](#) for the complete listing of fixes, enhancements, known issues and work-arounds corresponding to this firmware.

### Supported Devices and Features

The D6020 Enclosure can be attached to any of the following HPE Storage Controllers and Host Bus Adapters :

- Smart Array P841 Controller
- Smart Array P441 Controller
- Smart HBA H241

- o Smart Array P741m Controller
- o Smart Array P408e-p Controller
- o Smart Array E208e-p Controller
- o Smart Array P408e-m Controller

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HPE D8000 12Gb SAS Disk Enclosure ROM Flash Component for VMware (ESXi)

Version: 0111 (**Recommended**)

Filename: CP046455.md5; CP046455.zip; CP046455\_part1.compsig; CP046455\_part2.compsig

### **Important Note!**

**IMPORTANT:** Firmware updates must be performed during a system maintenance window, with all I/O to the system halted. In single domain configuration, if user hosts an OS in D8000(or any storage box) and flash the SEPs, it will hang/crash everytime as SmartComponent will reset the SEPs after flash/codeload.

**WARNING!** Do not power cycle or restart during the firmware update as this can result in loss of capabilities for this unit. It typically takes several minutes for the firmware to load.

**NOTE:** All firmware flash progress messages are logged to /var/cpq/D8000.log and flash summary is logged to /var/cpq/Component.log.

### **Prerequisites**

**IMPORTANT:** Firmware updates must be performed during a system maintenance window, with all I/O to the system halted.

**WARNING!** Do not power cycle or restart during the firmware update as this can result in loss of capabilities for this unit. It typically takes several minutes for the firmware to load.

**NOTE:** All firmware flash progress messages are logged to /var/cpq/D8000.log and flash summary is logged to /var/cpq/Component.log.

### **Fixes**

**The following fixes were incorporated in this version:**

- o Incorrect programming of the PHY ERROR COUNTERS parameter caused the amber LED to be lit, resulting in a false warning. The counter condition was corrected and the amber LED now functions correctly.

Please refer to the [Release Notes](#) for the complete listing of fixes, enhancements, known issues and work-arounds corresponding to this firmware.

### **Supported Devices and Features**

The D8000 Enclosure can be attached to any of the following HPE Storage Controllers and Host Bus Adapters :

- o HPE Smart Array P408e-p Controller
- o HPE Smart Array E208e-p Controller

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HPE MR216i-a Gen10 Plus Tri Mode Controller

Version: 52.16.3-3913 (**Recommended**)

Filename: HPE\_MR216i-a\_Gen10P\_52.16.3-3913.fwpkg

### **Important Note!**

**This firmware version to be used on MR216i-a controllers.**

### **Enhancements**

Initial Release

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HPE MR216i-p Gen10 Plus Tri Mode Controller

Version: 52.16.3-3913 (**Recommended**)

Filename: HPE\_MR216i-p\_Gen10P\_52.16.3-3913.fwpkg

### **Important Note!**

**This firmware version to be used on MR216i-p controllers.**

### **Enhancements**

Initial Release

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HPE MR416i-a Gen10 Plus Tri Mode Controller

Version: 52.16.3-3913 (**Recommended**)

Filename: HPE\_MR416i-a\_Gen10P\_52.16.3-3913.fwpkg

### **Important Note!**

**This firmware version to be used on MR416i-a controllers.**

### **Enhancements**

Initial Release

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HPE MR416i-p Gen10 Plus Tri Mode Controller  
Version: 52.16.3-3913 **(Recommended)**  
Filename: HPE\_MR416i-p\_Gen10P\_52.16.3-3913.fwpkg

#### **Important Note!**

**This firmware version to be used on MR416i-pcontrollers.**

#### **Enhancements**

Initial Release

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HPE SR932i-p and SR416i-a Gen10 Plus Controllers  
Version: 03.01.04.072 **(Recommended)**  
Filename: HPE\_SRXXX\_Gen10P\_3.01.04.072.fwpkg

#### **Fixes**

- A potential controller lockup issue during a workload to a device configured in a RAID volume which is in process of failing.
- A potential controller lockup issue when a SATA drive is being failed with IO outstanding and the drive fails to respond to Identify Device after reset.
- Drive Unique ID are the same value for all unconfigured NVMe drives.
- Displaying truncated Model and FW version for Samsung NVMe drives.
- Background surface scan may not start if all the IOs to a volume use the SSD SmartPath.
- The reported link rate for NVMe drives is incorrectly reported when the desired port width is not the same as the actual port width linked up.
- SSD Smartpath is not re-enabled after a volume transformation has completed.
- The FAULT LED on an HPE UBM carrier is not lit if the drive fails during initial discovery.
- Reduced performance when the host is submitting large sequential IO streams at high queue depth.
- WRITE and READ fails on a RAID6 volume where it could have completed successfully on certain error recovery scenarios.
- Asynchronous host notify events may not be captured if the host has not consumed a previous event with similar details.
- A potential miscompare when a RAID-1 SmartPath write request encounters an error or when SmartPath is spuriously disabled with IO outstanding to a volume comprised of SATA devices.
- The drive resource Health/State shows as Critical/Absent when the drive in the array is hot removed.
- Failed HBA drives are not shown in HII.
- An error was observed while selecting the edit SmartCache logical drive option when the SmartCache logical drive was in degraded mode.
- Migrate Logical drive is displaying an error message for RAID 1(Triple) when trying to migrate strip size for the logical drive.
- A RSOD issue when the server is booted in legacy mode with UEFI driver debug enabled.
- Correct redfish storage properties(Drive.DurableNameFormat ,Drive.Operations and Port.PortProtocol).

#### **Enhancements**

- Added SSD Wear Gauge values for NVMe devices.
- Added the ability to better detect redundant firmware image corruption of several non-executable image components.
- Added support for StorageDevice RDE Alerts.
- Added support for Drive Last Failure reason status in the HII disk information menu.
- Improved performance of large sequential writes.

#### **Supported Devices and Features**

Supported Devices - SmartRAID SR932i-p and SR416i-a

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Online Firmware Flash for ESXi - HPE NS204i-p, NS204i-d, NS204i-t, NS204i-r Gen10+ Boot Controller  
Version: 1.0.14.1055 **(Critical)**  
Filename: CP047954.compsig; CP047954.zip

#### **Important Note!**

VMware **7.0u1 is** supported by HPE NS204i-p, NS204i-d, NS204i-t and NS204i-r Gen10+ Boot Controller

**VMware 7.0 is NOT supported by HPE NS204i-p, NS204i-d, NS204i-t and NS204i-r Gen10+ Boot Controller**

#### **Fixes**

Firmware may skip rebuilding chunks of data on the new drive when the drive rebuild is performed followed by a Redfish Read on servers with NS204i adapter card.

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Online ROM Flash Component for ESXi (x86) - HPE Smart Array P824i-p MR Gen10  
Version: 24.23.0-0043 (B) **(Recommended)**  
Filename: CP044443.compsig; CP044443.zip

#### **Enhancements**

Added support for VMware ESXi 7.0

---

Online ROM Flash Component for VMware ESXi - HPE Apollo 2000 Gen10 Plus Backplane Expander FW  
Version: 1.27 **(Recommended)**  
Filename: CP046386.compsig; CP046386.zip

#### **Enhancements**

Initial Release

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Online ROM Flash Component for VMware ESXi - HPE Apollo 4200 Gen10 Plus Backplane Expander Firmware  
Version: 0.37 (**Recommended**)  
Filename: CP044965.compsig; CP044965.zip

### Enhancements

Initial Release

Online ROM Flash Component for VMware ESXi - HPE SAS Expander Firmware for HPE D2500sb Storage Blade  
Version: 2.02 (A) (**Recommended**)  
Filename: CP044325.compsig; CP044325.zip

### Important Note!

- When using ESXi6.0 you must be at upgrade 3 or newer. The required SmartPQI driver is not present in earlier versions of the OS

### Prerequisites

When using ESXi6.0 you must be at upgrade 3 or newer. The required SmartPQI driver is not present in earlier versions of the OS

### Enhancements

Added ESXi 7.0 support.

Online ROM Flash Component for VMware ESXi - HPE Smart Array P408i-p, P408e-p, P408i-a, P408i-c, E208i-p, E208e-p, E208i-c, E208i-a, P408i-sb, P408e-m, P204i-c, P204i-b, P816i-a and P416ie-m SR Gen10  
Version: 4.11 (**Recommended**)  
Filename: CP047425.compsig; CP047425.zip

### Fixes

- Fixed an issue where SSD SmartPath is not enabled on logical drives created on the same array in certain scenarios.
- Fixed a problem where WRITE and READ fails with URE on a RAID6 volume where it could have completed successfully in certain error recovery scenarios.
- Fixed a problem where events were not getting logged in certain scenarios.
- Fixed an issue where a Windows memory dump process was taking longer than 30 minutes.
- Fixed a problem in Gen10 server where FAULT LED was not turning on for the drives failing during device discovery.
- Fixed a problem where the critical event "Controller memory ECC error limit exceeded" was reported in the AHS IML log after upgrading to 3.53 B0 firmware build.
- Fixed a problem where the host WRITE I/O failed on the SmartCache logical drive with UREs present on the primary logical drive.
- Fixed an issue where the controller may be non-responsive after drive failure with SSD SmartPath enabled under a high queue depth workload.
- Fixed a performance issue when the host is submitting large sequential IO streams at high queue depth.
- Fixed an issue where OS filesystem is not available after making configuration changes in HII.
- Fixed an issue where error was observed while selecting edit SmartCache Logical drive option when SmartCache logical drive is in Degraded mode.
- Fixed an issue where the serial output buffer could return an incorrect data size if the entire log has been filled and wrapped around.
- Fixed an issue where firmware version is listed as null string in the firmware information page

### Firmware - Storage Fibre Channel

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HPE Firmware Flash for Emulex Fibre Channel Host Bus Adapters for VMware vSphere 7.0  
Version: 2021.10.01 (**Recommended**)  
Filename: CP046803.compsig; CP046803.zip

### Important Note!

This Firmware package contains following firmware versions:

Adapter	Speed	Universal Boot Image	Firmware	UEFI	Boot Bios
HPE SN1200E 16Gb Dual Port Fibre Channel Host Bus Adapter	16Gb	12.8.528.12	12.8.528.12	12.8.528.10	12.8.502.0
HPE SN1200E 16Gb Single Port Fibre Channel Host Bus Adapter	16Gb	12.8.528.12	12.8.528.12	12.8.528.10	12.8.502.0
HPE SN1600E 32Gb Dual Port Fibre Channel Host Bus Adapter	32Gb	12.8.528.12	12.8.528.12	12.8.528.10	12.8.502.0
HPE SN1600E 32Gb Single Port Fibre Channel Host Bus Adapter	32Gb	12.8.528.12	12.8.528.12	12.8.528.10	12.8.502.0
HPE SN1610E 32Gb Single Port Fibre Channel Host Bus Adapter	32Gb	12.8.528.12	12.8.528.12	12.8.528.10	12.8.502.0
HPE SN1610E 32Gb Dual Port Fibre Channel Host Bus Adapter	32Gb	12.8.528.12	12.8.528.12	12.8.528.10	12.8.502.0

### Prerequisites

Please consult SPOCK for a list of supported configurations available at the following link:

<http://www.hpe.com/storage/spock/>

### Enhancements

This Firmware package contains following firmware versions:

Adapter	Speed	Universal Boot Image	Firmware	UEFI	Boot Bios
HPE SN1200E 16Gb Dual Port Fibre Channel Host Bus Adapter	16Gb	12.8.528.12	12.8.528.12	12.8.528.10	12.8.502.0
HPE SN1200E 16Gb Single Port Fibre Channel Host Bus Adapter	16Gb	12.8.528.12	12.8.528.12	12.8.528.10	12.8.502.0
HPE SN1600E 32Gb Dual Port Fibre Channel Host Bus Adapter	32Gb	12.8.528.12	12.8.528.12	12.8.528.10	12.8.502.0
HPE SN1600E 32Gb Single Port Fibre Channel Host Bus Adapter	32Gb	12.8.528.12	12.8.528.12	12.8.528.10	12.8.502.0
HPE SN1610E 32Gb Single Port Fibre Channel Host Bus Adapter	32Gb	12.8.528.12	12.8.528.12	12.8.528.10	12.8.502.0
HPE SN1610E 32Gb Dual Port Fibre Channel Host Bus Adapter	32Gb	12.8.528.12	12.8.528.12	12.8.528.10	12.8.502.0

## Supported Devices and Features

This component is supported on following Emulex Fibre Channel Host Bus adapters:

### 16Gb FC Adapter:

- HPE SN1200E 16Gb Dual Port Fibre Channel Host Bus Adapter
- HPE SN1200E 16Gb Single Port Fibre Channel Host Bus Adapter

### 32Gb FC Adapter:

- HPE SN1600E 32Gb Dual Port Fibre Channel Host Bus Adapter
- HPE SN1600E 32Gb Single Port Fibre Channel Host Bus Adapter
- HPE SN1610E 32Gb Dual port Fibre Channel Host Bus Adapter
- HPE SN1610E 32Gb Single port Fibre Channel Host Bus Adapter

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HPE Firmware Flash for Emulex Mezzanine Fibre Channel Host Bus Adapters for VMware vSphere 7.0

Version: 2021.10.01 (**Recommended**)

Filename: CP046787.compsig; CP046787.zip

## Important Note!

This Firmware package contains following firmware versions:

Adapter	Speed	Universal Boot Image	Firmware	UEFI	Boot Bios
HPE 16Gb LPe1605 Fibre Channel Host Bus Adapter for BladeSystem c-Class	16Gb	12.8.528.12	12.8.528.12	12.8.528.10	12.8.502.0

## Prerequisites

Please consult SPOCK for a list of supported configurations available at the following link:

<http://www.hpe.com/storage/spock/>

## Enhancements

This Firmware package contains following firmware versions:

Adapter	Speed	Universal Boot Image	Firmware	UEFI	Boot Bios
HPE 16Gb LPe1605 Fibre Channel Host Bus Adapter for BladeSystem c-Class	16Gb	12.8.528.12	12.8.528.12	12.8.528.10	12.8.502.0

## Supported Devices and Features

This component is supported on following Emulex Fibre Channel Host Bus adapters:

### 16Gb FC Adapter:

- HPE 16Gb LPe1605 Fibre Channel Host Bus Adapter for BladeSystem c-Class

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HPE Firmware Flash for QLogic Fibre Channel Host Bus Adapters for VMware vSphere 7.0

Version: 2021.10.01 (**Recommended**)

Filename: CP046822.compsig; CP046822.zip

## Important Note!

This Firmware package contains following firmware versions:

Adapter	Speed	MBI	Firmware	UEFI	Boot Bios
HPE SN1100Q 16GB Dual Port PCIe Fibre Channel Host Bus Adapter	16Gb	1.75.07	9.06.02	7.04	3.64
HPE SN1100Q 16GB Single Port PCIe Fibre Channel Host Bus Adapter	16Gb	1.75.07	9.06.02	7.04	3.64
HPE SN1600Q 32Gb Single Port Fibre Channel Host Bus Adapter	32Gb	1.75.07	9.06.02	7.04	3.64
HPE SN1600Q 32Gb Dual Port Fibre Channel Host Bus Adapter	32Gb	1.75.07	9.06.02	7.04	3.64
HPE SN1610Q 32Gb Dual Port Fibre Channel Host Bus Adapter	32Gb	02.05.03	09.06.02	7.11	0.0
HPE SN1610Q 32Gb Single Port Fibre Channel Host Bus Adapter	32Gb	02.05.03	09.06.02	7.11	0.0

## Prerequisites

Please consult SPOCK for a list of supported configurations available at the following link:

<http://www.hpe.com/storage/spock/>

The HPE supplied Qlogic driver must be installed prior to this firmware component being identified by SUM for deployment. The OOB driver is available on the Service Pack for ProLiant (SPP) which is available at <http://www.hpe.com/servers/spp/download/>

## Enhancements

This Firmware package contains following firmware versions:

Adapter	Speed	MBI	Firmware	UEFI	Boot Bios
HPE SN1100Q 16GB Dual Port PCIe Fibre Channel Host Bus Adapter	16Gb	1.75.07	9.06.02	7.04	3.64
HPE SN1100Q 16GB Single Port PCIe Fibre Channel Host Bus Adapter	16Gb	1.75.07	9.06.02	7.04	3.64
HPE SN1600Q 32Gb Single Port Fibre Channel Host Bus Adapter	32Gb	1.75.07	9.06.02	7.04	3.64
HPE SN1600Q 32Gb Dual Port Fibre Channel Host Bus Adapter	32Gb	1.75.07	9.06.02	7.04	3.64

HPE SN1610Q 32Gb Dual Port Fibre Channel Host Bus Adapter	32Gb	02.05.03	09.06.02	7.11	0.0
HPE SN1610Q 32Gb Single Port Fibre Channel Host Bus Adapter	32Gb	02.05.03	09.06.02	7.11	0.0

### Supported Devices and Features

This firmware supports the following HPE adapters:

#### 16Gb Fibre Channel Host Bus Adapter:

- o HPE SN1100Q 16GB Dual Port PCIe Fibre Channel Host Bus Adapter
- o HPE SN1100Q 16GB Single Port PCIe Fibre Channel Host Bus Adapter

#### 32Gb Fibre Channel Host Bus Adapter:

- o HPE SN1600Q 32Gb Single Port Fibre Channel Host Bus Adapter
- o HPE SN1600Q 32Gb Dual Port Fibre Channel Host Bus Adapter
- o HPE SN1610Q 32Gb Dual Port Fibre Channel Host Bus Adapter
- o HPE SN1610Q 32Gb Single Port Fibre Channel Host Bus Adapter

HPE Firmware Flash for QLogic Fibre Channel Mezzanine Host Bus Adapters for VMware vSphere 7.0

Version: 2021.10.01 **(Recommended)**

Filename: CP046778.compsig; CP046778.zip

### Important Note!

Release Notes:

[HPE QLogic Adapter Release Notes](#)

This Firmware package contains following firmware versions:

Adapter	Speed	MBI	Firmware	UEFI	Boot Bios
HPE QMH2672 16Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem	16Gb	6.04.04	8.08.232	7.04	3.43

### Prerequisites

Please consult SPOCK for a list of supported configurations available at the following link:

<http://www.hpe.com/storage/spock/>

The HPE supplied Qlogic driver must be installed prior to this firmware component being identified by SUM for deployment. The OOB driver is available on the Service Pack for ProLiant (SPP) which is available at <http://www.hpe.com/servers/spp/download/>

### Enhancements

Updated the Firmware/BIOS/UEFI packages for 16 Gb products.

Adapter	Speed	MBI	Firmware	UEFI	Boot Bios
HPE QMH2672 16Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem	16Gb	6.04.04	8.08.232	7.04	3.43

### Supported Devices and Features

This version of the enablement kit supports the following devices:

#### 16Gb Fibre Channel Host Bus Adapter:

- o HPE QMH2672 16Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem

### Software - Management

HPE Agentless Management Bundle Smart Component on ESXi 7.0 Update 1 for Gen10 and Gen10 Plus Servers

Version: 2021.07.01 **(Recommended)**

Filename: cp048549.compsig; cp048549.zip

### Fixes

#### Agentless Management Service

- o Fix AMS upgrade issue with older amcli vib causing errors that block certain services from functioning properly.
- o Fix bogus SATA disk temperature reported by AMS causing system to shutdown.
- o Fix buffer overflow to resolve AMS crash when iSCSI HBA UID is >64 bytes.

HPE CRU Driver Bundle Smart Component for ESXi 7.0

Version: 2020.04.01 (A) **(Recommended)**

Filename: cp044598.compsig; cp044598.zip

### Enhancements

Add new supported servers

HPE Fiber Channel and Storage Enablement Bundle Smart Component for ESXi 7.0

Version: 2021.04.01 **(Recommended)**

Filename: cp044916.compsig; cp044916.zip

## Enhancements

Supports VMware ESXi 7.0 U1 and ESXi 7.0 U2

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HPE iLO Driver Bundle Smart Component for ESXi 7.0

Version: 2021.09.01 **(Recommended)**

Filename: cp047518.compsig; cp047518.zip

## Fixes

- Fixed driver unload function to allow controller to function properly on reload and when Quickboot is enabled.

---

HPE SMX Provider Bundle Smart Component for ESXi 7.0

Version: 2020.04.01 (A) **(Recommended)**

Filename: cp044591.compsig; cp044591.zip

## Enhancements

Add new supported servers

---

Smart Storage Administrator (SSA) CLI Smart Component for ESXi 7.0

Version: 2021.04.01 **(Recommended)**

Filename: cp047031.compsig; cp047031.zip

## Enhancements

Adding support to the HPE SR Gen10 Plus Controllers.

---

## Software - Storage Fibre Channel

HPE QLogic Fibre Channel driver component for VMware vSphere 7.0

Version: 2021.02.01 **(Recommended)**

Filename: cp044779.compsig; cp044779.zip

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## Important Note!

This component is intended to be used by HPE applications. It is a zip that contains the same driver deliverable available from the vmware.com and the HPE vibstdepot.hpe.com webpages, plus an HPE specific CPXXXX.xml file.

### Fixed the following:

- Fixed a behavior where enabling VM-ID and SmartSAN on a boot from Storage Area Network (SAN) setup caused driver load incomplete
- Fixed a behavior where automatic attempts to recover from the behavior described in Customer Advisory available at [https://support.hpe.com/hpesc/public/docDisplay?docLocale=en\\_US&docId=a00094722en\\_us](https://support.hpe.com/hpesc/public/docDisplay?docLocale=en_US&docId=a00094722en_us) would result in a Purple Screen of Death (PSoD)

### Added the following:-

- Added Non-volatile memory express (NVMe) over Fibre Channel (FC) Capability
- Added support for Fabric Performance Impact Notifications (FPIN)

Driver version 4.1.22.0

## Prerequisites

Please consult SPOCK for a list of supported configurations available at the following link:

<http://www.hpe.com/storage/spock/>

## Fixes

### Fixed the following:

- Fixed a behavior where enabling VM-ID and SmartSAN on a boot from Storage Area Network (SAN) setup caused driver load incomplete
- Fixed a behavior where automatic attempts to recover from the behavior described in Customer Advisory available at [https://support.hpe.com/hpesc/public/docDisplay?docLocale=en\\_US&docId=a00094722en\\_us](https://support.hpe.com/hpesc/public/docDisplay?docLocale=en_US&docId=a00094722en_us) would result in a Purple Screen of Death (PSoD)

## Enhancements

### Added the following:-

- Added Non-volatile memory express (NVMe) over Fibre Channel (FC) Capability
- Added support for Fabric Performance Impact Notifications (FPIN)

Driver version 4.1.22.0

## Supported Devices and Features

This driver supports the following HPE adapters:

### 8Gb Fibre Channel Host Bus Adapter:

- HPE 81Q 8Gb Single Port PCIe Fibre Channel Host Bus Adapter

- HPE 82Q 8Gb Dual Port PCIe Fibre Channel Host Bus Adapter
- HPE 84Q 8Gb Quad Port Fibre Channel Host Bus Adapter

#### 16Gb Fibre Channel Host Bus Adapter:

- HPE SN1000Q 16Gb Dual Port PCIe Fibre Channel Host Bus Adapter
- HPE SN1000Q 16Gb Single Port PCIe Fibre Channel Host Bus Adapter
- HPE SN1100Q 16GB Dual Port PCIe Fibre Channel Host Bus Adapter
- HPE SN1100Q 16GB Single Port PCIe Fibre Channel Host Bus Adapter

#### 32Gb Fibre Channel Host Bus Adapter:

- HPE SN1600Q 32Gb Single Port Fibre Channel Host Bus Adapter
- HPE SN1600Q 32Gb Dual Port Fibre Channel Host Bus Adapter
- HPE SN1610Q 32Gb Dual Port Fibre Channel Host Bus Adapter
- HPE SN1610Q 32Gb Single Port Fibre Channel Host Bus Adapter

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HPE QLogic Mezzanine Fibre Channel driver component for VMware vSphere 7.0

Version: 2021.10.01 **(Recommended)**

Filename: cp046775.compsig; cp046775.zip

#### **Important Note!**

This component is intended to be used by HPE applications. It is a zip that contains the same driver deliverable available from the vmware.com and the HPE vibsdepot.hpe.com webpages, plus an HPE specific CPXXXX.xml file.

#### **Prerequisites**

Please consult SPOCK for a list of supported configurations available at the following link:

<http://www.hpe.com/storage/spock/>

#### **Fixes**

##### **Fixed the following:**

- Fixed an unwanted behavior where Get Port Speed Capabilities (GPSC) failures were leading to intelligent interleaved direct memory access (IIDMA) for target being set to 1GB/s. This is described in [Advisory: HPE Host Bus Adapters - HPE Platforms Running VMware ESXi 6.5 / 6.7 / 7.0 and Configured With Certain HPE Host Bus Adapters May Experience Severe Performance Degradation When Connected to Brocade FOS v8.0.1 \(or Prior\)](#)
- Addressed unwanted behavior with Fabric Port Identification Number (FPIN) based congestion throttling leading to poor performance.
- Fixed an unwanted behavior where stale connection IDs could be used with Fibre Channel- Non Volatile Memory Express (FC-NVMe) traffic.
- Fixed an unwanted behavior with response queue handling to avoid the problem referenced by <https://kb.vmware.com/s/article/81721>

#### **Enhancements**

##### **Added the following:**

- Made improvements to the Fabric Port Identification Number (FPIN) and Universal Storage Area Network (SAN) Congestion Mitigation(USCM) Congestion Management algorithm
- Implemented the vmkmgmt Application programming Interface (API) to report Non-Volatile Memory Express (NVMe) target info and send Non-Volatile Memory Express (NVMe) pass through commands

Driver version 4.1.34.0

#### **Supported Devices and Features**

This version of the enablement kit supports the following devices:

##### **16Gb Fibre Channel Host Bus Adapter:**

- HPE QMH2672 16Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem

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#### **Software - System Management**

HPE Agentless Management Bundle for ESXi 7.0 Update 1 for HPE Gen10 and Gen10 Plus Servers

Version: 701.11.7.2 (1) **(Recommended)**

Filename: amsdComponent\_701.11.7.2.4-1\_17974261.zip

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#### **Fixes**

##### **Agentless Management Service**

- Fix AMS upgrade issue with older amscli vib causing errors that block certain services from functioning properly.
- Fix bogus SATA disk temperature reported by AMS causing system to shutdown.
- Fix buffer overflow to resolve AMS crash when iSCSI HBA UID is >64 bytes.

---

HPE Fiber Channel and Storage Enablement Component for ESXi 7.0

Version: 3.7.0 **(Recommended)**

Filename: fc-enablement-component\_700.3.7.0.5-1\_17477831.zip

#### **Enhancements**

Supports VMware ESXi 7.0 U1 and ESXi 7.0 U2

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HPE SMX Provider Component for ESXi 7.0

Version: 3.16.00 (**Recommended**)  
Filename: smxProvider\_700.03.16.00\_\_1\_12\_14828939\_signed\_component\_1567546.zip

#### **Enhancements**

Support for VMware ESXi 7.0

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HPE Utilities Offline Bundle for ESXi 7.0  
Version: 10.5.0 (**Recommended**)  
Filename: HPE-Utility-Component\_10.5.0-63-signed\_component-15745486.zip; relnotes.txt

#### **Important Note!**

Refer to the HPE VMware Utilities User Guide ESXi 7.0 which is located at [www.hpe.com/info/vmware/docs](http://www.hpe.com/info/vmware/docs).

#### **Enhancements**

Supports VMware ESXi 7.0

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Integrated Smart Update Tools for VMware ESXi 7.0  
Version: 700.2.8.0 (**Recommended**)  
Filename: sutComponent\_700.2.8.0.20-0-signed\_component-17782108.zip

#### **Important Note!**

Integrated Smart Update Tools for ESXi 7.0 provides support for firmware and driver updates via iLO Repository

#### **Fixes**

See the [ISUT Release Notes](#) for information about the issues resolved in this release

#### **Enhancements**

See the [ISUT Release Notes](#) for information about the enhancements in this release.

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Smart Storage Administrator (SSA) CLI for VMware 7.0  
Version: 5.10.45.0 (**Recommended**)  
Filename: ssacli-component\_5.10.45.0-7.0.0\_17605318.zip

#### **Enhancements**

Adding support to the HPE SR Gen10 Plus Controllers.

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Smart Storage Administrator (SSA) CLI for VMware 7.0  
Version: 5.10.45.1 (**Recommended**)  
Filename: hpessacli-component\_5.10.45.1-7.0.0\_17771110.zip

#### **Enhancements**

Adding support to the HPE SR Gen10 Plus Controllers.

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Updated October 5 2021

