




# **NVIDIA Quantum Firmware Release Notes v27.2012.2234 LTS**

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 This is a long-term support (LTS) release. LTS is the practice of maintaining a software product for an extended period of time (up to three years) to help increase product stability. LTS releases include bug fixes and security patches.

#### Release Notes Update History

| Version      | Date         | Description                                    |
|--------------|--------------|--|
| 27.2012.2234 | May 31, 2024 | Initial release of this release notes version. |

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# 1 Overview

Firmware, which is added at the time of manufacturing, is used to run user programs on the device and can be thought of as the software that allows hardware to run. Embedded firmware is used to control the functions of various hardware devices and systems, much like a computer's operating system (OS) controls the function of software applications. Firmware may be written into read-only memory (ROM), erasable programmable read-only memory (EPROM), or flash memory.

## 1.1 Firmware Download

Please visit <https://www.nvidia.com/en-us/networking/> → Support → Support → [Firmware Download](#)

## 1.2 Document Revision History

A list of the changes made to this document are provided in [Changes and New Features](#) and [Changes and New Features History](#).

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## 2 Firmware Compatible Products

These are the release notes for the NVIDIA Quantum™ firmware. This firmware complements the NVIDIA Quantum switch with a set of advanced features, allowing easy and remote management of the switch.

This firmware supports the following protocols:

- InfiniBand—SDR, QDR, FDR EDR, HDR

### 2.1 Supported Switch Systems


This firmware supports the devices listed in the table below:

| Model Number | Description  |
|--------------|--|
| MQM8790      | NVIDIA Quantum 40-port Non-blocking Externally Managed HDR 200Gb/s InfiniBand Smart Switch |


### 2.2 Firmware Interoperability

This firmware version has been validated to work against platforms with the following firmware and software versions.

| HCA/Switch          | Firmware Version |
|---------------------|------------------|
| NVIDIA Quantum      | 27.2012.2234     |
| Switch-IB 2         | 15.2010.5002     |
| ConnectX®-7         | 28.37.1014       |
| ConnectX-6          | 20.37.1014       |
| ConnectX-5          | 16.35.2000       |
| ConnectX-4          | 12.28.2006       |
| Connect-IB®         | 10.16.1200       |
| Minimal MFT version | 4.24.0-72        |

 The minimal required ConnectX-6 firmware version is 20.25.1532.

### 2.3 Supported Cables

 NVIDIA does not support InfiniBand cables or modules not qualified or approved by NVIDIA.

## 2.3.1 Switch and HCAs InfiniBand Cable Connectivity Matrix

NVIDIA Quantum™ based switches and NVIDIA® ConnectX®-6 HCAs support HDR (PAM4, 50Gb/s per lane) and EDR (NRZ, 25Gb/s per lane) technologies. As the ConnectX adapter cards are identified by their maximum supported throughput (e.g. ConnectX-6 VPI 100Gb/s card can support either 2-lanes of 50Gb/s or 4-lanes of 25Gb/s), the exact connectivity will be determined by the cable that is being used.

As a reference:

| Speed Mode | Speed Supported    | Number of Lanes Used |
|------------|--------------------|----------------------|
| HDR        | 200Gb/s InfiniBand | 4 lanes of 50Gb/s    |
| HDR100     | 100Gb/s InfiniBand | 2 lanes of 50Gb/s    |
| EDR        | 100Gb/s InfiniBand | 4 lanes of 25Gb/s    |
| FDR        | 56Gb/s             | 4 lanes of 14Gb/s    |

The following tables present the connectivity matrix, between NVIDIA Quantum based switches, ConnectX-6 HCA, and the cables.

## 2.3.2 Switch-to-Switch Connectivity

| Switch          | Switch                          | Cable         |             |         |         |             |             |
|-----------------|---------------------------------|---------------|-------------|---------|---------|-------------|-------------|
|                 |                                 | H cable DAC   | H cable AOC | HDR DAC | HDR AOC | EDR DAC/AOC | FDR DAC/AOC |
| NVIDIA Quantum™ | NVIDIA Quantum                  | No such cable | HDR100      | HDR     | HDR     | EDR         | N/A         |
| NVIDIA Quantum  | NVIDIA® Switch-IB®/ Switch-IB 2 | N/A           | N/A         | EDR     | N/A     | EDR         | N/A         |
| NVIDIA Quantum  | NVIDIA® SWITCHX®-2              | N/A           | N/A         | N/A     | N/A     | N/A         | FDR         |

### 2.3.3 HCA-to-Switch Connectivity Matrix

| Adapter                    | Switch                 |            | Cable           |         |         |                                     |         |                  |                  |
|----------------------------|------------------------|------------|-----------------|---------|---------|-------------------------------------|---------|------------------|------------------|
|                            |                        |            | Y cable DAC/AOC | HDR DAC | HDR AOC | HDR100 DAC/AOC (Copper Cables Only) | EDR DAC | EDR AOC          | FDR DAC/AOC      |
| ConnectX-6 200Gb/s         | NVIDIA Quantum-2       | NDR Switch | N/A             | 2 × HDR | 2 × HDR | 4 × HDR100                          | N/A     | N/A              | N/A              |
| ConnectX-6 100Gb/s         | NVIDIA Quantum-2       |            | N/A             | 2 × EDR | N/A     | 4 × HDR100                          | N/A     | N/A              | N/A              |
| ConnectX-4/ ConnectX-5     | NVIDIA Quantum-2       |            | N/A             | 2 × EDR | N/A     | N/A                                 | N/A     | N/A              | N/A              |
| ConnectX-6 200Gb/s         | NVIDIA Quantum         | HDR Switch | HDR100          | HDR     | HDR     | N/A                                 | EDR     | EDR              | N/A              |
| ConnectX-6 100Gb/s         | NVIDIA Quantum         |            | HDR100          | EDR     | EDR     | N/A                                 | EDR     | EDR              | N/A              |
| ConnectX-4/ ConnectX-5     | NVIDIA Quantum         |            | N/A             | EDR     | N/A     | N/A                                 | EDR     | EDR              | FDR              |
| ConnectX-3/ ConnectX-3 Pro | NVIDIA Quantum         |            | N/A             | N/A     | N/A     | N/A                                 | N/A     | FDR <sup>a</sup> | FDR <sup>a</sup> |
| ConnectX-6                 | Switch-IB/ Switch-IB 2 | EDR Switch | N/A             | EDR     | N/A     | N/A                                 | EDR     | EDR              | N/A              |
| ConnectX-6                 | SWITCHX-2              | FDR Switch | N/A             | N/A     | N/A     | N/A                                 | N/A     | N/A              | FDR              |

a. Connectivity between NVIDIA Quantum and ConnectX-3 and ConnectX-3 Pro is not supported when using ports #27-34.

### 2.3.4 Supported Link Speed

The table below lists the current supported link speed.

| Speed | Cable   | Cable Length [meters] | Limitations  |
|-------|---------|-----------------------|--|
| SDR   | Optical | Up to 100             |  |
|       | Copper  | Up to 2               |  |
| FDR   | Optical | 3/10/15/100           | Using FDR speed #27-#34, may cause link on the ports to go down. |

| Speed | Cable   | Cable Length [meters] | Limitations   |
|-------|---------|-----------------------|---|
|       | Copper  | Up to 3               |   |
| EDR   | Optical | Up to 100             |   |
|       | Copper  | Up to 3               |   |
| HDR   | Optical | Up to 100             | HDR optical cables support only EDR & HDR speed. Thus, when mask is configured to HDR, the link is not raised when connecting to EDR devices. |
|       | Copper  | Up to 2               |   |

### 2.3.5 Validated and Supported HDR Cables

| Data Rate | NVIDIA P/N        | Legacy OPN      | Description  | Lifecycle Phase |
|-----------|-------------------|-----------------|--|-----------------|
| HDR       | 980-9I86N-00H003* | MCA1J00-H003E*  | NVIDIA Active Copper cable, IB HDR, up to 200Gb/s, QSFP56, 3m, yellow pulltab                          | EOL [MP]        |
| HDR       | 980-9I86O-00H004* | MCA1J00-H004E*  | NVIDIA Active Copper cable, IB HDR, up to 200Gb/s, QSFP56, 4m, yellow pulltab                          | EOL [MP]        |
| HDR       | 980-9I977-00H003* | MCA7J50-H003R*  | NVIDIA Active copper hybrid cable, IB HDR 200Gb/s to 2xHDR100 100Gb/s, QSFP56 to 2xQSFP56, 3m, colored | EOL [MP]        |
| HDR       | 980-9I978-00H004* | MCA7J50-H004R*  | NVIDIA Active copper hybrid cable, IB HDR 200Gb/s to 2xHDR100 100Gb/s, QSFP56 to 2xQSFP56, 4m, colored | EOL [MP]        |
| HDR       | 980-9I979-00H005  | MCA7J50-H005R   | NVIDIA Active copper hybrid cable, IB HDR 200Gb/s to 2xHDR100 100Gb/s, QSFP56 to 2xQSFP56, 5m, colored | EOL [Prototype] |
| HDR       | 980-9I548-00H001  | MCP1650-H001E30 | Nvidia Passive Copper cable, up to 200Gbps, QSFP56 to QSFP56, 1m                                       | HVM             |
| HDR       | 980-9I549-00H002  | MCP1650-H002E26 | Nvidia Passive Copper cable, up to 200Gbps, QSFP56 to QSFP56, 2m                                       | HVM             |
| HDR       | 980-9I54A-00H00A  | MCP1650-H00AE30 | Nvidia Passive Copper cable, up to 200Gbps, QSFP56 to QSFP56, 0.5m                                     | HVM             |
| HDR       | 980-9I54B-00H01A  | MCP1650-H01AE30 | Nvidia Passive Copper cable, up to 200Gbps, QSFP56 to QSFP56, 1.5 m                                    | HVM             |
| HDR       | 980-9I39E-00H001  | MCP7H50-H001R30 | Nvidia Passive copper splitter cable, 200Gbps to 2x100Gbps, QSFP56 to 2xQSFP56, 1m                     | HVM             |
| HDR       | 980-9I99F-00H002  | MCP7H50-H002R26 | Nvidia Passive copper splitter cable, 200Gbps to 2x100Gbps, QSFP56 to 2xQSFP56, 2m                     | HVM             |
| HDR       | 980-9I98G-00H01A  | MCP7H50-H01AR30 | Nvidia Passive copper splitter cable, 200Gbps to 2x100Gbps, QSFP56 to 2xQSFP56, 1.5m                   | HVM             |
| HDR       | 980-9I46K-00H001  | MCP7Y60-H001    | NVIDIA passive copper splitter cable, 400(2x200)Gbps to 2x200Gbps, OSFP to 2xQSFP56, 1m, fin to flat   | MP              |




| Data Rate | NVIDIA P/N       | Legacy OPN       | Description  | Lifecycle Phase |
|-----------|------------------|------------------|--|-----------------|
| HDR       | 980-9I46L-00H002 | MCP7Y60-H002     | NVIDIA passive copper splitter cable, 400(2x200)Gbps to 2x200Gbps, OSFP to 2xQSFP56, 2m, fin to flat   | MP              |
| HDR       | 980-9I93M-00H01A | MCP7Y60-H01A     | NVIDIA passive copper splitter cable, 400(2x200)Gbps to 2x200Gbps, OSFP to 2xQSFP56, 1.5m, fin to flat | MP              |
| HDR       | 980-9I93N-00H001 | MCP7Y70-H001     | NVIDIA passive copper splitter cable, 400(2x200)Gbps to 4x100Gbps, OSFP to 4xQSFP56, 1m, fin to flat   | MP              |
| HDR       | 980-9I93O-00H002 | MCP7Y70-H002     | NVIDIA passive copper splitter cable, 400(2x200)Gbps to 4x100Gbps, OSFP to 4xQSFP56, 2m, fin to flat   | MP              |
| HDR       | 980-9I47P-00H01A | MCP7Y70-H01A     | NVIDIA passive copper splitter cable, 400(2x200)Gbps to 4x100Gbps, OSFP to 4xQSFP56, 1.5m, fin to flat | MP              |
| HDR       | 980-9I41X-00H003 | MFA7U10-H003     | NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 3m                      | P-Rel           |
| HDR       | 980-9I11Z-00H005 | MFA7U10-H005     | NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 5m                      | P-Rel           |
| HDR       | 980-9I111-00H010 | MFA7U10-H010     | NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 10m                     | P-Rel           |
| HDR       | 980-9I113-00H015 | MFA7U10-H015     | NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 15m                     | P-Rel           |
| HDR       | 980-9I115-00H020 | MFA7U10-H020     | NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 20m                     | P-Rel           |
| HDR       | 980-9I117-00H030 | MFA7U10-H030     | NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 30m                     | P-Rel           |
| HDR       | 980-9I11V-00H050 | MFA7U10-H050     | NVIDIA AOC splitter, IB twin port HDR, 400Gb/s to 2x200Gb/s, OSFP to 2xQSFP56, 50m                     | Prototype       |
| HDR       | 980-9I124-00H003 | MFS1S00-H003E    | NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 3m                      | EOL [HVM]       |
| HDR       | 980-9I123-00H003 | MFS1S00-H003-LL  | NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, low latency, 3m         | EOL [P-Rel]     |
| HDR       | 980-9I457-00H003 | MFS1S00-H003V    | Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 3m                                      | MP              |
| HDR       | 980-9I45A-00H005 | MFS1S00-H005E    | NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 5m                      | EOL [HVM]       |
| HDR       | 980-9I449-00H005 | MFS1S00-H005-LL  | NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, low latency, 5m         | EOL [P-Rel]     |
| HDR       | 980-9I45D-00H005 | MFS1S00-H005V    | Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 5m                                      | MP              |
| HDR       | 980-9I45G-00H010 | MFS1S00-H010E    | NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 10m                     | EOL [HVM]       |
| HDR       | 980-9I45H-00H010 | MFS1S00-H010E_FF | NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 10m                     | EOL [HVM]       |

| Data Rate | NVIDIA P/N       | Legacy OPN      | Description   | Lifecycle Phase |
|-----------|------------------|-----------------|---|-----------------|
| HDR       | 980-9I44F-00H010 | MFS1500-H010-LL | NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, low latency, 10m | EOL [P-Rel]     |
| HDR       | 980-9I45J-00H010 | MFS1500-H010V   | Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 10m                              | MP              |
| HDR       | 980-9I45M-00H015 | MFS1500-H015E   | NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 15m              | EOL [HVM]       |
| HDR       | 980-9I44L-00H015 | MFS1500-H015-LL | NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, low latency, 15m | EOL [P-Rel]     |
| HDR       | 980-9I45O-00H015 | MFS1500-H015V   | Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 15m                              | MP              |
| HDR       | 980-9I45R-00H020 | MFS1500-H020E   | NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 20m              | EOL [HVM]       |
| HDR       | 980-9I44Q-00H020 | MFS1500-H020-LL | NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, low latency, 20m | EOL [P-Rel]     |
| HDR       | 980-9I45T-00H020 | MFS1500-H020V   | Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 20m                              | MP              |
| HDR       | 980-9I45Y-00H030 | MFS1500-H030E   | NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 30m              | EOL [HVM]       |
| HDR       | 980-9I45X-00H030 | MFS1500-H030-LL | NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, low latency, 30m | EOL [P-Rel]     |
| HDR       | 980-9I44O-00H030 | MFS1500-H030V   | Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 30m                              | MP              |
| HDR       | 980-9I455-00H050 | MFS1500-H050E   | NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 50m              | EOL [HVM]       |
| HDR       | 980-9I447-00H050 | MFS1500-H050V   | Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 50m                              | MP              |
| HDR       | 980-9I44G-00H100 | MFS1500-H100E   | NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 100m             | EOL [HVM]       |
| HDR       | 980-9I44H-00H100 | MFS1500-H100V   | Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 100m                             | MP              |
| HDR       | 980-9I44I-00H130 | MFS1500-H130E   | NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 130m             | EOL [HVM]       |
| HDR       | 980-9I44K-00H130 | MFS1500-H130V   | Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 130m                             | MP              |
| HDR       | 980-9I45L-00H150 | MFS1500-H150E   | NVIDIA active fiber cable, IB HDR, up to 200Gb/s, QSFP56, LSZH, black pulltab, 150m             | EOL [HVM]       |
| HDR       | 980-9I44N-00H150 | MFS1500-H150V   | Nvidia active optical cable, up to 200Gbps , QSFP56 to QSFP56, 150m                             | MP              |
| HDR       | 980-9I452-00H003 | MFS1550-H003E   | NVIDIA active fiber splitter cable, IB HDR, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56 , LSZH, 3m | EOL [HVM]       |
| HDR       | 980-9I445-00H003 | MFS1550-H003V   | Nvidia active optical splitter cable, 200Gbps to 2x100Gbps , QSFP56 to 2x QSFP56, 3m            | HVM             |

| Data Rate | NVIDIA P/N       | Legacy OPN    | Description  | Lifecycle Phase |
|-----------|------------------|---------------|--|-----------------|
| HDR       | 980-9I956-00H005 | MFS1S50-H005E | NVIDIA active fiber splitter cable, IB HDR, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56 , LSZH, 5m      | EOL [HVM]       |
| HDR       | 980-9I969-00H005 | MFS1S50-H005V | Nvidia active optical splitter cable, 200Gbps to 2x100Gbps , QSFP56 to 2x QSFP56, 5m                 | HVM             |
| HDR       | 980-9I95A-00H010 | MFS1S50-H010E | NVIDIA active fiber splitter cable, IB HDR, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56 , LSZH, 10m     | EOL [HVM]       |
| HDR       | 980-9I96D-00H010 | MFS1S50-H010V | Nvidia active optical splitter cable, 200Gbps to 2x100Gbps , QSFP56 to 2x QSFP56, 10m                | HVM             |
| HDR       | 980-9I95E-00H015 | MFS1S50-H015E | NVIDIA active fiber splitter cable, IB HDR, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56 , LSZH, 15m     | EOL [HVM]       |
| HDR       | 980-9I96H-00H015 | MFS1S50-H015V | Nvidia active optical splitter cable, 200Gbps to 2x100Gbps , QSFP56 to 2x QSFP56, 15m                | HVM             |
| HDR       | 980-9I95I-00H020 | MFS1S50-H020E | NVIDIA active fiber splitter cable, IB HDR, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56 , LSZH, 20m     | EOL [HVM]       |
| HDR       | 980-9I96L-00H020 | MFS1S50-H020V | Nvidia active optical splitter cable, 200Gbps to 2x100Gbps , QSFP56 to 2x QSFP56, 20m                | HVM             |
| HDR       | 980-9I95M-00H030 | MFS1S50-H030E | NVIDIA active fiber splitter cable, IB HDR, 200Gb/s to 2x100Gb/s, QSFP56 to 2xQSFP56 , LSZH, 30m     | EOL [HVM]       |
| HDR       | 980-9I96P-00H030 | MFS1S50-H030V | Nvidia active optical splitter cable, 200Gbps to 2x100Gbps , QSFP56 to 2x QSFP56, 30m                | HVM             |
| HDR       | 980-9I95S-00H040 | MFS1S50-H040V | Nvidia active optical splitter cable, 200Gbps to 2x100Gbps , QSFP56 to 2x QSFP56, 40m                | Prototype       |
| HDR       | 980-9I95T-00H050 | MFS1S50-H050V | Nvidia active optical splitter cable, 200Gbps to 2x100Gbps , QSFP56 to 2x QSFP56, 50m                | Prototype       |
| HDR       | 980-9I95Z-00H003 | MFS1S90-H003E | NVIDIA active fiber splitter cable, IB HDR, 2x200Gb/s to 2x200Gb/s, 2xQSFP56 to 2xQSFP56 , LSZH, 3m  | EOL [HVM]       |
| HDR       | 980-9I960-00H005 | MFS1S90-H005E | NVIDIA active fiber splitter cable, IB HDR, 2x200Gb/s to 2x200Gb/s, 2xQSFP56 to 2xQSFP56 , LSZH, 5m  | EOL [HVM]       |
| HDR       | 980-9I961-00H010 | MFS1S90-H010E | NVIDIA active fiber splitter cable, IB HDR, 2x200Gb/s to 2x200Gb/s, 2xQSFP56 to 2xQSFP56 , LSZH, 10m | LTB [HVM]       |
| HDR       | 980-9I962-00H015 | MFS1S90-H015E | NVIDIA active fiber splitter cable, IB HDR, 2x200Gb/s to 2x200Gb/s, 2xQSFP56 to 2xQSFP56 , LSZH, 15m | EOL [HVM]       |
| HDR       | 980-9I423-00H020 | MFS1S90-H020E | NVIDIA active fiber splitter cable, IB HDR, 2x200Gb/s to 2x200Gb/s, 2xQSFP56 to 2xQSFP56 , LSZH, 20m | LTB [HVM]       |
| HDR       | 980-9I424-00H030 | MFS1S90-H030E | NVIDIA active fiber splitter cable, IB HDR, 2x200Gb/s to 2x200Gb/s, 2xQSFP56 to 2xQSFP56 , LSZH, 30m | EOL [HVM]       |

| Data Rate | NVIDIA P/N        | Legacy OPN  | Description   | Lifecycle Phase |
|-----------|-------------------|-------------|---|-----------------|
| HDR       | 980-9I17S-00HS00  | MMA1T00-HS  | NVIDIA transceiver, HDR, QSFP56, MPO, 850nm, SR4, up to 100m          | HVM             |
| HDR       | 980-9I055-00H000* | MMS1W50-HM* | NVIDIA transceiver, IB HDR, up to 200Gb/s, QSFP56, LC-LC, 1310nm, FR4 | MP              |

 \*These cables were approved for switch-to-switch connectivity. For switch-to-host connectivity there may be some issues. See Known Issue 2073222/1959529 (see [Known Issues](#))

### 2.3.6 Validated and Supported EDR Cables

| Data Rate | NVIDIA P/N       | Legacy OPN      | Description   | Lifecycle Phase        |
|-----------|------------------|-----------------|---|------------------------|
| EDR       | 980-9I62P-00C001 | MCP1600-E001    | NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1m 30AWG        | EOL [HVM]              |
| EDR       | 980-9I62Q-00E001 | MCP1600-E001E30 | NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 1m, Black, 30AWG    | HVM                    |
| EDR       | 980-9I62S-00C002 | MCP1600-E002    | NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 2m 28AWG        | EOL [HVM]              |
| EDR       | 980-9I62T-00E002 | MCP1600-E002E26 | NVIDIA® Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 2m, Black, 26AWG   | Preliminary            |
| EDR       | 980-9I62U-00E002 | MCP1600-E002E30 | NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 2m, Black, 30AWG    | HVM                    |
| EDR       | 980-9I62V-00C003 | MCP1600-E003    | NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 3m 26AWG        | EOL [HVM]              |
| EDR       | 980-9I62W-00E003 | MCP1600-E003E26 | NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 3m, Black, 26AWG    | HVM                    |
| EDR       | 980-9I62Y-00E004 | MCP1600-E004E26 | NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 4m, Black, 26AWG    | EOL [HVM]              |
| EDR       | 980-9I62Z-00E005 | MCP1600-E005E26 | NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 5m, Black, 26AWG    | HVM                    |
| EDR       | 980-9I620-00E00A | MCP1600-E00A    | NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 0.5m 30AWG      | EOL [HVM]              |
| EDR       | 980-9I621-00E00A | MCP1600-E00AE30 | NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 0.5m, Black, 30AWG  | EOL [HVM]              |
| EDR       | 980-9I622-00E00B | MCP1600-E00BE30 | NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 0.75m, Black, 30AWG | EOL [HVM] [HIBERN/ATE] |
| EDR       | 980-9I623-00C01A | MCP1600-E01A    | NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1.5m 30AWG      | EOL [HVM]              |

| Data Rate | NVIDIA P/N       | Legacy OPN      | Description  | Lifecycle Phase               |
|-----------|------------------|-----------------|--|-------------------------------|
| EDR       | 980-9I624-00E01A | MCP1600-E01AE30 | NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 1.5m, Black, 30AWG     | HVM                           |
| EDR       | 980-9I625-00E01C | MCP1600-E01BE30 | NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 1.25m, Black, 30AWG    | EOL [HVM]<br>[HIBERN/<br>ATE] |
| EDR       | 980-9I626-00C02A | MCP1600-E02A    | NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 2.5m 26AWG         | EOL [HVM]                     |
| EDR       | 980-9I627-00E02A | MCP1600-E02AE26 | NVIDIA Passive Copper cable, IB EDR, up to 100Gb/s, QSFP28, 2.5m, Black, 26AWG     | HVM                           |
| EDR       | 980-9I13D-00E001 | MFA1A00-E001    | NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 1m                   | HVM                           |
| EDR       | 980-9I13F-00E003 | MFA1A00-E003    | NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 3m                   | HVM                           |
| EDR       | 980-9I13J-00E005 | MFA1A00-E005    | NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 5m                   | HVM                           |
| EDR       | 980-9I13M-00E007 | MFA1A00-E007    | NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 7m                   | LTB [HVM]                     |
| EDR       | 980-9I13O-00E010 | MFA1A00-E010    | NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 10m                  | HVM                           |
| EDR       | 980-9I13R-00E010 | MFA1A00-E010_FF | NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 10m                  | EOL [HVM]<br>[HIBERN/<br>ATE] |
| EDR       | 980-9I13S-00E015 | MFA1A00-E015    | NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 15m                  | HVM                           |
| EDR       | 980-9I13V-00E020 | MFA1A00-E020    | NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 20m                  | HVM                           |
| EDR       | 980-9I13Y-00E030 | MFA1A00-E030    | NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 30m                  | HVM                           |
| EDR       | 980-9I133-00E050 | MFA1A00-E050    | NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 50m                  | HVM                           |
| EDR       | 980-9I135-00E100 | MFA1A00-E100    | NVIDIA active fiber cable, IB EDR, up to 100Gb/s, QSFP, LSZH, 100m                 | LTB [HVM]                     |
| EDR       | 980-9I17L-00E000 | MMA1B00-E100    | NVIDIA transceiver, IB EDR, up to 100Gb/s, QSFP28, MPO, 850nm, SR4, up to 100m     | HVM                           |
| 100 GbE   | 980-9I17P-00CR00 | MMA1L10-CR      | NVIDIA optical transceiver, 100GbE, 100Gb/s, QSFP28, LC-LC, 1310nm, LR4 up to 10km | HVM                           |
| 100 GbE   | 980-9I17Q-00CM00 | MMA1L30-CM      | NVIDIA optical module, 100GbE, 100Gb/s, QSFP28, LC-LC, 1310nm, CWDM4, up to 2km    | MP                            |
| 100 GbE   | 980-9I16X-00C000 | MMS1C10-CM      | NVIDIA active optical module, 100Gb/s, QSFP, MPO, 1310nm, PSM4, up to 500m         | EOL [MP]                      |

### 2.3.7 Firmware Upgrade

Firmware upgrade may be performed directly from any previous version to this version. To upgrade firmware, please refer to the NVIDIA Firmware Tools (MFT) package at

[network.nvidia.com/products/adapter-software/firmware-tools/](https://network.nvidia.com/products/adapter-software/firmware-tools/)

## 2.4 PRM Revision Compatibility

This firmware version complies with the NVIDIA Switches Programmer's Reference Manual (PRM), Rev 1.40 or later.

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## 3 Changes and New Features

This firmware version includes the following new features. For a list of new features from previous versions, please see [Changes and New Features History](#).

| Keyword | Description                     |
|---------|---------------------------------|
| General | See <a href="#">Bug Fixes</a> . |

## 4 Bug Fixes in this Firmware Version

The following table provides a list of bugs fixed in this version. For a list of bug fixed from previous versions, see [Bug Fixes History](#).

| Internal Ref.                 | Issues   |
|-------------------------------|--|
| 3887883                       | <p><b>Description:</b> In cases where MirroringAgent MAD was sent without configuring fast recovery mirroring using MirroringGlobalTrigger MAD, the agent that was configured will send fast recovery mirroring notifications.</p> <p><b>Keywords:</b> Mirroring</p> <p><b>Discovered in Version:</b> 27.2012.2200</p> <p><b>Fixed in Version:</b> 27.2012.2234</p>      |
| 3800516<br>3608820            | <p><b>Description:</b> On rare occasions, following an event of port link down, the SHARP resources cleanup may fail.</p> <p><b>Keywords:</b> SHARP</p> <p><b>Discovered in Version:</b> 27.2012.2014</p> <p><b>Fixed in Version:</b> 27.2012.2234</p>   |
| 3824931<br>3843040            | <p><b>Description:</b> Illegal packets of a permissive LID (0xFFFF) and VL other than 15 were incorrectly configured to destined for port 0 and be proceeded by the switch firmware, which lead to overloading of the switch firmware.</p> <p><b>Keywords:</b> Checks</p> <p><b>Discovered in Version:</b> 27.2012.2108</p> <p><b>Fixed in Version:</b> 27.2012.2234</p> |
| 3877860<br>3864399            | <p><b>Description:</b> Sending pFRN packets to ports that were connected to themselves (loop), caused the switch hanged due to semaphore lock mismatch.</p> <p><b>Keywords:</b> pFRN</p> <p><b>Discovered in Version:</b> 27.2012.2108</p> <p><b>Fixed in Version:</b> 27.2012.2234</p>  |
| 3591193<br>3591151<br>3591197 | <p><b>Description:</b> Adjusted the PLL bandwidth to accommodate certain deviations in the switch link margins for improved resilience against temperature variations.</p> <p><b>Keywords:</b> PLL Bandwidth</p> <p><b>Discovered in Version:</b> 27.2010.1202</p> <p><b>Fixed in Version:</b> 27.2012.2234</p>  |



## 5 Known Issues

The following sections describe known issues in firmware releases and possible workarounds.

| Internal Ref. | Issue   |
|---------------|---|
| 3441123       | <b>Description:</b> On rare occasions, when a SHARP QP exceeded the allowed amount of retries, the switch may hang due to an incorrect flow execution.                |
|               | <b>Workaround:</b> N/A  |
|               | <b>Keywords:</b> SHARP  |
|               | <b>Discovered in Version:</b> 27.2012.1010  |
| 3329109       | <b>Description:</b> MFS1S50-H003E cable supports only HDR rate when used as a split cable.  |
|               | <b>Workaround:</b> N/A  |
|               | <b>Keywords:</b> HDR, split cable, MFS1S50-H003E  |
|               | <b>Discovered in Version:</b> 27.2010.6064  |
| 3327881       | <b>Description:</b> On Quantum unmanaged platforms, when using FDR speed with 1m Copper cable MCP1600-E001, on rare occasions, high effective errors may be observed. |
|               | <b>Workaround:</b> N/A  |
|               | <b>Keywords:</b> BER  |
|               | <b>Discovered in Version:</b> 27.2010.5042  |
| 3047036       | <b>Description:</b> On rare occasions, there can be long link up time on active copper cables MCA1J00-H003E.  |
|               | <b>Workaround:</b> N/A  |
|               | <b>Keywords:</b> Cables, MCA1J00-H003E  |
|               | <b>Discovered in Version:</b> 27.2010.4010  |
| 2278846       | <b>Description:</b> On rare occasions, when using Quantum systems with Optical cables MFS1S00-H003E and MFS1S00-H030E, the link up time may take up to 100 seconds.   |
|               | <b>Workaround:</b> N/A  |
|               | <b>Keywords:</b> Optical Cables   |
|               | <b>Discovered in Version:</b> 27.2010.2036  |
| 2355994       | <b>Description:</b> In AOCs MFS1S00-H0xx-LL and splitter cables MFS1S50-H0xxE-LL, effective BER of 1e-12 in EDR speed may be observed.                                |
|               | <b>Workaround:</b> N/A  |
|               | <b>Keywords:</b> Cables, BER  |
|               | <b>Discovered in Version:</b> 27.2008.2102  |
| 2127531       | <b>Description:</b> When using H-cable MFS1S90 with HDR speed in split mode, the link, on rare occasion, goes down.   |
|               | <b>Workaround:</b> N/A  |
|               | <b>Keywords:</b> Cables, Link   |
|               | <b>Discovered in Version:</b> 27.2008.1300  |
| 2917504       | <b>Description:</b> On 2KM HDR transceiver, MMS1W50-HM, QM87xx-HS2R (1U switch with C2P air flow) support power consumption of up to 6W per port.                     |

| Internal Ref. | Issue  |
|---------------|--|
|               | <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> QM87xx, Cables</p>   |
| 2223568       | <p><b>Description:</b> When using active copper cables, link down counter may be observed on occasion.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> Active Copper Cables</p> <p><b>Discovered in Version:</b> 27.2008.0232</p>  |
| 2109975       | <p><b>Description:</b> Occasionally, EDR linkup time might take up to 1 minute when using Amphenol 100G (EDR) optical cables.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> Cables, EDR</p> <p><b>Discovered in Version:</b> 27.2008.0232</p>  |
| 2239632       | <p><b>Description:</b> EDR linkup time might take up to 50sec when using HDR optical cable.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> Cables, EDR</p> <p><b>Discovered in Version:</b> 27.2008.0232</p>  |
| 2145881       | <p><b>Description:</b> Occasionally, when using Active Fiber Splitter cables (OPNs: MFS1S90-Hxxx), unclean RAW BER (10e-6) might be seen.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> Cables, BER</p> <p><b>Discovered in Version:</b> 27.2008.0232</p>  |
| 2145881       | <p><b>Description:</b> FDR link is unstable when using an FDR cable in ports: #27-#34.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> FDR, cables</p> <p><b>Discovered in Version:</b> 27.2008.0232</p>   |
| 2057793       | <p><b>Description:</b> Congestion profiles in VS-MAD <code>PortProfileSetting</code> support only fixed mode. Percentage mode is not supported.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> DCQCN Congestion Control</p> <p><b>Discovered in Version:</b> 27.2007.0300</p>   |
| 1959529       | <p><b>Description:</b> When HDR Active Copper cables are used between Quantum switches, or between Quantum switch and ConnectX-6 HCA, the counter indicating 'Link Down' may have a value other than zero, after the first time the cable is connected. As this may happened only at the first time, it is recommend to clear the counters after the cluster is brought up.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> Cables</p> <p><b>Discovered in Version:</b> 27.2000.3276</p> |

| Internal Ref. | Issue   |
|---------------|---|
| 1856717       | <p><b>Description:</b> High BER may occur when connecting cables of type 0.5/1m DAC to an HDR speed.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> Cables</p> <p><b>Discovered in Version:</b> 27.2000.1886</p>   |
| -             | <p><b>Description:</b> The supported length of HDR copper cables is currently up to 2M.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> HDR cables</p>  |
| -             | <p><b>Description:</b> Although the effective BER (after FEC) is expected to meet our design targets (e.g. 10e-14 or lower), occasionally it may be higher.</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> Cables</p>  |
| -             | <p><b>Description:</b> The following features are currently not supported on Quantum-based systems:</p> <ul style="list-style-type: none"> <li>• IB Router</li> <li>• Congestion Control</li> <li>• Voltage reading via MVCR</li> </ul> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> Quantum</p> |
| 955641        | <p><b>Description:</b> VL_HIGH_LIMIT is not affecting the VL arbiter as expected.</p> <p><b>Workaround:</b> Arbitration table should be set using only the low priority VL arbitration table.</p> <p><b>Keywords:</b> VL Arbitration</p>  |
| 1249608       | <p><b>Description:</b> Configuring weight "0" for VL, results in unexpected behavior.</p> <p><b>Workaround:</b> Arbitration table should be configured with weights other than "0".</p> <p><b>Keywords:</b> VL Arbitration</p>  |
| -             | <p><b>Description:</b> Module info page in Diagnostics Data VS-MAD is not supported</p> <p><b>Workaround:</b> N/A</p> <p><b>Keywords:</b> Diagnostics Data VS-MAD</p>   |

## 6 Changes and New Features History

For older versions history, please refer to their dedicated Release Notes.

| Category                                | Description  |
|---|--|
| <b>27.2012.2224</b>                     |  |
| General                                 | See <a href="#">Bug Fixes</a> .  |
| <b>27.2012.2200</b>                     |  |
| General                                 | See <a href="#">Bug Fixes</a> .  |
| <b>27.2012.1048</b>                     |  |
| General                                 | Stability improvements.  |
| <b>27.2012.1010</b>                     |  |
| Fast Recovery from Unhealthy Links      | Added support of the fast recovery from unhealthy links including BER monitor and credit watchdog. |
| Fast Recovery Notifications Towards UFM | Added support for notifications of Fast Recovery towards UFM entity (collector) in the network.    |
| General                                 | See <a href="#">Bug Fixes</a> .  |
| <b>27.2010.6102</b>                     |  |
| General                                 | See <a href="#">Bug Fixes</a> .  |
| <b>27.2010.6064</b>                     |  |
| Counters: Unhealthy Link                | Added BER Monitor counters for unhealthy link.   |
| Additional Status in Each MAD           | Added support of <i>AdditionalStatus</i> in MAD packets.   |
| Mirroring Congested Packets Towards UFM | Added support for mirroring of congested packets towards UFM entity (collector) in the network.    |
| General                                 | See <a href="#">Bug Fixes</a> .  |
| <b>27.2010.5108</b>                     |  |
| General                                 | Stability improvements.  |
| <b>27.2010.5002</b>                     |  |
| General                                 | Stability improvements.  |
| <b>27.2010.4102</b>                     |  |
| General                                 | Stability improvements.  |
| <b>27.2010.4010</b>                     |  |
| pFRN Collector                          | Added support for mirroring of PFRN packets towards UFM entity (collector) in the subnet.          |
| PKEY Filter for Multicast               | Added support for MulticastPKeyTrapSuppression (PKEY mismatch filtering).                          |

|                             |   |
|-----------------------------|---|
| SL to VL Mapping            | Added switch support for port mask optimization of SL to VL Mapping Table configuration.  |
| <b>27.2010.3118</b>         |   |
| Temperature Drift Tolerance | Improved HDR InfiniBand temperature drift tolerance on Quantum systems. Improved the algorithm for periodic link maintenance which is performed by NVIDIA IC during normal link operation in order to compensate for changes in link environment that might influence the analog behavior of the SerDes blocks in order to prevent a degradation in link performance. |
| <b>27.2010.3004</b>         |   |
| pFRN                        | Added support for pFRN (Proactive Fault Routing Notification) which allows for dynamic link failure detection and route correction for topologies based on Adaptive Routing.  |
| Counters                    | Added support for PortXmitWaitVLExtended counters.  |
| Fans                        | Enlarged fans' PRM registers to support up to 16 fans.  |
| General                     | See <a href="#">Bug Fixes</a> .   |
| <b>27.2010.2246</b>         |   |
| General                     | Stability improvements.   |
| <b>27.2010.2110</b>         |   |
| General                     | Stability improvements.   |
| <b>27.2010.2036</b>         |   |
| General                     | Stability improvements.   |
| <b>27.2010.1404</b>         |   |
| General                     | Stability improvements.   |

|                     |   |
|---------------------|---|
| <b>27.2010.1310</b> |   |
| Congestion Control  | Added ES-level support for congestion control class key.  |
| Vendor Key          | Added ES-level support for vendor class key.  |
| <b>27.2010.1202</b> |   |
| Counters            | Added support for PortVLXmitFlowCtlUpdateErrors counters.   |
| <b>27.2008.3328</b> |   |
| Cables              | Added GA-level support for AOC splitter cables MFS1S50-H0xxE-LL.<br>*Note that the cables above are HDR-only and are supported up to 30 meters.   |
| LinkX Cable Upgrade | Added GA-level support, on supported cables, for direct firmware burning from the internal flash storage to reduce the bandwidth and accelerate the burning process, including burning several modules at a time. |
| PKEY                | Added support for PKEY traps.   |
| Bug Fixes           | <a href="#">Bug Fixes</a> .   |
| <b>27.2008.2500</b> |   |

|                                      |   |
|--------------------------------------|---|
| Cables                               | Added support for cable MMS1W50-HM NVIDIA transceiver, IB HDR, up to 200Gb/s, QSFP56, MPO, 1310nm, FR4 on MQM8700-HS2R and MQM8790-HS2R systems.  |
| Cables                               | Added GA-level support for Active Optical Cables MFS1S00-H0xx-LL.<br>*Note that the cables above are HDR-only and are supported up to 30 meters.  |
| <b>27.2008.2402</b>                  |   |
| Bug Fixes                            | See <a href="#">Bug Fixes</a> .   |
| <b>27.2008.2300</b>                  |   |
| Bug Fixes                            | See <a href="#">Bug Fixes</a> .   |
| <b>27.2008.2202</b>                  |   |
| LinkX Cable Upgrade                  | Added beta-level support on supported cables for direct firmware burning from the internal flash storage to reduce the bandwidth and accelerate the burning process, including burning several modules at a time. |
| <b>27.2008.2102</b>                  |   |
| BER                                  | 100Gb/s speed BER improvements. con   |
| Cables                               | Added support for the following Active Fiber HDR cables: MFS1S00-H130E and MFS1S00-H150E.<br>For further information see section <a href="#">Validated and Supported HDR Cables</a> .                             |
| Counters                             | Added support for "Maximum PLR Counts per second (cps)" counter.  |
| IBdiagnet                            | Updated the PPNCT group/DiagnosticData to use SymbolBER counters instead of Effective BER counters.   |
| Telemetry                            | Added support for performance analysis using histogram-based traffic models to obtain the queue length distribution.  |
| <b>27.2008.1904</b>                  |   |
| SHARP                                | Added support for SHARP SAT performance counters.   |
| Adaptive Routing                     | Added support for a new Adaptive Router counter (PortARTrials) as part of the PortRNCounters group. PortARTrials is used to indicate the number of times the AR decision mechanism is used per port               |
| <b>27.2008.1604</b>                  |   |
| SHARP                                | Added support for MAD security policy for SHARP.  |
| Cables                               | Enabled PLR with Low-Latency (LL)-FEC mode in optical cables up to 30m.   |
| <b>27.2008.1300</b>                  |   |
| EDR Link in ConnectX-6 100Gb/s cards | EDR link speed is now supported when using ConnectX-6 100Gb/s HCA and connecting with HDR optical cables.   |
| <b>27.2008.0232</b>                  |   |
| Link Speed                           | Added support for FDR link speed when connecting a ConnectX-3 HCA with an HDR Quantum switch.   |
| SHARP                                | SHARP stability improvements.   |
| SHARP                                | Added support for legacy SHARP port and performance counters.   |
| Cables                               | Enabled KP4RS FEC on Active Fiber cables (OPN: MFS1S00-V0xxE).  |

|  |  |
|--|--|
| Cables   | Disabled PLR on Active Fiber cables.   |
| Bug Fixes  | See <a href="#">Bug Fixes</a> .  |
| <b>27.2007.1124</b>  |  |
| Bug Fixes  | See <a href="#">Bug Fixes</a> .  |
| <b>27.2007.0618</b>  |  |
| Bug Fixes  | See <a href="#">Bug Fixes</a> .  |
| <b>27.2007.0300</b>  |  |
| Performance  | Added support for link-negotiated credit size.   |
| General  | Added support for DCQCN Congestion Control.  |
| <b>27.2000.3276</b>  |  |
| NVIDIA Scalable Hierarchical Aggregation and Reduction Protocol (SHARP) <sup>™</sup> | SHARP (SAT) is at GA level.<br><b>*SAT:</b> Streaming Aggregation Tree   |
| <b>27.2000.2708</b>  |  |
| SHARP  | SHARP now supports running 2 flows in parallel.  |
| <b>27.2000.2626</b>  |  |
| Speed Link   | SDR link speed on InfiniBand systems is now available for all cables, including cables that do not advertise InfiniBand speed in their memory map.   |
| NVIDIA Scalable Hierarchical Aggregation and Reduction Protocol (SHARP)              | SHARP (LLT) is at GA level, whereas SHARP (SAT) is at Beta level.<br><b>*LLT:</b> Local Latency Tree<br><b>*SAT:</b> Streaming Aggregation Tree  |
| General  | Added support for Error Injection with PTER register.  |
| General  | See <a href="#">Bug Fixes</a> .  |
| <b>27.2000.2306</b>  |  |
| General  | See <a href="#">Bug Fixes</a> .  |
| <b>27.2000.2182</b>  |  |
| General  | See <a href="#">Bug Fixes</a> .  |
| <b>27.2000.2046</b>  |  |
| NVIDIA Scalable Hierarchical Aggregation and Reduction Protocol (SHARP)              | <b>[Beta]</b> NVIDIA Scalable Hierarchical Aggregation and Reduction Protocol (SHARP) technology improves the performance of MPI operations by offloading collective operations from the CPU to the switch network, and by eliminating the need to send data multiple times between endpoints. |
| Link Speed   | Added QDR/FDR support in Quantum switch systems when using optical cables of up to 30m.<br><b>Note:</b> QDR speed is only supported when using the FDR cables. See <a href="#">Validated and Supported FDR Cables</a>  |
| Cables   | Removed PLR from active cables longer than 30m.  |
| <b>27.2000.1886</b>  |  |

|                                     |  |
|-------------------------------------|--|
| Physical Layer Retransmission (PLR) | Added support to the Physical Layer Retransmission (PLR) functionality for HDR speed.  |
| Link Speed                          | Link-up time improvements. The link up time is up to 60 sec  |
| <b>27.2000.1600</b>                 |  |
| General                             | See <a href="#">Bug Fixes</a> .  |
| <b>27.2000.1400</b>                 |  |
| Link Speed                          | HDR speed rate is at GA level.   |
| Cables                              | Added support for Break-Out Cable auto-sensing.  |
| <b>27.2000.1142</b>                 |  |
| Link Speed                          | HDR link stability enhancements.<br><b>Note:</b> HDR is at beta level.   |
| <b>27.2000.1012</b>                 |  |
| Link Speed                          | HDR speed rate is currently at beta level.   |
| <b>27.2000.1004</b>                 |  |
| Link Speed                          | Stability improvements for HDR link.   |
| Subnet Manager (Adaptive Routing)   | Added support for Adaptive Routing. Adaptive routing (AR) allows optimizing data traffic flow. The InfiniBand protocol uses multiple paths between any two points. Thus, when unexpected traffic patterns cause some paths to be overloaded, AR can automatically move traffic to less congested paths according to the current temporal state of the network. |
| Adaptive Routing                    | Added support for Private Linear Forwarding Tables (PLFT). This capability helps SM to optimize traffic.   |



## 7 Bug Fixes History

| Internal Ref. | Issues   |
|---------------|--|
| 3536538       | <b>Description:</b> For mirror agent configured with dynamic port analyzer, configuring linear forwarding table may cause mirror agent enablement and unexpected mirrored packets. |
|               | <b>Keywords:</b> Recovery  |
|               | <b>Discovered in Version:</b> 27.2012.1010   |
|               | <b>Fixed in Version:</b> 27.2012.2014  |
| 3477039       | <b>Description:</b> Wrong RTT value is exposed under PRTL PRM.   |
|               | <b>Keywords:</b> Registers, RTT Value  |
|               | <b>Discovered in Version:</b> 27.2010.6064   |
|               | <b>Fixed in Version:</b> 27.2012.1010  |
| 3481394       | <b>Description:</b> When trying to choose the threshold for the Fast Recovery feature (BER Config), it is possible that threshold 0 will be loaded.                                |
|               | <b>Keywords:</b> Fast Recovery, BER Configuration  |
|               | <b>Discovered in Version:</b> 27.2010.6064   |
|               | <b>Fixed in Version:</b> 27.2012.1010  |
| 3451519       | <b>Description:</b> When using ibdiagnet, an incorrect module alarm type was reported.   |
|               | <b>Keywords:</b> ibdiagnet, Module Temperature Alarm Type  |
|               | <b>Discovered in Version:</b> 27.2010.5108   |
|               | <b>Fixed in Version:</b> 27.2012.1010  |
| 3448282       | <b>Description:</b> At times, the link gets stuck due to unresponsive peer having very high BER.   |
|               | <b>Keywords:</b> BER   |
|               | <b>Discovered in Version:</b> 27.2010.2110   |
|               | <b>Fixed in Version:</b> 27.2012.1010  |
| 3447029       | <b>Description:</b> On some occasions, if a peer's port resets or is physically toggled, the port may be reported as unhealthy due to BER threshold crossing.                      |
|               | <b>Keywords:</b> Port, Reboot, BER   |
|               | <b>Discovered in Version:</b> 27.2010.6102   |
|               | <b>Fixed in Version:</b> 27.2012.1010  |

| Internal Ref. | Issues   |
|---------------|--|
| 3326692       | <b>Description:</b> Wrap-around of the time_since_last_clear counter caused incorrect reporting of counters on the port. |
|               | <b>Keywords:</b> Counters  |
|               | <b>Discovered in Version:</b> 27.2010.3118   |
|               | <b>Fixed in Version:</b> 27.2010.6102  |

| Internal Ref.   | Issues  |
|-----------------|---|
| 3436317         | <p><b>Description:</b> On rare occasions, when a SHARP QP exceeds the allowed amount of retries, the switch may hang due to an incorrect flow execution.</p> <p><b>Keywords:</b> SHARP</p> <p><b>Discovered in Version:</b> 27.2010.2300</p> <p><b>Fixed in Version:</b> 27.2010.6102</p>   |
| 3283303/3298590 | <p><b>Description:</b> In the rare event of an error burst, the link maintenance stopped working.</p> <p><b>Keywords:</b> Link Maintenance</p> <p><b>Discovered in Version:</b> 27.2010.3118</p> <p><b>Fixed in Version:</b> 27.2010.6064</p>   |
| 3339363         | <p><b>Description:</b> pFRN notification state machine got halted in busy-wait on all riscs due to inability to free TX credits.</p> <p><b>Keywords:</b> pFRN</p> <p><b>Discovered in Version:</b> 27.2010.3118</p> <p><b>Fixed in Version:</b> 27.2010.6064</p>  |
| 3301825         | <p><b>Description:</b> The firmware does not return values for the counters "PortSwLifetimeLimitDiscards" and "PortSwHOQLifetimeLimitDiscards". Support has now been added for the counters.</p> <p><b>Keywords:</b> Counters</p> <p><b>Discovered in Version:</b> 27.2010.3118</p> <p><b>Fixed in Version:</b> 27.2010.5042</p>  |
| 3335002         | <p><b>Description:</b> pFRN mirror v1 header pad count showed an invalid padding size.</p> <p><b>Keywords:</b> PFRN</p> <p><b>Discovered in Version:</b> 27.2010.4010</p> <p><b>Fixed in Version:</b> 27.2010.5042</p>  |
| 3261861         | <p><b>Description:</b> Connecting an HDR device to an NDR device with Optical cables longer than 30m causes degradation in the bandwidth.</p> <p><b>Keywords:</b> HDR-to-NDR</p> <p><b>Discovered in Version:</b> 27.2010.4102</p> <p><b>Fixed in Version:</b> 27.2010.5002</p>   |
| 3269531         | <p><b>Description:</b> After multiple MSPS (Management System Power Supply register) calls, the switch gets stuck.</p> <p><b>Keywords:</b> MSPS</p> <p><b>Discovered in Version:</b> 27.2010.3118</p> <p><b>Fixed in Version:</b> 27.2010.5002</p>  |
| 3199650         | <p><b>Description:</b> A physical link failure between switches while a SHARP job is running and utilizing the link can cause one of the switches to become invalid for further SHARP jobs. This can result in either a "No resource" response for new SHARP job requests or in jobs getting stuck. The bug fix requires SHARP version 3.2.</p> <p><b>Keywords:</b> SHARP</p> |

| Internal Ref. | Issues   |
|---------------|--|
|               | <b>Discovered in Version:</b> 27.2010.4010   |
|               | <b>Fixed in Version:</b> 27.2010.4102  |
| 3245821       | <b>Description:</b> In case of an AR group table set request, the ARN mask is flushed for group that has an active pFRN timer.   |
|               | <b>Keywords:</b> PFRN  |
|               | <b>Discovered in Version:</b> 27.2010.4010   |
|               | <b>Fixed in Version:</b> 27.2010.4102  |
| 3253717       | <b>Description:</b> mask_force_clear_timeout timer in pFRN feature was not functional (the mask was not cleared when the timer expired).   |
|               | <b>Keywords:</b> PFRN  |
|               | <b>Discovered in Version:</b> 27.2010.4010   |
|               | <b>Fixed in Version:</b> 27.2010.4102  |
| 3242209       | <b>Description:</b> Set PFRN mad did not return error on wrong inputs in mask_clear_timer and mask_force_clear_timer fields.   |
|               | <b>Keywords:</b> PFRN  |
|               | <b>Discovered in Version:</b> 27.2010.4010   |
|               | <b>Fixed in Version:</b> 27.2010.4102  |
| 3174239       | <b>Description:</b> On rare occasions, traps were not properly repressed, which caused redundant traps to be sent multiple times.  |
|               | <b>Keywords:</b> Traps   |
|               | <b>Discovered in Version:</b> 27.2010.3118   |
|               | <b>Fixed in Version:</b> 27.2010.4010  |
| 2998597       | <b>Description:</b> Bandwidth degradation may be visible in large scale random traffic patterns (e.g., all2all and Adaptive Routing) due to wrong fast path configurations.      |
|               | <b>Keywords:</b> Performance   |
|               | <b>Discovered in Version:</b> 31.2008.2500   |
|               | <b>Fixed in Version:</b> 31.2010.3004  |
| 3040232       | <b>Description:</b> PLFT mapping for SMA port (port 0) was configured in a way that caused PLFT of FDB 0 to be used instead of PLFT of FDB 1.                                    |
|               | <b>Keywords:</b> PLFT, SMA   |
|               | <b>Discovered in Version:</b> 27.2010.2110   |
|               | <b>Fixed in Version:</b> 27.2010.2246  |
| 2646440       | <b>Description:</b> I <sup>2</sup> C bus got stuck in start state.   |
|               | <b>Keywords:</b> I <sup>2</sup> C  |
|               | <b>Discovered in Release:</b> 27.2008.2102   |
|               | <b>Fixed in Release:</b> 27.2010.2036  |
| 2709851       | <b>Description:</b> In some cases, traps that were sent when there is a change in link state may not be sent to SM due to wrong logic of the link state machine in the firmware. |

| Internal Ref. | Issues  |
|---------------|---|
|               | <p><b>Keywords:</b> SM Traps</p> <p><b>Discovered in Version:</b> 27.2008.2500</p> <p><b>Fixed in Release:</b> 27.2010.1128</p>   |
| 2635607       | <p><b>Description:</b> SM timeouts on PortInfo MAD SET may occur when Operational VLs are decreased (for example, when running different SM with different op_vl configuration) due to wrong logic in firmware of buffers allocation per VL. The fix is to first handle the VLs needed to be decreased in size and then enlarge the ones needed to increase in size.</p> <p><b>Keywords:</b> SM, Operational VL, Timeout</p> <p><b>Fixed in Release:</b> 27.2008.3328</p> |
| 2578261       | <p><b>Description:</b> In rare cases, on FR4 CMIS MMS1W50-HM, unplugging and plugging the module during link up flow may cause the link to get stuck on "Polling ."</p> <p><b>Keywords:</b> Cables, FR4</p> <p><b>Discovered in Version:</b> 27.2008.2402</p> <p><b>Fixed in Release:</b> 27.2008.3328</p>  |
| 2700834       | <p><b>Description:</b> A division by zero issue in uC code caused infinite loop to uC database alignment which prevents memory corruption that was a result of illegal access of neighboring lanes.</p> <p><b>Keywords:</b> Memory</p> <p><b>Fixed in Release:</b> 27.2008.3328</p>   |
| 2627108       | <p><b>Description:</b> Setting SHARP QuotaConfig with tree_if higher than 95 result with buffer overrun, and may lead to zombie jobs on the switch.</p> <p><b>Keywords:</b> SHARP</p> <p><b>Discovered in Version:</b> 27.2008.2500</p> <p><b>Fixed in Release:</b> 27.2008.3328</p>  |
| 2483974       | <p><b>Description:</b> Configuring split port using mlxconfig using MFT 4.15 resulted in configuring the incorrect ports on the unmanaged switch. On version 27.2008.3100, the issue was fixed. Make sure to use MFT 4.15 and above.</p> <p><b>Keywords:</b> MFT, Port Split</p> <p><b>Fixed in Release:</b> 27.2008.3328</p>   |
| 2646158       | <p><b>Description:</b> In some cases, traps that are sent when there is a change in link state may not be sent to SM due to a race between trap generation and trap repress. The solution ensures that the latest information will always be sent to SM.</p> <p><b>Keywords:</b> SM Traps</p> <p><b>Discovered in Version:</b> 27.2008.2500</p> <p><b>Fixed in Release:</b> 27.2008.3328</p>  |
| 2668318       | <p><b>Description:</b> In SHARP, in case of reusing a QP for son after Set Parent flow uses it as father, the father bit indication might remain set in QP and Resource Cleanup flow may fail. The solution resets the QPC entry in QPAlloc flow.</p> <p><b>Keywords:</b> SHARP</p> <p><b>Discovered in Version:</b> 27.2008.2500</p> <p><b>Fixed in Release:</b> 27.2008.3328</p>  |

| Internal Ref. | Issues  |
|---------------|---|
| 2697623       | <b>Description:</b> In SHARP, in case of Set Parent flow, misconfiguration in the TX domain causes credits to return to the wrong hardware unit.                          |
|               | <b>Keywords:</b> SHARP  |
|               | <b>Discovered in Version:</b> 27.2008.2500  |
|               | <b>Fixed in Release:</b> 27.2008.3328   |
| 2712117       | <b>Description:</b> In SHARP, switch may hang on locked semaphore due to misconfiguration in streaming aggregation TreeConfig MAD while ports are toggling.               |
|               | <b>Keywords:</b> SHARP  |
|               | <b>Discovered in Version:</b> 27.2008.2500  |
|               | <b>Fixed in Release:</b> 27.2008.3328   |
| 2571800       | <b>Description:</b> New SHARP jobs may hang after abrupt termination of SHARP jobs.   |
|               | <b>Keywords:</b> SHARP  |
|               | <b>Discovered in Version:</b> 27.2008.2402  |
|               | <b>Fixed in Release:</b> 27.2008.2500   |
| 2579752       | <b>Description:</b> Modules failed over 400KHz. The default I <sup>2</sup> C frequency has now been set to 100KHz for all modules.  |
|               | <b>Keywords:</b> Modules, I <sup>2</sup> C  |
|               | <b>Discovered in Version:</b> 27.2008.2102  |
|               | <b>Fixed in Release:</b> 27.2008.2402   |
| 2439961       | <b>Description:</b> The IsPLRMaxRetransmissionRateSupported and IsEffectiveCounterSupported counters were incorrectly added to the Virtual Port in the IB switch.         |
|               | <b>Keywords:</b> Counters   |
|               | <b>Discovered in Version:</b> 27.2008.2300  |
|               | <b>Fixed in Release:</b> 27.2008.2402   |
| 2445274       | <b>Description:</b> Packet bandwidth does not spread according to the VL Arbitration configuration in split ports.  |
|               | <b>Keywords:</b> VL Arbitration, Split Ports  |
|               | <b>Discovered in Version:</b> 27.2008.2102  |
|               | <b>Fixed in Version:</b> 27.2008.2402   |
| 2441016       | <b>Description:</b> On rare cases, SHARP jobs may fail, followed by multiple "SHARP error" traps. In cases this occurs, following jobs on the same tree may fail as well. |
|               | <b>Keywords:</b> SHARP  |
|               | <b>Fixed in Version:</b> 27.2008.2402   |
| 2323467       | <b>Description:</b> 32-bits counters per SL or VL were wrongly overflowed at 16-bits instead of 32-bits.  |
|               | <b>Keywords:</b> Counters   |
|               | <b>Discovered in Version:</b> 27.2008.1904  |
|               | <b>Fixed in Release:</b> 27.2008.2300   |

| Internal Ref. | Issues  |
|---------------|---|
| 2373063       | <p><b>Description:</b> Packet bandwidth does not spread according to the VL Arbitration configuration on 4x port.</p> <p><b>Keywords:</b> VL Arbitration</p> <p><b>Fixed in Release:</b> 27.2008.2202</p>   |
| 2384211       | <p><b>Description:</b> PKEY may return with a value of zero when sending aggregation class MADs to an aggregation node.</p> <p><b>Keywords:</b> PKEY</p> <p><b>Discovered in Version:</b> 27.2008.2102</p> <p><b>Fixed in Release:</b> 27.2008.2202</p>   |
| 2395304       | <p><b>Description:</b> When running non-SHARP traffic, packet drop may occur when SHARP is enabled.</p> <p><b>Keywords:</b> SHARP</p> <p><b>Fixed in Release:</b> 27.2008.2202</p>  |
| 2196422       | <p><b>Description:</b> On rare occasions, due to a suboptimal configuration of the NVIDIA Rx clock tracking, a link with challenging signal integrity resulted in link failures.</p> <p><b>Keywords:</b> Rx clock tracking</p> <p><b>Discovered in Version:</b> 27.2008.0232</p> <p><b>Fixed in Release:</b> 27.2008.1904</p> |
| 1848091       | <p><b>Description:</b> Although the effective BER (after FEC) is expected to meet our design targets (e.g. 10e-14 or lower), occasionally it may be higher.</p> <p><b>Keywords:</b> Cables</p> <p><b>Discovered in Version:</b> 27.2000.2708</p> <p><b>Fixed in Release:</b> 27.2008.0232</p>                                 |
| 2073222       | <p><b>Description:</b> In rare cases, HDR active copper cable link up time might be higher than expected (up to 2 minutes).</p> <p><b>Keywords:</b> Cables</p> <p><b>Discovered in Version:</b> 27.2000.3276</p> <p><b>Fixed in Release:</b> 27.2008.0232</p>   |
| 2169355       | <p><b>Description:</b> TCA port (ports 41/81) counter returns non-zero value since the TCA counters were not supported.</p> <p><b>Keywords:</b> SHARP, TCA, Port Counters</p> <p><b>Discovered in Version:</b> 27.2007.0618</p> <p><b>Fixed in Release:</b> 27.2008.0232</p>  |
| 2136877       | <p><b>Description:</b> Port Counters with "all_ports" attribute returns wrong values since the TCA counters were not supported.</p> <p><b>Keywords:</b> TCA, Port Counters</p> <p><b>Discovered in Version:</b> 27.2007.0618</p> <p><b>Fixed in Release:</b> 27.2008.0232</p>   |

| Internal Ref. | Issues  |
|---------------|---|
| 2133393       | <b>Description:</b> On rare occasions when link is flapping or toggle by the user, the switch may hang.   |
|               | <b>Keywords:</b> Link Flapping  |
|               | <b>Discovered in Version:</b> 27.2007.0618  |
|               | <b>Fixed in Release:</b> 27.2008.0232   |
| 1222186       | <b>Description:</b> Traffic loss may be experienced during a spine failover, when two SHARP (SAT) flows are enabled.  |
|               | <b>Keywords:</b> InfiniBand; SHARP (SAT)  |
|               | <b>Discovered in Version:</b> 27.2007.0618  |
|               | <b>Fixed in Release:</b> 27.2008.0232   |
| 2063786       | <b>Description:</b> Running 2 flows in parallel is currently not functional in SHARP (SAT).   |
|               | <b>Keywords:</b> SHARP (SAT), 2 flows   |
|               | <b>Discovered in Version:</b> 27.2000.3276  |
|               | <b>Fixed in Release:</b> 27.2007.0618   |
| 1972573       | <b>Description:</b> Reading the Serial Number by the MSPS register is not functional on the new Delta PSU model.  |
|               | <b>Keywords:</b> Delta PSU model, MSPS register   |
|               | <b>Discovered in Version:</b> 27.2000.2708  |
|               | <b>Fixed in Release:</b> 27.2007.0618   |
| 1970878       | <b>Description:</b> When using NVIDIA AOC cables longer than 50m use one VL to achieve full wire speed.   |
|               | <b>Keywords:</b> Cables   |
|               | <b>Fixed in Release:</b> 27.2007.0618   |
| 2022524       | <b>Description:</b> As the switch does not send auto-negotiation indication, after resetting/power cycling a ConnectX-6 HCA, some HCAs get stuck in "polling" state.                        |
|               | <b>Keywords:</b> Auto-negotiation, HCA, switch  |
|               | <b>Discovered in Version:</b> 27.2000.2708  |
|               | <b>Fixed in Release:</b> 27.2007.0300   |
| 1996051       | <b>Description:</b> After performing a software reset on the switch while using an Active Copper Cable or Optics Cable, the link gets high BER and is not available for traffic forwarding. |
|               | <b>Keywords:</b> Cables, BER  |
|               | <b>Discovered in Version:</b> 27.2000.2708  |
|               | <b>Fixed in Release:</b> 27.2007.0300   |
| 2036930       | <b>Description:</b> Degradation in throughput might be experienced when using HDR100 cables with a length of 30m and above.   |
|               | <b>Keywords:</b> Cables, Bandwidth  |
|               | <b>Discovered in Version:</b> 27.2000.2708  |
|               | <b>Fixed in Release:</b> 27.2000.3276   |

| Internal Ref. | Issues  |
|---------------|---|
| 1946287       | <p><b>Description:</b> Fixed an issue that resulted in SHARP jobs getting stuck after stopping a job during SAT operation.</p> <p><b>Keywords:</b> SHARP</p> <p><b>Discovered in Version:</b> 27.2000.2306</p> <p><b>Fixed in Release:</b> 27.2000.2626</p>   |
| 1778566       | <p><b>Description:</b> Fixed an issue that caused the Rx buffers allocation after running OpenSM to be based on the default VLCap configuration instead of the Operational VL configuration.</p> <p><b>Keywords:</b> Rx buffers allocation, OpenSM</p> <p><b>Discovered in Version:</b> 27.2000.2306</p> <p><b>Fixed in Release:</b> 27.2000.2626</p>   |
| 1930686       | <p><b>Description:</b> Fixed an issue that caused a multicast packet to be forwarded to a wrong port when the switch was configured to use the Split mode.</p> <p><b>Keywords:</b> Switch multicast forwarding</p> <p><b>Discovered in Version:</b> 27.2000.2182</p> <p><b>Fixed in Release:</b> 27.2000.2626</p>   |
| 1761271       | <p><b>Description:</b> CWDM4 AOM cable is currently not supported on Quantum switch systems.</p> <p><b>Keywords:</b> Modules/Cables</p> <p><b>Discovered in Version:</b> 27.2000.1400</p> <p><b>Fixed in Release:</b> 27.2000.2626</p>  |
| 1713747       | <p><b>Description:</b> When using splitter HDR optical cables, toggling the upper port causes the lower port to be toggled as well.</p> <p><b>Keywords:</b> Cables, port toggling</p> <p><b>Discovered in Version:</b> 27.2000.2046</p> <p><b>Fixed in Release:</b> 27.2000.2626</p>  |
| 1834740       | <p><b>Description:</b> Fixed an issue that resulted in high BER when using optical module with module firmware older than 37.50.316.</p> <p><b>Keywords:</b> Optical cables, BER, cables firmware</p> <p><b>Discovered in Version:</b> 27.2000.2182</p> <p><b>Fixed in Release:</b> 27.2000.2306</p>  |
| 1899441       | <p><b>Description:</b> Fixed an issue that caused the packets to be transmitted from a wrong output port due to a wrong configuration of the packet classification decision in the switch forwarding database cache key, that caused both AR eligible packets and AR ineligible packets to hit the same cache entry.</p> <p><b>Keywords:</b> Switch forwarding, Adaptive Routing</p> <p><b>Discovered in Version:</b> 27.2000.2046</p> <p><b>Fixed in Release:</b> 27.2000.2182</p> |
| 1885460       | <p><b>Description:</b> On rare occasions, and under high SHARP load, switch SHARP operation might get stuck.</p> <p><b>Keywords:</b> SHARP</p>  |



| Internal Ref.                               | Issues   |
|---|--|
|   | <p><b>Discovered in Version:</b> 27.2000.2046</p> <p><b>Fixed in Release:</b> 27.2000.2182</p>   |
| 1859715                                     | <p><b>Description:</b> The bandwidth on MFS1S00-H050E cables is 99G/s and on MFS1S00-H100E cables is 67Gb/s when connecting at HDR speed to an HDR switch.</p> <p><b>Keywords:</b> Cables</p> <p><b>Discovered in Version:</b> 27.2000.1886</p> <p><b>Fixed in Release:</b> 27.2000.2046</p> |
| 1797452                                     | <p><b>Description:</b> A port may hang while Link-Maintenance runs on it and the second port's link is toggled.</p> <p><b>Keywords:</b> Link-Maintenance, port toggling</p> <p><b>Discovered in Version:</b> 27.2000.1600</p> <p><b>Fixed in Release:</b> 27.2000.1886</p>                   |
| 1698990                                     | <p><b>Description:</b> HDR link up time when using optical cables may take 6 minutes or more (up to 20 minutes).</p> <p><b>Keywords:</b> HDR, optical cables, link up times</p> <p><b>Discovered in Version:</b> 27.2000.1100</p> <p><b>Fixed in Release:</b> 27.2000.1886</p>               |
| 1718734/<br>1723236/<br>1718645/<br>1710631 | <p><b>Description:</b> On rare occasions, HDR link may not raise properly when using optical cables.</p> <p><b>Keywords:</b> HDR link</p> <p><b>Discovered in Version:</b> 27.2000.1012</p> <p><b>Fixed in Release:</b> 27.2000.1600</p>   |
| 1774870                                     | <p><b>Description:</b> Link flapping and packet loss during High/Low temperature changes.</p> <p><b>Keywords:</b> Link</p> <p><b>Discovered in Version:</b> 27.2000.1400</p> <p><b>Fixed in Release:</b> 27.2000.1600</p>  |
| 1778837                                     | <p><b>Description:</b> When using a copper splitter cable up to 2m length in HDR100 mode, traffic may drop.</p> <p><b>Keywords:</b> Cable, HDR100</p> <p><b>Discovered in Version:</b> 27.2000.1400</p> <p><b>Fixed in Release:</b> 27.2000.1600</p>   |
| 1534459                                     | <p><b>Description:</b> When working with 8 VLs, TP does not function due to buffers' configuration.</p> <p><b>Keywords:</b> VLs, latency, performance</p> <p><b>Discovered in Version:</b> 27.2000.1100</p> <p><b>Fixed in Release:</b> 27.2000.1400</p>                                     |
| 1605587                                     | <p><b>Description:</b> Fixed an issue that cause the green port LED to blink in the same frequency regardless of the link speed rate set.</p> <p><b>Keywords:</b> Port LED</p>   |

| Internal Ref. | Issues   |
|---------------|--|
|               | <b>Discovered in Version:</b> 27.1910.0618   |
|               | <b>Fixed in Release:</b> 27.2000.1142  |
| 1598550       | <b>Description:</b> Fixed an issue that prevented the port from being split when the request (command) was sent from the NV config tool. |
|               | <b>Keywords:</b> Split Port  |
|               | <b>Discovered in Version:</b> 27.1910.0618   |
|               | <b>Fixed in Release:</b> 27.1910.0620  |

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