RS/6000 7043-260 System and Service Processor Firmware Update

Applies to : IBM RS/6000 7043-260

This document describes the installation of Licensed Machine Code, which is sometimes referred to generically as microcode or firmware.

Contents

1.0 Systems Affected

This update provides new System and Service Processor (SvP) firmware (FW) for RS/6000 7043-260 systems *only*. Do **not** use on any other systems.

The firmware levels contained in this update are:

- **System FW: SPX05217**
- **SvP FW: px040617**

These are companion levels and must be used together.

The typical time to install this firmware is 0.8 hours. The firmware does not become active when installed and requires a system reboot to become active. This reboot time will vary depending on the system and the amount of features installed. This estimate is for an

average system.

2.0 Firmware Description and Revision History

Table 2.1 lists the levels and descriptions for System firmware.
Table 2.2 lists the levels and descriptions for Service Processor firmware.

Table 2.1: System Firmware Update Descriptions and History	
SPX05217	- Added support for the FAT-16 file system. - Added support for ARP (address request protocol). - On the IBM10/100 Mbps Ethernet PCI adapter (FC 2698), the default network settings were changed to auto,auto.
SPX04197	- Added support for AIX 5.3. - Resolves ethernet adapter link errors reported in AIX error log during boot on systems equipped with IBM 4-Port 10/100 Ethernet Adapter (FC 4951), IBM Universal 4-Port 10/100 Ethernet Adapter (FC 4961) or integrated adapters based on these adapter types. - Corrected boot failure with 'Default Catch' message displayed on console when booting from tape media containing large boot image. - Enhancements to prevent potential ping and NIM boot failures on SP and Cluster attached servers. - Added support to provide response to APR requests for Hot Standby Router Protocol (HSRP) or other network processes that generate ARP requests during NIM operations.
SPX03021	- Corrected boot failure with checkpoint E1F6 displayed after bootlist is set via AIX and more than 5 devices are specified. - Corrected missing devices in SMS bootlist when bootlist set via AIX. - Corrected error 20EE000B: unable to find boot record after restore on NIM install on 36GB or larger disks. - Corrected 'Default Catch' message displayed on console after SMS 'Change SCSI ID' utility screen is accessed. - Parameter change to limit bootlist entries set via AIX to 5.
SPX02178	- Change to allow modification to ethernet speed and duplex settings in SMS to apply immediately. - Corrected for problems booting from DASD connected to PCI Dual Channel Ultra3 SCSI Adapter, (Feature Code 6203, Type 4-Y). - Correction for NIM boot failure, through Ethernet, when spanning tree

	algorithm is enabled on the port attached to the ethernet switch. • Added support for nw device id/vendor id for IBM Universal 4-Port 10/100 Ethernet Adapter (Feature Code 4961, Type A-E). • Correction for handling xoff character transmitted to ASCII terminal during boot. Failure symptom,: terminal would stop displaying data during boot. • Changed SMS 'ping' routine: If the Server IP Address is set to 0.0.0.0, only ping Gateway IP Address. If the Server IP Address is not set to 0.0.0.0, ping Server IP Address. • Removed gateway IP address limitation for ping when client and server are on the same subnet - the gateway address no longer has to be specified as 0.0.0.0. • Correction to allow return to SMS utilities menu after a ping on any token ring adapter. • Correction for SMS ping failures when the system is not connected to a network or when Media Type (10 Base T, 100 Base TX, or Auto) is set incorrectly (doesn't match setting at ethernet switch or hub).
SPX01344	• Added support for IBM 10/100 Mbps Ethernet PCI Adapter II (Feature Code 4962, Type A-F). • Corrected problem that causes error code 20A80xxx during NIM install or boot. • Corrects interruption of NIM boot (via TFTP packet transfer) that was caused by non-TFTP packet transfers. Failure symptoms vary: may hang at E1F7 or 611, trouble booting in maintenance mode.
SPX01264	• Added support for IBM Gigabit Fibre Channel Adapter for PCI Bus (Feature Code 6227, Type 4-S). • Added support for IBM Gigabit Fibre Channel Adapter for 64-bit PCI Bus (Feature Code 6228, Type 4-W). • Added support for the IBM PCI Dual Channel Ultra-3 SCSI Adapter (Feature Code 6203, Type 4-Y). • Corrected NIM boot/install failure with IBM 10/100/1000 Base-T Ethernet PCI Adapter when "Auto" option is selected for speed (Feature Code 2975, Type A-A).
SPX00270	• Added support for IBM 4 Port 10/100 Ethernet PCI Adapter. • Added support for IBM 10/100/1000 Base-T Ethernet PCI Adapter. • Corrected spaceball E1DC hang problem. • Corrected NIM install 607 hang when using IBM 10/100/1000 Base-T Ethernet PCI Adapter. • Corrected various SMS menu problems.

	• Improved system serviceability.
SPX99246	• Added improvements to Reliability/Accessibility/Serviceability (RAS) • Added usability enhancements.
SPX99028	• Corrected Code Sequencing Restriction
SPX99027	• Corrected low potential address parity error. • Miscellaneous enhancements.
SPX98285	• Original (GA) level.

Table 2.2: Service Processor Firmware Update Descriptions and History	
px040617	• Corrected problem with system time changes during Daylight Savings Time transitions in locales where DST is not observed.
px020627	• Correction to enable Ring Indicator Power-On function.
px010921	• Companion level to System firmware levels SPX01264 and SPX01344.
px000925	• Corrected for SP menu being unreachable after shutdown -F in telnet session. • Added VPD option for manufacturing mode. • Miscellaneous enhancements.
px990712	• Corrected intermittent hang at checkpoint E0E1 during IPL. • Corrected intermittent power on after a "shutdown -F" power down. • Added improvements to Reliability /Accessibility /Serviceability (RAS). • Added usability enhancements.
px990202	• Corrected Load-Load reordering error.

px990201	• Corrected low potential voltage threshold error. • Miscellaneous enhancements.
px981002	• Original (GA) level.

3.0 Cautions and Important Notes

ATTENTION: The firmware levels contained in this package MUST be installed before installing AIX 5.3.

The System and Service Processor (SvP) firmware are combined into a single file. This allows all the firmware to be updated together and assures they are companion levels.

NOTE: The individual files that are used with the SMS Utilities update method will no longer be provided. The AIX command-line update method is now the only supported method.

Don't be alarmed at the length of this document! For any given download/unpacking/update environment, the process is short. This document describes processes for several environments. One should be suitable for your needs, and these instructions guide you through just the environment you choose.

Firmware Update Installation Is Not Concurrent

Installation of the firmware will cause an unconditional reboot of the system. Therefore, all user operations should be gracefully terminated before firmware updates are to be applied.

Avoid Potential Firmware Update Corruption

Some firmware corruptions are recoverable in the field, and repeating the update will usually correct the problem. If the second update attempt fails, replace the card containing the corrupted firmware module. Here are some tips to help avoid the need for such recoveries.

Never power OFF the system during the firmware update process!
The update will be incomplete and *will* fail. Depending on where in the update process the power was lost, a recovery attempt will often succeed. One recovery attempt is worthwhile.

Replacement Parts May Require Updating

System and Service Processor firmware must be companion levels.

When a system planar is replaced, the system and service processor firmware must be checked to ensure they are at the latest *companion* levels. If they are not, update to the latest companion levels using the instructions in this document. Table 3.1 lists the released levels of firmware.

Table 3.1: Combined Firmware Levels, File Sizes and Checksums

	Combined System and SvP Firmware			Companion Levels Included	
Distribution Date	*Filename*	*Size*	*Checksum*	*System FW*	*SvP FW*
November 2005	fw05217.img	1427982	13066	SPX05217	px040617
August 2004	fw04197.img	1427982	53015	SPX04197	px040617
May 2003	fw03021.img	1427970	39387	SPX03021	px020627
October 2002	fw02178.img	1427970	48986	SPX02178	px020627
April 2002	fw01344.img	1427954	38300	SPX01344	px010921
November 2001	fw01264.img	1427954	14517	SPX01264	px010921
December 2000	fw00270.img	1434374	10936	SPX00270	px000925
October 1999	fw99246.img	1413750	06395	SPX99246	px990712
June 1999	fw99028.img	1426242	57576	SPX99028	px990202
February 1999	fw99027.img	1407442	08720	SPX99027	px990201
Original (GA)	fw98285.img	1399254	10937	SPX98285	px981002

AIX Instructions are CASE SENSITIVE

In the instructions that follow are specific AIX and DOS commands. AIX commands are CASE (lower and upper) SENSITIVE, and *must* be entered exactly as shown, including the filenames. DOS commands are not case sensitive, and may be entered without regard to the cases shown.

How to Determine the Firmware Release Date

Level identifiers for the SvP FW use the 8-digit Gregorian date code method in terms of year, month, and day (such as 20040617 for PX040617 level). The System FW uses the 5-digit Julian date code method in terms of day number in a year (such as 2005217 for SPX05217 level -- 217th day of 2005 or August 5, 2005).

4.0 How to Determine Currently Installed Firmware Levels

DO NOT rely on the part number or firmware level marking/label on the EPROM/FLASH module because the content of the module may have been updated to a different level. To be safe, always check the firmware level electronically.

Two methods for reading the firmware levels are described below.

- If the operating system is running, use the AIX command-line method. Continue to paragraph 4.1.
- If the operating system is not running, use the SMS Utilities method. Skip to paragraph 4.2.

4.1 Using AIX to Read Currently Installed Firmware Levels

To check the firmware levels,

   Enter:
     lscfg -vp | grep alterable

 This command will produce a system configuration report ***similar*** to the following.

```
ROM Level.(non-alterable)...px020627    <== Service Processor FW level
ROM Level.(alterable).......SPX02178    <== System FW Level
```

The ROM Level lines list the levels of the currently installed firmware. In the above example, the current System firmware level is SPX02178, and the current Service Processor firmware level is px020627.

If the right-most five characters (date) of the current System FW level are earlier than 05217 you should consider installing the update.

If the right-most six characters (date) of the current Service Processor FW level are earlier than 040617, you should consider installing the update.

  If you find the firmware levels are not correct companions, or that they must be updated, proceed to Section 5.0.   If the firmware levels are correct companions and if no update is needed, installation is complete.

4.2 Using SMS Utilities to Read Currently Installed Firmware Levels

The System Management Services (SMS) Utilities may be accessed in two ways.

- If using an ASCII terminal, continue to paragraph 4.2.1.
- If using a graphics console, skip to paragraph 4.2.2.

Instructions for these two methods are slightly different, so be sure to choose the correct instructions for your environment.

4.2.1 If Using an ASCII Terminal

Power on or shutdown and restart the system. At checkpoint E1F1 on the operator panel, watch the terminal for the time to press the "1" key. An indicator appears on the terminal as each system component is self-tested. When the word "keyboard" appears, quickly press the "1" key. The SMS menu will be displayed after startup testing has completed.

The current System and Service Processor firmware levels can be found under the "**Display Configuration**" selection on the SMS main menu. The System firmware level is shown under "**System Information**" on the line "**Firmware Level**", and the Service Processor firmware

level is shown under "**Service Processor Information**" on the line "**ROM Level**."

If the right-most five characters (date) of the current System FW level are earlier than 05217 you should consider installing the update.

If the right-most six characters (date) of the current Service Processor FW level are earlier than 040617, you should consider installing the update.

When you have read the current firmware levels, exit SMS as directed on the menu screens.

If you find the firmware levels are not correct companions, or that they must be updated, proceed to Section 5.0.   If the firmware levels are correct companions and no update is needed, installation is complete.

4.2.2 If Using a Graphics Console

Power on or shutdown and restart the system. At checkpoint E1F1 on the operator panel, watch the console for the time to press the "F1" key.   An indicator appears on the console as each system component is self-tested. When the keyboard icon appears, quickly press the "F1" key. The SMS menu will appear when all the component tests have completed.

The current System and Service Processor firmware levels can be found under the "**Config**" selection on the SMS main menu. The System firmware level is shown under "**System Information**" on the line "**Firmware Level**", and the Service Processor firmware level is shown under "**Service Processor Information**" on the line "**ROM Level**."

If the right-most five characters (date) of the current System FW level are earlier than 05217 you should consider installing the update.

If the right-most six characters (date) of the current Service Processor FW level are earlier than 040617, you should consider installing the update.

When you have read the current FW levels, exit SMS as directed on the menu screens.

If you find the firmware levels are not correct companions, or that they must be updated, proceed to Section 5.0.   If the firmware levels are correct companions and no update is needed, installation is complete.

5.0 Downloading and Unpacking the Firmware Update Package

 Instructions for downloading and unpacking the firmware update package follow.

5.1 Internet Package

The System and Service Processor Firmware, in AIX and DOS formats, are located at the web site

http://techsupport.services.ibm.com/server/mdownload2/download.html

Follow the instructions on this page. You must read and agree to the license agreement to obtain the firmware packages.

In the table for System/Service Processor Combined Microcode, scroll down to the entry for 7043-260.

The download choices at that entry are:

- Description   (Instructions document)
- AIX Format   (For downloading to an AIX system)
- DOS Format   (For downloading to a Windows workstation)

You will want a copy of the description (instructions document) and one of the format choices. You may transfer files to the target system in one of several ways.

- By downloading files directly to the target system.
- By downloading files to an intermediate AIX system and then using either ftp or diskettes for transferring files to the target system.
- By downloading files to a Windows workstation from which you will use diskettes for transferring files to the target system.

Detailed download/unpacking instructions follow for each of the downloading preferences.

- If using an AIX system for downloading, continue to paragraph 5.1.1.
- If using a Windows workstation for downloading, skip to paragraph 5.1.2.

5.1.1 Downloading the AIX Format File

Use this method to download to an AIX system.

> **Note:** In the instructions that follow are specific AIX commands.
> AIX commands are CASE (lower and upper) SENSITIVE, and *must* be entered exactly as shown, including the filenames.

a) Provide a directory on an AIX system to receive the AIX format file.

Enter:
mkdir   /tmp/fwupdate

Note: If the directory /tmp/fwupdate already exists,
    make sure it is empty before proceeding.

b) Transfer the AIX format file to the /tmp/fwupdate directory (using "Save as ...").
   You'll see the filename is 7043260F.BIN

c) Unpack the file by executing the instructions below.

Enter the commands:

cd   /tmp/fwupdate
chmod   +x   7043260F.BIN
./7043260F.BIN

[Don't overlook the periods (.) in the above command.]

These files will be added to /tmp/fwupdate.

fw05217.img
ReadMe.TXT

If the above procedure was used to transfer files directly to the target system you are ready to use the combined update process. Proceed to Section 6.0, Updating the Firmware.

Otherwise, from the intermediate AIX system, choose one of the following methods for

transferring to the target system.

- To transfer files to the target system via the ftp method, continue to paragraph 5.1.1.1.
- To transfer files to the target system via the diskettes method, skip to paragraph 5.1.1.2.

5.1.1.1 The FTP Transfer Method

This method presumes you have ftp access to the target system.   The combined update process is supported by this method.

On an intermediate AIX system,

Enter the commands:

ftp *{name of target system}*
{Login with a valid userid and password}

bin
lcd /tmp/fwupdate
mkdir   /tmp/fwupdate
cd   /tmp/fwupdate
put fw05217.img
quit

Proceed to Section 6.0, Updating the Firmware.

5.1.1.2 The Diskette Transfer Method

This method can be used for cases in which electronic connections between the intermediate AIX system and the target system are inconvenient.

A 2MB (HD) new or freshly formatted diskette is required.

With the diskette loaded in the drive,

Enter the commands:

cd /tmp/fwupdate
ls fw05217.img | backup -i -v -f/dev/rfd0

This will produce an AIX backup diskette. Label this diskette,

"AIX Backup: Combined System (SPX05217) and SvP (px040617) FW for 7043-260"

Proceed to Section 6.0, Updating the Firmware.

5.1.2 Downloading the DOS Format File

Use this method to download to a Windows workstation.

a) Prepare a directory for receiving the DOS format file.
This directory can be in any partition with 6MB available space.
Executing in such a partition, called [path] in these instructions
(ex. c:\download),

Enter:

md [path]**\fwupdate**

> **Note:** If the directory [path]\fwupdate already exists,
> ***make sure it is empty before proceeding.***

b) Transfer the DOS format file to the [path]\fwupdate directory (using "Save as ..."). You'll see the filename is 7043260F.EXE

c) Unpack the file by executing the instructions below.

Enter the commands:

> **cd** [path]**\fwupdate**
> **7043260F**

These files will be added to the fwupdate subdirectory:

> 43260F_B.exe
> readme.txt

5.1.2.1 Diskette for AIX Command-Line Update Method

A 2MB (HD) new or freshly formatted DOS diskette is required.

With the diskette loaded in the drive,

Enter the commands:

> **cd** [path]**\fwupdate**
> **43260F_B**

Label this diskette,

"AIX Backup: Combined System (SPX05217) and SvP (px040617) FW for 7043-260"

> **Note:** Any diskette labeled: 'AIX Backup: . . . .' is in a format that can be used directly with a computer running AIX as it's operating system. This diskette cannot be read using PC tools or command line operations.

Proceed to <u>Section 6.0, Updating the Firmware</u>.

5.2 CORE Package

System and Service Processor firmware are provided in the package under pSeries-RS/6000-Microcode-System/Service. Look for 7043-260.

You will want to read the update description and the latest installation instructions.

When you launch the firmware update selection in CORE, follow the instructions on the screen to access the instructions and make diskettes.

> **Note:** Any diskette labeled: 'AIX Backup: . . . .' is in a format that can be used directly with a computer running AIX as it's operating system. This diskette, once made on the MoST platform, cannot be read using normal platform tools or command line operations.

After reading the instructions and making the diskettes from CORE, proceed to <u>Section 6.0, Updating the Firmware</u>.

5.3 Downloading from the Microcode Update Files and Discovery Tool CD

Follow the instructions that come with the Microcode Update Files and Discovery Tool CD. The firmware file, fw05217.img, you download from the CD is in the /tmp/fwupate directory.

If you are installing the code manually:

    Enter:
      mkdir /tmp/fwupdate

     Note: If the directory /tmp/fwupdate already exists,
          make sure it is empty before proceeding.

Copy the fw05217.img file to the /tmp/fwupate directory. Proceed to [Section 6.0, Updating the Firmware](#).

5.4 Remote Installation of Firmware

 To install firmware on a remote system, login to the remote system as root. Copy (in binary format) the firmware file, fw05217.img, to the /tmp/fwupdate directory on the remote system. Proceed to [Section 6.0, Updating the Firmware](#).

6.0 Updating the Firmware

The System and Service Processor Firmware are combined into a single file. This allows both the System Firmware and Service Processor Firmware to be updated together and assures they are companion levels.

***

WARNING:

Do not power off the target system at any time before the update process completes.

***

Note: Checksums can be used to verify files have not been corrupted or altered during transmission.

    At the AIX command line, enter:

     sum fw05217.img

    The output will look like this -------> 53015 1395 fw05217.img
    The checksum is ----------------> 53015

6.1 If Using the AIX Command-Line Method

This method supports the combined update process. You must have root authority on the target server to update its firmware. Because the update process will cause an automatic AIX reboot, be sure the system is not running any user applications.

This method allows updating either from files already loaded into the target system or from diskettes.

- If the files are loaded in the target system, continue to paragraph 6.1.1.
- If the files are on AIX backup diskettes, skip to paragraph 6.1.2.

Note: In the instructions that follow are specific AIX commands. AIX commands are CASE (lower and upper) SENSITIVE, and *must* be entered exactly as shown, including the filenames.

6.1.1 Updating with Files Already Loaded in the Target System

With the files located in the /tmp/fwupdate subdirectory,

Enter the commands:

cd /usr/lpp/diagnostics/bin
./update_flash -f /tmp/fwupdate/fw05217.img

[Don't overlook the periods (.) in the above command.]

You will be asked for confirmation to proceed with the firmware update and the required reboot. If you confirm, the system will apply the new firmware, reboot and return to the AIX prompt. This may take up to ten minutes, depending on the configuration of the target system.

While the update is in progress, you will see "Rebooting . . ." on the display for as long as two minutes.

The firmware update is complete. You will want to verify the update as described in paragraph 6.2.

6.1.2 Updating from AIX Backup Diskettes

On the target system,

Enter the commands:

mkdir /tmp/fwupdate

Note: If the directory /tmp/fwupdate already exists,
           make sure it is empty before proceeding.

cd /tmp/fwupdate
restore

You will be prompted to mount volume 1 on /dev/rfd0

In the drive of the target system, put the AIX backup diskette labeled,

"AIX Backup: Combined System (SPX05217) and SvP (px040617) FW for 7043-260"

The file is now located in the /tmp/fwupdate subdirectory.

Enter the commands:

cd /usr/lpp/diagnostics/bin
./update_flash -f /tmp/fwupdate/fw05217.img

[Don't overlook the periods (.) in the above command.]

You will be asked for confirmation to proceed with the firmware update and the required reboot. If you confirm, the system will apply the new firmware, reboot and return to the AIX prompt. This may take up to ten minutes, depending on the configuration of the target system.

While the update is in progress, you will see "Rebooting . . ." on the display for as long as two minutes.

The firmware update is complete. You will want to verify this update as shown in .

Don't forget to retrieve and file any firmware update diskette that may still be in the system's diskette drive. A good time to do this is after the reboot has completed.

6.2 Verifying the Updates

To verify the firmware update was successful, use the following AIX command after the automatic reboot.

To check the firmware levels

   Enter:
     lscfg -vp | grep alterable

This command will produce a system configuration report *similar* to the following.

```
ROM Level.(non-alterable)...px040617   <== SvP FW level
ROM Level.(alterable).......SPX05217   <== System FW level
```

The ROM Level lines list the levels of the newly installed System and Service Processor firmware. For System FW, the level should be SPX05217. For SvP FW, the level should be px040617.

6.3 Archiving the Update Files

In the event it becomes necessary to restore the system to a certain firmware level, it is suggested you identify and archive the materials for each update you install.

If the download process produced diskettes, label and store them in a safe place.

If the download process produced files, archive and identify the files for convenient retrieval.

7.0 Machine Records

 There is no ECA associated with this release.

End of Installation Instructions