



BIOS for 2Gb FC HBAs

This software license applies only to QLogic customers.
QLogic Corporation.
All rights reserved.

Table of Contents

1. [Package Contents](#)
2. [Supported Features](#)
3. [HBA Configuration](#)
 - 3.1 [Configuration Settings](#)
 - 3.2 [Scan Fibre Channel Devices](#)
 - 3.3 [Fibre Disk Utility](#)
 - 3.4 [Loopback Data Test](#)
 - 3.5 [Select Host Adapter](#)
 - 3.6 [Exit Fast!UTIL](#)
4. [Utilities](#)
 - 4.1 [Flashing the BIOS](#)
 - 4.2 [Flashing the BIOS using FlasUtil](#)
 - 4.3 [FlasUtil Command Line Options](#)
5. [Additional Notes](#)
6. [Contacting Support](#)

1. Package Contents

The following table lists and describes the files provided with the 2Gb BIOS packages.

| Filename | Description |
|--|---|
| q123rom.bin | Binary image of the BIOS for the 2Gb FC HBA |
| FlasUtil.exe | Utility program to flash the BIOS |
| release.txt | BIOS release notes file |
| readme.txt | BIOS readme file |
| The following files are provided for QLx236x 2Gb HBAs: | |
| q12322rm.bin | Binary image of the BIOS for 2Gb HBAs |
| 2322ipx.bin | Binary image of firmware |
| As an alternative, you may receive a combo image 2322mxxx.bin that includes the BIOS and firmware. | |
| FlasUtil.exe | Utility program to flash the BIOS |
| 2322ReleaseNotes.txt | BIOS release notes |
| 23xxReadme.txt | BIOS readme file |

2. Supported Features

The q231x_234x_bios1.52.zip supports the following:

- Up to 256 LUNs
- Point-to-point and loop configuration
- Boot capability in FC-AL and fabric topologies
- OS platforms: DOS, Windows 2000, Windows Server 2003, Novell NetWare, Solaris x86, and Linux
- Hardware platforms: IA32, AMD64, and IEM64T

3. HBA Configuration Parameters

NOTE: The *Fast!Util* BIOS utility does not run on Sun SPARC systems. Refer to the FCode Guide for the QLx23xx HBA family for information regarding adapter configuration settings.

This section provides detailed configuration information for advanced users who want to customize the configuration of the QLx23xx HBA and the connected devices. You can use *Fast!UTIL* to configure the HBA.

Access *Fast!UTIL* by pressing **<ALT>-<Q>** or **<CTRL>-<Q>** during the QLx23xx HBA BIOS initialization (it may take a few seconds for the *Fast!UTIL* menu to appear). If you have more than one QLx23xx HBA, *Fast!UTIL* asks you to select the HBA you want to configure. After changing the settings, *Fast!UTIL* reboots your system to load the new parameters.

CAUTION! If the configuration settings are incorrect, your QLx23xx HBA may not function properly.

The following selections are available from the *Fast!UTIL* **Options** menu:

- **Configuration Settings** (see [section 3.1](#))
- **Scan Fibre Channel Devices** (see [section 3.2](#))
- **Fibre Disk Utility** (see [section 3.3](#))
- **Loopback Data Test** (see [section 3.4](#))
- **Select Host Adapter** (see [section 3.5](#))
- **Exit *Fast!UTIL*** (see [section 3.6](#))

3.1 Configuration Settings

The following subsections describe the **Configuration Settings**:

- [3.1.1 Host Adapter Settings](#)
- [3.1.2 Selectable Boot Settings](#)
- [3.1.3 Advanced Adapter Settings](#)
- [3.1.4 Restore Default Settings](#)
- [3.1.5 Raw NVRAM Data](#)

3.1.1 Host Adapter Settings

| Setting | Values | Default | Description |
|----------------------------|------------------|-----------|--|
| Host Adapter BIOS | Enabled/Disabled | Disabled | When this setting is disabled, the ROM BIOS on the QLx23xx HBA is disabled, freeing space in upper memory. This setting must be enabled if you are booting from an FC disk drive attached to the QLx23xx HBA. See Section 3.1.2 for details on specifying the boot device. |
| Frame Size | 512/1024/2048 | 2048 | This setting specifies the maximum frame length supported by the QLx23xx board. |
| Loop Reset Delay | 0 - 60 seconds | 5 seconds | After resetting the loop, the firmware refrains from initiating any loop activity for the number of seconds specified by this setting. |
| Adapter Hard Loop ID | Enabled/Disabled | Disabled | This setting forces the adapter to attempt to use the ID specified in the Hard Loop ID setting. |
| Hard Loop ID | 0 - 125 | 0 | If the Adapter Hard Loop ID setting is enabled, the adapter attempts to use the ID specified in this setting. |
| Spin Up Delay | Enabled/Disabled | Disabled | When this bit is set, the BIOS waits up to two minutes to find the first drive. |
| Connection Options | 0/1/2 | 2 | This setting defines the type of connection (loop=0, point-to-point=1, or loop preferred then point-to-point=2). |
| Fibre Channel Tape Support | Enabled/Disabled | Enabled | This setting enables FCP-2 recovery. |
| Data Rate | 0/1/2 | 2 | This setting determines the data rate. When this setting is 0, the QLx23xx HBA runs at 1 Gbps. When this setting is 1, the QLx23xx HBA runs at 2 Gbps. When this setting is 2, the HBA auto-negotiates and determines the data rate. |

3.1.2 Selectable Boot Settings

You can access the **Selectable Boot Settings** option from the **Configuration Settings** menu. If you enable the **Host Adapter BIOS** in the **Adapter Settings**, this option allows you to select the boot device as shown in the following table.

| Enable Selectable Boot | WWPN/LUN Boot List | Device Boot |
|------------------------|--------------------|---|
| No | x | BIOS configures the first disk drive it finds as boot device. |
| Yes | None specified | BIOS configures the first disk drive it finds that is also a LUN 0 as boot device. |
| Yes | Specified | BIOS scans through the specified Boot WWPN/LUN list until it finds a disk drive. This is configured as boot device. |

This option allows you to specify up to four WWPN/LUN as boot devices. Follow these steps to enable the **Selectable Boot** option and insert devices into the boot device locations:

1. From the **Configuration Settings** menu, use the arrow keys to choose **Host Adapter Settings**. Enable the **HBA BIOS**, then press **ESC** to return to the **Configuration Settings** menu.
2. From the **Configuration Settings** menu, use the arrow keys to choose **Selectable Boot Settings**.
3. Press **ENTER** to enable or disable (toggle) the **Selectable Boot** option. Use the down arrow key to move to the **Primary** location of the **Selectable Boot List** menu.
4. Press **ENTER** to see a list of accessible devices (displayed in the **Select Fibre Channel Device** menu).
5. Select a drive by using the arrow keys to scroll to the device you want to put into your **Selectable Boot** menu list. Press **ENTER**. This step selects the requested device and loads it into the **Selectable Boot** menu list.
6. Repeat the step above to specify up to three alternate boot devices.

NOTES:

- When enabling both the **HBA BIOS** and the **Selectable Boot** option, you should always select a device and put it in the primary boot device location of the **Selectable Boot** menu list.
- For new systems with Phoenix and AMI Multiboot BIOS, the selectable boot settings for the HBA do not work unless the **System BIOS Hard Drive Boot** option is in the correct order.

3.1.3 Advanced Adapter Settings

From the **Configuration Settings** menu in *Fast!UTIL*, select **Advanced Adapter Settings**. The default settings for the QLx23xx host adapter HBA are described in the following table.

| Setting | Values | Default | Description |
|------------------------|----------------------|------------|--|
| Execution Throttle | 1-256 | 16 | This setting specifies the maximum number of commands executing on any one target port. When a target port's execution throttle is reached, no new commands are issued until one of the current commands finishes executing. |
| LUNs per Target | 0/8/16/32/64/128/256 | 8 | If the target does not support the "Report LUN" command, this setting specifies the number of LUNs supported per target. Multiple LUN support is typically applies to a redundant array of independent disks (RAID) boxes that use LUNs to map drives. |
| Enable LIP Reset | Yes/No | No | This setting determines the type of loop initialization process (LIP) reset used when the operating system initiates a bus reset routine. When this setting is Yes, the driver initiates a global LIP reset to reset the target devices. When this setting is No, the driver initiates a global LIP reset requiring a full login. |
| Enable LIP Full Login | Yes/No | Yes | This setting instructs the ISP chip to re-login to all ports after any Loop Initialization Process (LIP). |
| Enable Target Reset | Yes/No | Yes | When a SCSI Bus Reset command is issued, this setting enables the drivers to issue a Target Reset command to all devices on the loop. |
| Login Retry Count | 0 - 255 | 8 | This setting specifies the number of times the software attempts to log in to a device. |
| Port Down Retry Count | 0 - 255 seconds | 30 seconds | This setting specifies the number of seconds the software waits to retry a command to a port returning port-down status. |
| Link Down Timeout | 0 - 255 seconds | 30 seconds | This setting specifies the number of seconds the software waits for a link down to come up. |
| Extended Error Logging | Enabled/Disabled | Disabled | This setting provides additional error and debug information. When enabled, events are logged into the operating system specific event log or message file. |
| Operation Mode | 0/5/6 | 0 | This setting specifies the reduced interrupt operation (RIO) modes, if supported by the software driver. The RIO modes allow posting multiple command completions in a single interrupt. The following modes are supported: 0 = Interrupt for every I/O completion 5 = Interrupt when Interrupt Delay Timer expires 6 = Interrupt when Interrupt Delay Timer expires or no active I/Os. |
| Interrupt Delay Timer | 0 - 255 seconds | 0 | This setting contains the value (in 200-microsecond increments) used by a timer to set the wait time between generating an interrupt. |

3.1.4 Restore Default Settings

The **Restore Defaults** option from the **Configuration Settings** menu restores the QLx23xx HBA default settings.

3.1.5 Raw NVRAM Data

This option displays the adapter's NVRAM contents in hexadecimal format. This is a QLogic troubleshooting tool; you cannot modify the data.

3.2. Scan Fibre Channel Devices

This option scans the FC loop and lists all the connected devices by loop ID. It lists information about each device, such as vendor name, product name, and revision. This information is useful when configuring your QLx23xx HBA and attached devices.

3.3. Fibre Disk Utility

This option scans the FC loop and lists all the connected devices by loop ID. You can select a FC hard disk and then do one of the following:

- Perform a low-level format.
- Verify the disk media.
- Verify the disk data.
- Select a disk device.

CAUTION! Performing a low-level format destroys all data on the disk.

3.4. Loopback Data Test

This option allows you to perform a Loopback test. Make sure that the FC loop is up or a Loopback plug is attached to the adapter before starting the test.

3.5. Select Host Adapter

If you have multiple QLx23xx HBAs in your system, use this setting to select a specific HBA and then configure or view its settings.

3.6. Exit Fast!UTIL

This option allows you to exit the utility and reboot the system or to return to *Fast!UTIL*. After making changes to the FC HBA in *Fast!Util*, make sure you save them before rebooting the system.

4. Utilities

This section describes the utilities that support the BIOS for 2Gb FC HBAs. For details, see the following topics:

- [4.1 Flashing the BIOS](#)
- [4.2 Flashing the BIOS using FlasUtil](#)
- [4.3 FlasUtil Command Line Options](#)

4.1 Flashing the BIOS

The QLogic flash programming utility is a DOS utility. For ease of use, this QLogic BIOS package has a DOS batch file for updating the adapter BIOS.

To use it, boot to a DOS hard drive, USB drive, or to a Floppy disk and run *23xxflash.bat*.

NOTES:

- Do not run this utility from drive connected to QLx23xx.
- Make sure *FlasUtil.exe* and the source files *ql23rom.bin/ql2322rm.bin/2322ipx.bin* are in the same directory.

The QLogic BIOS package also includes the *FlasUtil* utility. This provides a DOS Command Line Interface for updating the adapter BIOS. The following sections describe the command line options supported by *FlasUtil.exe*.

4.2 Flashing the BIOS using FlasUtil

To flash the BIOS using FlasUtil:

1. Insert QLx23xx controller in the system.
2. Boot to DOS.
3. Run FlasUtil program by typing `FlasUtil` at the command prompt.
4. If the utility detects a 2Gb HBA controller, it displays the following:
`QLx23xx Adapter found at I/O address: xxxx`
NOTE: If the utility does not detect the 2Gb HBA controller, run FlasUtil again with the `/I` (Ignore Subsystem ID) option.
5. Select `F` to write Flash. FlasUtil writes Flash to the adapter using `ql23rom.bin` or `ql2322rm.bin` found in the same directory.
6. For 2Gb HBAs, enter the following additional command:
`FlasUtil /I /FR`
 This command writes the Flash with firmware `2322ipx.bin`.
7. Reboot the system.

4.3 FlasUtil Command Line Options

| Option | Description |
|-----------------------------|---|
| BOOT CODE IMAGE ONLY | |
| <code>/F xxxx</code> | Writes BIOS Flash for the adapter at address = xxxx. If no address is specified then writes flash to all adapters. If the flash already contains a valid BIOS, the existing NVRAM defaults are preserved. |
| <code>/C xxxx</code> | Verifies Flash of the adapter at address xxxx. If no address is specified, this command verifies Flash of all adapters. |
| <code>/W xxxx</code> | Copies BIOS Flash to file: QL1xROM.SAV for adapter at address = xxxx |
| FCODE IMAGE ONLY | |
| <code>/FF xxxx</code> | Writes FCode Flash for the adapter at address = xxxx. If no address is specified, this command writes flash to all adapters. |
| <code>/CF xxxx</code> | Verifies Fcode for the adapter at address xxxx. If no address is specified, this command verifies the flash of all adapters. |

4.3.1 Additional Options

| Option | Description |
|--------------------------------------|---|
| BOOT CODE IMAGE ONLY | |
| <code>/O <filename.ext></code> | Use <filename.ext> instead of QLxxRxx.BIN. |
| <code>/I</code> | Ignores Subsystem ID. |
| <code>/M</code> | Do not prompt for I/O address. |
| <code>/Q</code> | Quiet Mode, no messages are displayed. |
| <code>V xxxx</code> | Displays the current version number of the BIOS on adapters at address xxxx. If no address is specified, this command displays the BIOS version for all adapters. |
| <code>/S xxxx</code> | Displays the serial number of the adapter at address xxxx. If no address is specified, this command displays serial number of all adapters. |
| <code>/Y xxxx</code> | Displays port name of the adapter at address xxxx. If no address is specified, this command displays Port Name of all adapters. |

4.3.2 Examples using Command Line Options

For HBAs with previous valid Flash and NVRAM contents:

- To write flash in all FC HBAs in a system without being prompted for I/O address, enter:
`FlasUtil /f`
This command updates the BIOS while preserving previous NVRAM defaults.
- To write the firmware in all FC HBAS (ISP2322 based HBAs only), enter:
`FlasUtil /fr`
This command updates the firmware for ISP2322 based HBAs.

5. Additional Notes

- For 2Gb FC drives, change the **Data Rate (Extended Firmware Settings)** to 1 or 2.
- If FC RAID target was used in a cluster environment, we recommend setting **Enable Target Reset** to Enabled (**Advanced Adapter Settings**).
- BIOS scan (BIOS enabled) does not list devices attached to Fabric Switch. If you want to boot to a single device attach to Fabric, please refer to the note in [section 3.1.2](#), "Selectable Boot Setting."
- Use the `/I` option if FlasUtil does not detect your controller.
- FlasUtil supports up to 16 2Gb HBA controllers at a time.
- QLx23xxF jumper settings:

| Pins | Optical Interface |
|------|-------------------------------|
| 1-2 | Enabled by firmware |
| 2-3 | Enabled on Power on (default) |

6. Contacting Support

Please feel free to contact your QLogic approved reseller or QLogic Technical Support at any phase of integration for assistance. QLogic Technical Support can be reached by the following methods:

Web: <http://support.qlogic.com>

North America Contact Information

Email: support@qlogic.com

Phone: (952) 932-4040

Support contact information for other regions of the world is available at the QLogic website:

<http://support.qlogic.com>

[Go to Top](#)



© Copyright 2007. All rights reserved worldwide. QLogic, the QLogic logo, and the Powered by QLogic logo are registered trademarks of QLogic Corporation. All other brand and product names are trademarks or registered trademarks of their respective owners.