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SOFTWARE AND FIRMWARE UPGRADE INSTRUCTIONS

ATCA-1200

This document shows how to upgrade the ATCA-1200 software and firmware. The basic upgrade steps are:

1. Upgrade the LMP (Local Management Processor) Software
2. Upgrade the IPMI Firmware

Target	File Name	Versions
LMP	release-1.8.21-ppm2-wr.bin.gz	1.8.21
IPMI	ppm2_all.hpm, ppm2_ipmi_0.bin	00.17

Equipment	Software
TH-1019 Connector (required for troubleshooting only)	Renesas Tool - Flash Development Toolkit (FDT) http://eu.renesas.com/fmwk.jsp?cnt=fdt_request.jsp&fp=/products/tools/flash_prom_programming/fdt/child_folder/&title=Flash%20Development%20Toolkit%20Download%20Request

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Upgrading LMP Software from 1.8.12 to 1.8.21

Important: Do not upgrade the IPMI firmware until you have upgraded the LMP software according to the steps below.

1. Connect to the ATCA-1200 using Telnet or the serial port.
2. Log in to the Linux shell as root.
3. Make sure the ATCA-1200 is booted to flash bank 0:

```
# cat /proc/cpuinfo
processor      : 0
cpu          : e500v2
revision     : 2.0 (pvr 8021 0020)
bogomips     : 1317.27
chipset      : 8548E
Vendor       : RadiSys Corporation
Machine      : PPM2_1 [0x101] MPC8548E
clock        : 1320MHz
PVR          : 0x80210020
SVR          : 0x80390020
PLL setting  : 0x5
Memory       : 512 MB
Flash Bank   : 1    <== should be 0
```

```
# reboot -0    -- Boot from flash bank 0
```

4. If you need to store the existing Linux configuration, back up all the files in the /rsys directory. For example, if you need to store the Linux configuration:


```
# cd /
# mkdir -p /tmp
# tar -zcvf /tmp/rsys_ppm2.tgz rsys/
```

5. Copy the file rsys_ppm2.tgz onto a head system or any other PC.
6. If required, store the switch configuration as described on page 4.
7. Copy release-1.8.21-ppm2-wr.bin.gz and reflash-ATCA-1200-release-1.8.21.1 onto the ATCA-1200 using FTP. Rename reflash-ATCA-1200-release-1.8.21.1 to reflash.sh:

```
# chmod +x reflash.sh
```

8. Disable the watchdog to minimize interruptions to the reflash process.

```
# /etc/init.d/watchdog stop
```



9. Update the secondary flash image first:

```
# ./reflash.sh -p secondary -a -i release-1.8.21-ppm2-wr.bin.gz
```

10. You will be prompted to confirm the upgrade. Enter Y to proceed.

11. When prompted to reboot, enter N to prevent rebooting at this time.

12. Now update the primary flash image:

```
# ./reflash.sh -p primary -a -i release-1.8.21-ppm2-wr.bin.gz
```

13. When prompted again to confirm the upgrade and reboot, answer Y to both questions.

14. If any running switch configurations were saved earlier, they need to be restored. Refer to *Restoring the Switch Configuration* on page 4 for instructions.

15. If you saved a Linux configuration in Step 4, you can restore it now. You can compare the backed up copy of the old flash file system (e.g., rsys_ppm2.tgz) with the files on the upgraded ATCA-1200.

Note: Do not copy all files from the old flash file system over the new files, as this could erase required changes in the upgraded flash image. Also, do not just untar the old flash file system onto the upgraded ATCA-1200, as it will partially downgrade the file system that you just upgraded. Untar the flash file system on the head machine or other PC, then update (not copy) only the required portions of the required files in the /rsys directory of the ATCA-1200.

This completes the upgrade of both images to version 1.8.21.



Switch Configuration

Storing the Switch Configuration

Saving the configuration requires an accessible TFTP server. See the troubleshooting section below if you are having problems copying to your TFTP server.

1. Connect to the ATCA-1200 using Telnet or the serial port.
2. Log in to the Linux shell as root.
3. Use the CLI to save the running switch configurations to a TFTP server in case you need to restore them later.

```
root@ATCA-1200@1-3-1:~# mcli
ATCA-1200# ethernet
ATCA-1200-Eth# copy system:running-config nvram:startup-config
ATCA-1200-Eth# copy nvram:startup-config tftp://<IP
address>/<file-1>
ATCA-1200-Eth# exit
ATCA-1200# copy system:running-config nvram:startup-config
ATCA-1200# copy nvram:startup-config tftp://<IP
address>/<file-3>
ATCA-1200# logout
```

Troubleshooting copy errors

1. Ensure that the TFTP server is accessible from the blade by attempting to connect to the TFTP server using the TFTP utility from the Linux shell.
2. Some TFTP server do not allow the creation of new files. You may need to “prime” the /tftpboot directory. For example:

```
touch /tftpboot/<file-1>
chmod 777 /tftpboot/<file-1>
```

3. Check your TFTP server's documentation and configuration. For instance, under Linux, ensure that the server_args line in /etc/xinetd.d/tftp on the TFTP server contains “-s” parameter. If not, update the /etc/xinetd.d/tftp file and start the service once again with /etc/xinetd.d/tftp restart.



Restoring the Switch Configuration

1. Connect to the ATCA-1200 using Telnet or the serial port.
2. Log in to the Linux shell as root.
3. Verify that the version file shows the newly applied software version:

```
root@ATCA-1200@1-3-1:~# cat /etc/version
```

4. If you need to restore the configurations you saved above, copy back the saved configurations:

```
root@ATCA-1200@1-3-1:~# mcli  
ATCA-1200# ethernet  
ATCA-1200-Eth# copy tftp://<IP address>/<file-1>  
          nvrram:startup-config  
ATCA-1200# copy tftp://<IP address>/<file-3>  
          nvrram:startup-config  
ATCA-1200# logout  
root@ATCA-1200@1-3-1:~# reboot -0
```

The restored configurations will re-enable ports that were disabled by the upgrade.

Upgrading IPMI Firmware from 0.16 to 0.17

1. Get the IP address of the active Shelf Manager. For example: 10.100.18.39.
2. Get the target IPMB address of the ATCA-1200 that needs to be upgraded. For example, if the ATCA-1200 is in Slot 12, the IPMB address is 0x94.
3. Send the "sel" command to verify whether you are able to communicate with the active Shelf Manager:

```
./ipmitool_HPM1_1_00 -I lan -H 10.100.18.39 -A none sel
```

4. If the SEL information is displayed the Shelf Manager is up and running. If there is no response, contact the system administrator to start the Shelf Manager.
5. Verify whether you are able to communicate to the target blade using the Get Device Id command. This will also indicate which IPMI firmware version and FPGA version you are running.

```
./ipmitool_HPM1_1_00 -I lan -H 10.100.18.39 -A none -t 0x94 hpm  
check
```

Note: If there is no response, the blade may be inactive or the firmware corrupt; use the Flash Development Toolkit (FDT) in the next section to upgrade the IPMI firmware. If successful, continue with the steps below.

6. Upgrade and activate the IPMI Firmware:

```
./ipmitool_HPM1_1_00 -I lan -H 10.100.18.39 -A none -t 0x94 hpm  
upgrade ppm2_all.hpm component 1 activate
```

7. Enter Y to continue when you see the prompt "Services may be affected during upgrade. Do you wish to continue? y/n".
8. It takes about 7 – 10 minutes for the upgrade. When you see the message "Firmware upgrade procedure successful", wait for 2 minutes and then flash the other bank.

9. Upgrade and activate the other bank:

```
./ipmitool_HPM1_1_00 -I lan -H 10.100.18.39 -A none -t 0x94 hpm  
upgrade ppm2_all.hpm component 1 activate
```

10. Enter Y to continue when you see the prompt "Services may be affected during upgrade. Do you wish to continue? y/n".

11. Verify whether the latest firmware versions are updated:

```
./ipmitool_HPM1_1_00 -I lan -H 10.100.18.39 -A none -t 0x94 hpm  
check
```

12. If the firmware is not updated or you encountered problems during the update, refer to the Troubleshooting section at the end of this document.



Troubleshooting

This section describes the steps to follow if the firmware/FPGA upgrades have failed or is corrupt.

IPMI Firmware Upgrade

To upgrade from the IPMI core if the ipmitool fails or the firmware is corrupt, use the Flash Development Toolkit (FDT) from Renesas (www.renesas.com). The version currently recommended is FDT 3.04.

The following steps describe how to upgrade the IPMI Controller using the FDT and the TH-1019 card. Refer to section 0, TH-1019 Connector Block Diagram, on page 10 for TH-1019 setup information.

1. Power off the ATCA-1200.
2. Attach the TH-1019 card to the serial port on the host computer, and attach the ribbon cable to the serial header on the ATCA-1200.
3. Configure the TH-1019 programming switches so that switches 5 and 6 are in the 'OFF' position and switches 1, 2, 3, and 4 are in the 'ON' position.
4. Power on the ATCA-1200.
5. Check the RST LED on the TH-1019 card.
 - If the RST LED is lit, set switch 2 of the TH-1019 back to the OFF position since the H8 has been put into reset.
 - If the RST LED is off, do not change switch 2 at this time.
6. On the Windows taskbar, click Start, then Programs->Renesas->Flash Development Toolkit 3.4->"Flash Development Toolkit 3.4".
7. After the Flash Development Toolkit starts, create a new project workspace and name it "PPM". Leave all other default settings as they are, and click OK.
8. Select "Generic BOOT Device" from the "Select Device" list, then click Next. Generic BOOT Device is the last item in the list.
9. Select the COM port you are connected to on the host computer, and click Next.
10. A message will display to notify you that the application will try to connect to your device. Make sure no other programs are connected to the COM port you are using, then click OK.



11. If you left switch 2 on the TH-1019 in the ON position in step 5 above, turn it off when you see the RST LED light up. This will allow the Flash Development Toolkit to connect to the H8.
12. When communication is established with the H8, you will be asked to confirm the device selection of 2166, (i.e., HD64F2216). Continue "Selecting Clock mode to 0". Make sure the clock frequency (CPU Crystal Frequency) is set to **32MHz**, and the baud rate is set to **115200**. (Uncheck the "use default" and select 115200 from drop down menu). Click on "Next" and "Finish" to complete the settings. This will display "Connection complete" on the screen.
13. After you finish creating the workspace, select Add Files from the Project menu. Select the binary image ppm2_ipmi_x.bin. Right click on the filename and select 'Download to [User Area]'. One or two messages will display to inform you "This file is not an SRecord. Loading as raw data." Click OK to continue.

Note: The appropriate binary file depends on the hardware revision, which is shown on the label. For example if the hardware revision is **0**, then select "ppm2_ipmi_0.bin." If the hardware revision is **1**, select "ppm2_ipmi_1.bin."
14. The output window in the FDT displays the status of the upgrade. Wait until the image is completely downloaded before continuing to the next step. This should take about one minute at 115K baud.
15. Once completed, "Image successfully written on device" is displayed. Select Disconnect from the Device menu.
16. Extract the ATCA-1200 and remove the TH-1019 cable, then re-insert the ATCA-1200 into the shelf.

Mapping of IPMB Addresses

Slot or Module	IPMB Address (Hex) in ATCA-6000 12U Shelf	IPMB Address (Hex) in ATCA-6006 5U Shelf
Front Slot 1	9A	82
Front Slot 2	96	84
Front Slot 3	92	86
Front Slot 4	8E	88
Front Slot 5	8A	8A
Front Slot 6	86	8C
Front Slot 7	82	n/a
Front Slot 8	84	n/a
Front Slot 9	88	n/a
Front Slot 10	8c	n/a
Front Slot 11	90	n/a
Front Slot 12	94	n/a
Front Slot 13	98	n/a
Front Slot 14	9C	n/a
PEM1 (Left PEM viewed from rear)	C4	66
PEM2 (Right PEM viewed from rear)	C6	68
Fan 1	C8 (left top)	5A (fan tray on right)
Fan 2	CA (right top)	5C (fan tray on left)
Fan 3	CC (left recessed)	n/a
Fan 4	CE (right recessed)	n/a
SPM1	E4	n/a
SPM2	E6	n/a

TH-1019 Connector Block Diagram

This is the setup required for flashing the IPMI firmware using Renesas Flash Development Toolkit (FDT). The PGM_EN switch is ON (move the switch towards the DB9-Connector as shown below).

