PRODUCT CHANGE NOTICE

Symmetricom XLi Firmware v1.84.1.4 Upgrade – Resolves IRIG year rollover issue.

1. Supplier Information

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2. Field Service Bulletin #

0505-01 TTM

3. Issue Date

May 25, 2005

4. Change Classification

N/A

5. Product Identity/Model	6. Product Code/Assembly	7. Old Product Code
XLi Time and Frequency System	1510-602, 1510-652	N/A

8. New CLEI Code
N/A

9. Old CLEI Code
N/A

10. Drawing #
N/A

11. Associated Products or Changes Affected
N/A

12. Classification Substantiation
N/A

13. Reason for Change

Previous system firmware versions require the user to manually increment the year when the XLi is using IRIG time code as its timing reference during the transition from one year to the next. (Note: XLi will not read year information on IRIG code, as IRIG-A, B and NASA 36 codes do not contain year information). Firmware version 1.84.1.4 increments the year in the system clock upon the transition from one year to the next.

Note: The clock will transition through the year while powered on, but if the clock is not powered through the transition it will not roll the year through a roll over.

14. Description of Change

Hardware Changes:

    None

Firmware Changes:

    Upgrade the following files: 192-8001.bin, 192-8000.bt, and 192-8002.fs
    See Appendix A for upgrade instructions.

15. Effect of Change
See Reason For Change

16. Material Affected
N/A

17. Documentation Affected
N/A

18. Supplier Implementation Date
April 1, 2005

19. Modification Expiration Date
N/A

20. Modification Location
Field Upgrade

21. Modification Cost
None

22. Location and Quantity of Equipment
N/A

23. Attachments
See Appendix A on the following page.

24. Comments

How does one check the unit's current firmware version number?

Log on to the XLi and enter the following command:

```
> F100 VER
```

An example XLi response is:

```
F100 VER
BOOTLOADER 192-8000
SOFTWARE 192-8001
FILE SYSTEM 192-8002v1.84
NVRAM VER 5
PROJ REV #1.84.1.4  (firmware not at 1.84.1.4 should upgrade)
FPGA 184-800Vxx  (can be 33 or 54)
```

Appendix A: Upgrading System Firmware

Consideration must be given to the firmware and the hardware version numbers of the XLi and it's optional components. Consult with Symmetricom's Customer Service department before performing upgrades.

This section explains how to completely upgrade the system firmware. This is done using the F100 BH, F100 BUB, F100 BU, and F100 BF commands.

Overview of Procedure

- Set up a network connection between your XLi and the FTP server.
- Set up an FTP Server with the firmware upgrade files.
- Open a command line session to the XLi.
- Install the firmware files
- Reboot the XLi.
- If your system's NTP and SNMP configuration files (ntp.conf, ntp.keys, snmp.conf) have been customized, make backup copies and later re-install those configuration files. Consult the XLi User Guide for instructions on how to do this.

Set up the FTP Server

To save time and trouble, download a preconfigured FTP server from *http://www.ntp-systems.com/zip/warftpd1.zip* and extract it to the C:\ drive on your workstation. Otherwise, customize your existing FTP server setup as described in this section.

When performing these operations, the user issues command line instructions to the XLi. The XLi responds to those commands by connecting to the FTP server and burning the software to system memory. The XLi gives the FTP server `Anonymous' as its user name, and uses a null password (e.g., the equivalent of pressing the Enter key on your keyboard instead of entering text). The FTP server must be configured as follows:

- Anonymous log-ins are enabled
- The password for Anonymous is disabled, or allows a null password
- Anonymous has read/write privileges to Anonymous's home directory.

Obtain the current system firmware files (E.g., 192-8001.bin, 192-8000.bt, 192-8002.fs) from Symmetricom's customer support website.

Place the system firmware upgrade files in home directory of the `anonymous' user. If you're using the preconfigured FTP server, C:\TrueTime is the default or home directory.

Open a Command Line Session on the XLi

The XLi and FTP server need to be connected by a TCP/IP network. Ideally they should be on an isolated subnet. Connecting them over a network with multiple `hops' or one with heavy network traffic raises the possibility that the system software files could be corrupted, yielding the XLi inoperable.

Telnet to the XLi over the network. For example, at your workstations command line, type "telnet 192.168.46.10".

When prompted, log in to the unit using the operator's username and password; the user name and password are usually "operator" and "janus".

Upgrade the Firmware

Command Format

When issuing the firmware upgrade commands, use the following format:

```
F100 <command> <ftp_server_ip_address> <relative_path>/<file.ext>
```

If the FTP server is on your workstation, <ftp_server_ip_address> is the IP address of your workstation.

<relative_path> is a subdirectory inside the anonymous user's home directory on the FTP server. If there is no subdirectory (i.e., if the upgrade files are sitting in anonymous user's home directory), drop <relative_path> from the command line.

For example, if c:/ftpworkfiles is the anonymous user's home directory, and the upgrade files are in c:/ftpworkfiles/xli/, you would enter the command as follows:

```
F100 bh 192.168.49.120 xli/192-8000.bt
```

On the other hand, if the files are in c:/ftpworkfiles, the anonymous user's home directory, you would drop the <relative_path> and enter the command as follows:

```
F100 bh 192.168.49.120 /192-8000.bt
```

Issuing the Upgrade Commands

Adapt the following examples as needed to match your system, such as differences in IP address, path, and filename).

Enter the following command:

```
F100 bh <IP_address> <relative_path>/<file.bt>
```

For example:

```
F100 bh 192.168.49.120 /192-8000.bt
```

XLi responds:

```
BURN HOST IS READY<CR><LF>
```

Then `burn' the bootloader to the XLi's flash memory by entering:

```
F100 bub
```

The XLi responds:

```
OK
BURNING FILE 192-8000.bt WITH SIZE 452164 TO PARTITION:0 SECTOR:0
SEC: 0 RE: 0
SEC: 1 RE: 0
SEC: 2 RE: 0
SEC: 3 RE: 0
SEC: 4 RE: 0
SEC: 5 RE: 0
SEC: 6 RE: 0
FLASH SUCCESSFULLY PROGRAMMED CRC32 = 0x9EFBE60A
```

Then enter "K (space) I (space) L (space) L" as shown here:

```
F100 K I L L
```

Note: The "K I L L" command reboots your unit.

When the unit has finished rebooting, upgrade the `firmware' (.bin) file:

```
F100 bh <IP_address> <relative_path>/<file.bin>
```

For example:

```
F100 bh 192.168.49.120 /192-8001.bin
```

The XLi responds:

```
BURN HOST IS READY<CR><LF>
```

Then enter:

```
F100 bu
```

Note: Enter "bu", not "bub".

The XLi responds:

```
OK
BURNING FILE 192-8001.bin WITH SIZE 803016 TO PARTITION:1 SECTOR:10
SEC: 10 RE: 0
SEC: 11 RE: 0
SEC: 12 RE: 0
SEC: 13 RE: 0
SEC: 14 RE: 0
SEC: 15 RE: 0
SEC: 16 RE: 0
SEC: 17 RE: 0
SEC: 18 RE: 0
SEC: 19 RE: 0
SEC: 20 RE: 0
SEC: 21 RE: 0
SEC: 22 RE: 0
FLASH SUCCESSFULLY PROGRAMMED CRC32 = 0x2D9A260A
```

Then upgrade the 'file system' (.fs) file:

```
F100 bh <IP_address> <relative_path>/<file.fs>
```

For example:

```
F100 bh 192.168.49.120 /192-8002.fs
```

The XLi responds:

```
BURN HOST IS READY<CR><LF>
```

Then enter:

```
F100 bf
```

Note: Enter "bf", not "bub" or "bu".

The XLi responds:

```
OK
BURNING FILE 192-8002.fs WITH SIZE 524288
SEC: 94
SEC: 95
SEC: 96
SEC: 97
SEC: 98
SEC: 99
SEC: 100
SEC: 101
SEC: 102
```

Then enter "K (space) I (space) L (space) L" as shown here:

```
F100 K I L L
```

The "K I L L" command reboots your unit. You have completed the firmware upgrade procedure

Troubleshooting

Most problems upgrading the firmware are due to problems with the configuration of the FTP server, such as:

- setting the server to accept a null password
- configuring the anonymous home directory
- setting the correct access rights
- entering the correct relative file path

The following error messages may provide some indication of the underlying problem:

Message: >Can't set the burn host - wrong IP address

Cause: The IP address entered for the FTP server is incorrect. Check that you've entered the IP address of the FTP server (not the XLi) and re-enter if necessary.

Message: >Can't open file: 192-####.##

Cause: There's a problem with the FTP server that is preventing access to the file. Verify the following:

- The FTP server is correctly configured.
- The anonymous user account is enabled.
- The anonymous user account password is "guest".
- The anonymous user account has read access to the ftpworkfiles directory.
- The ftpworkfiles directory located in the anonymous user's home directory.
- The FTP server is running.
- There aren't any other `anonymous' users logged into the FTP server.

Try connecting to the FTP server as `anonymous' using an FTP client. You should automatically see the product name directory (e.g., "XLi") you created inside the anonymous users home directory (e.g., "c:\ftpworkfiles\"). Open the product name directory. You should see the firmware upgrade files you put there. If either the product name directory or the firmware upgrade files aren't visible, there's a problem with the FTP configuration.

Message: >Wrong File type

You may be using the wrong firmware files for the product being upgraded. This may be due to the incorrect files being place in the upgrade directory. It may also be that the wrong directory was entered (one for another product) in the path information on the F100 command line. `Wrong file type' is also associated with `Can't open file' errors - see the preceding message.

Message: Unit hangs on "Burning Boot" message.

Check that your IP Address, Subnet Mask, and Default Gateway of the XLi are correctly configured.

FAQ

How does one check the unit's firmware version number?

Log on to the XLi and enter the following command:

```
> F100 VER
```

An example XLi response is:

```
F100 VER
BOOTLOADER 192-8000
SOFTWARE 192-8001
FILE SYSTEM 192-8002v1.80
NVRAM VER 5
PROJ REV #1.80
```

The " *PROJ REV* " number is the firmware version number. The " *v* " number in " *FILE SYSTEM* " is the file system version number, which may not be the same as the firmware version number.

How does one check the IP address, subnet mask, and default gateway of the XLi?

Log on to the XLi and enter the following command:

```
> F100 IC
F100 IP:192.168.47.156 SM:255.255.255.0 G:192.168.47.1
```

Is the null modem cable necessary? What if I'm upgrading a XLi remotely?

The null-modem cable is optional. If you decide to Telnet to the XLi over TCP/IP network, you don't need the null modem cable.

I'm using a null modem cable to connect to the XLi from my laptop and the XLi keeps rebooting?

An ungrounded voltage level on one of the pins in the null modem cable causes the unit to reset. Use one of the following work-arounds:

- Connect the laptop to a grounded power supply, if it has one, or ground the laptop's chassis.
- Do away with the null modem cable. Telnet to the unit over the network.

Use a regular PC instead of the laptop. The PC is connected to a grounded power supply and doesn't cause this problem.