

# RS/6000 7043-140 System Firmware Update

Applies to : IBM RS/6000 7043-140

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

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## 1.0 Systems Affected

This update provides new System firmware (FW) for RS/6000 7043-140 systems **only**. Do **not** use on any other systems.

The firmware level contained in this update is:

- **System FW: TIG04204**

The typical time to install this firmware is 0.7 hours. The firmware does not become active when installed and requires a system reboot to become active. The reboot time will vary depending on the system and the amount of features installed. This estimate is for an average system.

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## 2.0 Firmware Description and Revision History

[Table 2.1 lists the levels and descriptions for System firmware.](#)

<b>Table 2.1: System Firmware Update Descriptions and History</b>
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<b>TIG04204</b>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>
<b>TIG02316</b>	<ul style="list-style-type: none"> <li>• Added support for system restore using mksysb created on CD media.</li> <li>• Corrected wrong output returned by the uname -m command.</li> <li>• Corrected NIM boot failure on 100Mb Ethernet adapters when installed on secondary PCI buses.</li> </ul>
<b>TIG01150</b>	<ul style="list-style-type: none"> <li>• Corrected for NIM boot/install failures through ethernet adapters.</li> </ul>
<b>TIG99292</b>	<ul style="list-style-type: none"> <li>• Minor enhancement needed to support new revision of the memory controller.</li> <li>• Corrects low probability floppy diskette drive read error.</li> </ul>
<b>TIG99224</b>	<ul style="list-style-type: none"> <li>• Corrected CPU bus noise/clocking problem.</li> <li>• Added enhanced error detection.</li> </ul>
<b>TIG99187</b>	<ul style="list-style-type: none"> <li>• Correction for SCSI timeout window too short.</li> <li>• Correction for NIM failures on large subnets.</li> </ul>
<b>TIG98294</b>	<ul style="list-style-type: none"> <li>• Added support for PowerPC 760 processor at 233MHz.</li> </ul>
<b>TIG98153</b>	<ul style="list-style-type: none"> <li>• Added Network Boot support for SysKonnnect SK-Net-FDDI-PCI 100MB/S Adapter.</li> <li>• Miscellaneous minor enhancements and fixes.</li> </ul>
<b>TIG97251</b>	<ul style="list-style-type: none"> <li>• Added support for 3COM Ethernet-Fast, 10/100BaseT PCI LAN Adapter.</li> <li>• Added support for 332MHz 604e Processor.</li> <li>• Corrected Time of Day Drive Problem.</li> </ul>
<b>TIG97112</b>	<ul style="list-style-type: none"> <li>• Added support for Dynamic Host Configuration Protocol (DHCP).</li> <li>• Corrected console selection to prevent blank screen / no icons.</li> </ul>
<b>TIG97069</b>	<ul style="list-style-type: none"> <li>• Improved network boot function.</li> <li>• Improved memory test times at start-up (checkpoint F01).</li> </ul>

	<ul style="list-style-type: none"> <li>• Added support for 3Com Fast Etherlink XL Adapter.</li> <li>• Miscellaneous minor enhancements and fixes.</li> </ul>
<b>TIG96260</b>	<ul style="list-style-type: none"> <li>• Original (GA) level.</li> </ul>

### 3.0 Cautions and Important Notes

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.

**NOTE:** This firmware has enhanced error detection. It is expected that in a very small percentage (less than 0.5%) of systems, when the firmware is installed, a 20D00100, 20D00101, or 20D00202 error could be reported immediately when the system is booted. If one of these errors is detected, contact your IBM Service Representative immediately to schedule your free system board replacement. If you encounter this error and, knowing of the data error exposure, still desire to operate the system until your Service Representative can replace the system board, you can type "33" and then press the "Enter" key and the system will boot and operate.

#### 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 a recovery attempt will usually succeed. If the recovery 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

When a system planar is replaced, the System firmware on the new system planar must be checked to ensure it is at the latest level. If it is not, update to the latest level. [Table 3.1](#) lists the released levels.

**Table 3.1: System Firmware Levels, File Sizes and Checksums**

<b>Distribution Date</b>	<b>Filename</b>	<b>Size</b>	<b>Checksum</b>
August 2004	tig04204.img	1048576	06355
January 2003	tig02316.img	1048576	37213
July 2001	tig01150.img	1048576	64882
November 1999	tig99292.img	1048576	28648
September 1999	tig99224.img	1048576	54358
July 1999	tig99187.img	1048576	62403
April 1999	tig98294.img	1048576	20688
June 1998	tig98153.img	1048576	43286
October 1997	tig97251.img	1048576	55178
May 1997	tig97112.img	1048576	29701
March 1997	tig97069.img	1048576	65066
Original (GA)	tig96260.img	1048576	18120

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

At the AIX command line, enter:

```
sum tig04204.img
```

This command will produce the following output:

```
06355 1024  tig04204.img
```

The checksum is ----->06355

## **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 System FW use the 5-digit Julian date code method in terms of day number in a year (such as 04204 for TIG04204 level -- 204th day of 2004 or July 22, 2004).

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## 4.0 How to Determine Currently Installed Firmware Level

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.

### 4.1 Using SMS Utilities to Read Currently Installed Firmware Level

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

- If using an ASCII terminal, [continue to paragraph 4.1.1](#).
- If using a graphics console, [skip to paragraph 4.1.2](#).

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

#### 4.1.1 If Using an ASCII Terminal

Power on or shutdown and restart the system. At checkpoint FF1 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 FW level can be found in the top left hand corner of the display. You will see something similar to:

```
RS/6000 Firmware
Version TIG02316
```

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

The Version line lists the level of the currently installed System Firmware. If the right most five characters (date) of the firmware level are earlier than 04204 you should consider installing the update.

If you find the firmware level must be updated, proceed to Section 5.0. If no update is needed, the installation is complete.

#### 4.1.2 If Using a Graphics Console

Power on or shutdown and restart the system. At checkpoint FF1 on the operator panel, in the bottom right hand corner of the display, you will see copyright notices and the last line will say something similar to:

```
Firmware Version TIG02316
```

The Version line lists the level of the currently installed System Firmware. If the right most five characters (date) of the firmware level are earlier than 04204 you should consider installing the update.

If you find the firmware level must be updated, proceed to Section 5.0. If no update is needed, installation is complete.

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## 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 Firmware, in AIX and DOS packages, is located at the web site

**<http://www14.software.ibm.com/webapp/set2/firmware/gjsn>**

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

In the drop-down box, choose the entry for your specific machine type and model.

The download choices at that entry are:

- Desc (Instructions document)
- AIX (For downloading to an AIX workstation )
- DOS (For downloading to a Windows workstation)

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

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

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 the AIX system to receive the AIX package.

Enter:

```
mkdir /tmp/fwupdate
```

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

- b) Transfer the AIX package to the /tmp/fwupdate directory (using "Save as ...").  
You'll see that the filename is 7043140I.BIN
- c) Unpack the file by executing the instructions below.

Enter the commands:

```
cd /tmp/fwupdate
chmod +x 7043140I.BIN
./7043140I.BIN
```

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

This file will be added to /tmp/fwupdate.

tig04204.img

**Note:** The following procedure requires the **doswrite** command, which is included in bos.dosutil (an installation option of AIX). If this is not loaded on the machine, see your system administrator.

A 2MB (HD) new or freshly formatted DOS diskette is required (or use the AIX **dosformat** command) as follows.

With the diskette loaded in the drive,

Enter the commands:

```
cd /tmp/fwupdate
doswrite tig04204.img tig04204.img
```

Label this diskette,

"Image: System (TIG04204) FW for IBM 7043-140".

Proceed to [Section 6.0, Updating the Firmware](#).

## 5.1.2 Downloading the DOS Package

Use this method to download to a Windows workstation.

- a) Prepare a directory for receiving the DOS package.  
This directory can be in any partition with 3MB 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 package to the [path]\fwupdate directory (using "Save as ...").  
You'll see the filename is 7043140I.EXE
- c) Unpack the file by executing the instructions below.

Enter the commands:

```
cd [path]\fwupdate
7043140I
```

This file will be added to the fwupdate subdirectory:

tig04204.img

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

With the diskette loaded in the drive,

Enter the commands:

```
cd [path]\fwupdate  
copy tig04204.img a:
```

Label the resulting diskette,

"Image: System (TIG04204) FW for IBM 7043-140"

Proceed to [Section 6.0, Updating the Firmware](#).

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## 6.0 Updating the Firmware

This section describes the method for installing the new firmware.

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### **WARNING:**

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

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### 6.1 Using the SMS Utilities Method

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

- If using an ASCII terminal, continue to [paragraph 6.1.1](#).
- If using a graphics console, skip to [paragraph 6.1.2](#).

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

#### 6.1.1 If Using an ASCII Terminal

- a. Power on or shutdown and restart the system.
- b. At checkpoint FF1 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 appear when all the component tests have completed.
- c. Choose 3 for Utilities.
- d. Choose 6 for Update System Firmware.
- e. Insert diskette labeled "Image: System (TIG04204) FW for IBM 7043-140" in the drive.
- f. Follow on-screen update steps as they are presented.

The flash update should complete in about one minute.

Following a successful firmware update, the system will say to press ENTER to cause a reboot. Press ENTER at this time.

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.

The firmware update is complete. You will want to verify this update as shown in [paragraph 6.3](#).

### 6.1.2 If Using a Graphics Console

- a. Power on or shutdown and restart the system.
- b. At checkpoint FF1 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.
- c. Use arrow keys to move to Utilities. <ENTER>
- d. Use arrow keys to move to Update. <ENTER>
- e. Insert diskette labeled "Image: System (TIG04204) FW for IBM 7043-140" in the drive. <ENTER>
- f. Use arrow keys to move to YES if the image filename displayed is correct.
- g. Follow on-screen update steps as they are presented.

The flash update should complete in about one minute.

Following a successful firmware update, the system will automatically reboot after the update is complete.

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.

The firmware update is complete. You will want to verify this update as shown in [paragraph 6.3](#).

## 6.2 On Remote Networked Systems

These instructions require knowledge of RS/6000 systems and AIX system administrator skills. To update firmware on remote networked systems, follow these instructions:

- a) Target systems must be at the following AIX levels and have the fileset "devices.rspc.base.diag" at a minimum level as shown below:

AIX level	fileset minimum level
4.3.3	4.3.3.1
4.3.2	4.3.2.0

4.3.1	4.3.1.4
4.3.0	4.3.0.1
4.2.1	4.2.1.5
4.1.5	4.1.5.4

To check if this fileset is on the system,

Enter:

```
lspp -L devices.rspc.base.diag
```

If the fileset is installed, the fileset and its level will be displayed. If this fileset is not at the minimum level or later, you can get the latest version by whatever method you use to acquire AIX updates.

b) Copy the tig04204.img file into a directory that is accessible to each system to be upgraded.

This directory will be called [path] in these instructions (ex. /tmp/fwupdate).

c) You must have root authority on the target system to update its firmware. Because the update

process will cause an automatic AIX reboot, be sure the system is not running any user applications.

d) Execute the following command on each target system:

```
/usr/lpp/diagnostics/bin/update_flash_rspc -q -f [path]/tig04204.img
```

The update process will cause the system to reboot twice. The new firmware will be applied during the first reboot. The second reboot will execute the new firmware and return to the AIX prompt. This may take up to ten minutes, depending on the configuration of the target system.

The firmware update is complete. You will want to verify this update as shown in paragraph 6.3.

## 6.3 Verifying the Update

To verify the update, you must use the SMS Utilities, which may be accessed in two ways.

- If using an ASCII terminal, [continue to paragraph 6.3.1](#).
- If using a graphics console, [skip to paragraph 6.3.2](#).

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

### 6.3.1 If Using an ASCII Terminal

Power on or shutdown and restart the system. At checkpoint FF1 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 FW levels can be found in the top left hand corner of the display. You will see something similar to:

```
RS/6000 Firmware  
Version TIG04204
```

The right-most five characters (date) of the version should match the level you just installed, namely, 04204.

### **6.3.2 If Using a Graphics Console**

Power on or shutdown and restart the system. At checkpoint FF1 on the operator panel, in the bottom right hand corner of the display, you will see copyright notices and the last line will say something similar to:

Firmware Version TIG04204

The right-most five characters (date) of the version should match the level you just installed, namely, 04204.

### **6.4 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 file for convenient retrieval.

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End of Installation Instructions