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IBM PS/2 Server 85 Enhancements

This package contains 3 diskettes that update your Server 85 system programs, and instructions for installing the update.

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1.0 Server 85 System Program Update

When installed, the updated system programs allow you to:

- Run the memory in your computer in either the ECC (error correcting code) mode or parity mode. See "ECC Memory" in topic 3.0 for more information.
- Use the software-eject and eject-disable features of the optional IBM (*) Personal System/2 (*) Enhanced 2.88MB Diskette Drive if you have DOS Version 5.02 or later installed. Contact your place of purchase for information on other operating systems.

Notes:

1. Refer to the installation instructions supplied with the drive for instructions on setting the security switch on the drive.
2. The diskette cable inside your computer might be tie-wrapped and secured. When installing an optional diskette or non-SCSI tape drive in Bay B, cut the tie wrap and unfold the cable to attach the optional drive to the correct connector. Follow the instructions in your Server 85 *Quick Reference* "Installing PS/2 (*) Options" section under "Installing a Device in Bay B."

Keep this information with your other PS/2 Server 85 publications.

2.0 Installing the New System Diskettes

You will install the new Server 85 POST/BIOS Update Diskette first, and then the new Reference and Diagnostic Diskettes.

You must complete all the steps in these instructions to ensure that the new (updated) System Partition contains all the files you need to use your computer.

Subtopics

2.1 Installing the POST/BIOS Update Diskette

2.2 Electrical Safety Notice

2.3 POST/BIOS Update Diskette Installation-Problem Recovery

2.4 Installing the New Reference and Diagnostic Diskettes

2.1 Installing the POST/BIOS Update Diskette

The POST/BIOS Update Diskette is used to update the POST (power-on self-test) and BIOS (basic input/output system) files in the Server 85. To install the update diskette:

1. Be sure the computer is turned off.
2. Remove all removable media, such as diskettes and CDs, from the computer.
3. Insert the POST/BIOS Update Diskette in drive A.
4. Turn on all attached devices, then turn on the computer.
5. Follow the instructions on the screen until the POST/BIOS update procedure is completed.
6. If you had no problems, continue with "Installing the New Reference and Diagnostic Diskettes" in topic 2.4.

Note: If a power failure, 115 error, or some other problem occurred during the POST/BIOS Update Diskette installation procedure, and you were unable to complete the procedure, do the following:

1. Turn off the computer. Wait about 20 seconds, then turn on the computer and repeat the update diskette installation procedure.
2. If you still cannot start or complete the update diskette installation procedure, read "Electrical Safety Notice" in topic 2.2, then continue with "POST/BIOS Update Diskette Installation-Problem Recovery" in topic 2.3.

2.2 *Electrical Safety Notice*

PICTURE 1

2.3 POST/BIOS Update Diskette Installation-Problem Recovery

Use the following instructions only if a power failure, 115 error, or some other problem occurred during the POST/BIOS Update Diskette installation procedure, and you were unable to complete the procedure.

Warning: Static electricity can damage computer parts as you touch them. To reduce static electricity, touch a metal expansion-slot cover on the back of the computer before removing the cover.

1. Turn off the computer and all attached options.
2. Unplug all of the power cords from electrical outlets.
3. Make a note of the locations of all the cables or cords connected to the back of the computer, then disconnect them.

Note: You must remove the power cord from the back of the computer in order to tilt out the power supply in a later step.

4. Remove the covers from the Server 85 (refer to the Server 85 *Quick Reference* if necessary), then continue with step 5).
5. Disconnect the twisted power cables 1 from the power supply by grasping the connector and pulling toward the front of the computer. There might be one, two, or three cables depending on the number of drives installed. You will reconnect these cables later.

PICTURE 2

6. Release the SCSI cable from the three clips 2 on top of the power supply by turning the top of each clip.

7.

CAUTION:

When you tilt out the power supply, do not let it drop. Personal injury or damage to the computer can occur.

Lift the SCSI cable out of the way of the power supply (so the power supply can be tilted out of the computer without hitting the cable). Unscrew the spring-loaded power supply retaining knob 1 until it releases, place one hand on top of the computer, then carefully tilt out the power supply 2 with the other hand.

PICTURE 3

8. Locate the connector (jumper) labeled JMP5 on the system board, to the left of the memory connectors. In the next step you will move the jumper to a new position.

PICTURE 4

9. Refer to the expanded view of the jumper. Move the jumper so that it connects the center pin and the pin on the opposite end of the connector. After you move the jumper, leave it in its new position.
10. Move the cables out of the way and tilt the power supply into the computer 1. Be sure not to pinch the cables. Press in the retaining knob 2 and turn it until it is tight.

PICTURE 5

11. Route the SCSI cable through the three clips on top of the power supply, and fasten the clips.
12. Connect the twisted power cables to the power supply.
13. Reinstall the covers, and reconnect all external cords and cables. Refer to the Server 85 *Quick Reference* if necessary. Then plug the power cords into properly-grounded electrical outlets.
14. Return to "Installing the POST/BIOS Update Diskette" in topic 2.1 and repeat the update diskette installation procedure to completion.

Note: If a second attempt at installing the update diskette fails, have the computer serviced.

2.4 *Installing the New Reference and Diagnostic Diskettes*

You will need the following:

- A pen or pencil and a blank sheet of paper.
- The original option diskettes for *all* the options installed in the computer. If you do not have all of the option diskettes, use a current backup of the System Partition.
- Two blank 2.0MB diskettes that are not write protected.

Subtopics

2.4.1 Backing Up the Current System Partition

2.4.2 Recording the Drive-Startup Sequence

2.4.3 Installing the New Reference and Diagnostic Diskettes

2.4.1 Backing Up the Current System Partition

It is important to keep an up-to-date backup copy of the system programs at all times. You can use the backup copy if you cannot start the computer from the system programs on the hard disk. Make a backup copy of the System Partition after you have added a new option to your system configuration or updated the system programs. This ensures that you always have a copy of your current configuration.

The procedure for making a backup copy of the System Partition requires a few additional steps to save a *customized configuration* if you have created one. A customized configuration is a system configuration that you create by making a change to either the **Change configuration** screen, the **Set and view SCSI device configuration** screen, or the **Set Startup Sequence** screen in the system programs. For example, you might have changed the serial-port default value, changed a token-ring address location, or a SCSI device might have been enabled or disabled.

Follow these instructions to make a backup copy of the System Partition:

1. Remove all removable media, such as diskettes and CDs, from the computer.
2. Turn on the computer, and wait until the self-tests finish (the computer will beep).
3. Press and hold **Ctrl+Alt**, then press **Del**. When the cursor moves to the top-right corner of the screen, press and hold **Ctrl+Alt**, then press **Ins**. Release the keys. (You have 8 seconds to do this.) Wait until the Main Menu of the system programs appears.

Note: The cursor remains in the top-right corner for 8 seconds. If it moved from there before you pressed the **Ctrl+Alt+Ins** combination, repeat step 3 again. Continue with the next step when the Main Menu of the system programs appears.

4. If you have *not* created a customized configuration, go to step 10. If you have a customized configuration (or if you are not sure), continue with the next step.
5. Select **Set configuration** from the Main Menu of the system programs. Then select **Backup configuration**, and press **Enter**. When the backup configuration is completed, continue with the next step.
6. Select **View configuration** and use the **Print Screen** key (if you have a printer) or write down which slots the option adapters are installed in and their current settings. (This is a precautionary step in case you need this information later.)
7. Press **F3** until you return to the Main Menu of the system programs.
8. If you have made a change to the **Set and view SCSI device configuration** screen (or if you are not sure), go to step 9. If no changes were made to the **Set and view SCSI device configuration** screen, go to step 10.
9. To record changes that have been made to the **Set and view SCSI device configuration** screen:
 - a. Select **Set configuration** from the Main Menu of the system programs, and press **Enter**.
 - b. Select **Set and view SCSI device configuration** and press **Enter**.
 - c. Use the **Print Screen** key (if you have a printer) or write down the information on this screen and any subsequent screens for this selection. When finished, press **F3** until you return to the Main Menu of the system programs.
10. Select **Backup/Restore system programs** from the Main Menu. Then select **Backup the System Partition** and press **Enter**. Continue with the next step.
11. Get two blank 2.0MB diskettes, and label the diskettes with the following information:
 - First diskette: "Backup Copy of the System Partition-Server 85 Reference Diskette"
 - Second diskette: "Backup Copy of the System Partition-Server 85 Diagnostic Diskette"
 - Both diskettes: Write in the *version level* of the system programs (found on the IBM logo screen)

12. Insert the diskette labeled "Backup Copy of the System Partition-Server 85 Reference Diskette" into the primary diskette drive (usually drive A) and follow the instructions on the screen. The computer prompts tell you when to insert the second diskette.

Warning: The backup copy you are making includes your option files as well as the system programs. If you have several options installed, the system programs and your option files might not fit on one diskette. If this happens, you will receive a message on the screen (before the backup process has completed) indicating that the diskette is full. If you receive this message, you will not be able to make a backup copy of the entire System Partition. (You will have all the system programs, but not all the option files.) If you need to restore the backup copy that you are now making onto the System Partition, you will need all of your option diskettes to complete the procedure. If you attempt to restore the System Partition without using all of your option diskettes, some of your options might not be usable.

13. When the backup copy is completed, remove the diskette.
14. If you are now installing a new version of the System Diskettes, go to "Recording the Drive-Startup Sequence" in topic 2.4.2. If you have already installed the new System Diskettes and this step completes your new backup copy of the system programs, turn off the computer. Keep these instructions with your other PS/2 Server 85 publications.

2.4.2 *Recording the Drive-Startup Sequence*

1. If you have changed the drive-startup sequence or if you are not sure if it has been changed, continue with the next step. Otherwise, go to "Installing the New Reference and Diagnostic Diskettes" in topic 2.4.3.
2. Select **Set features** from the Main Menu of the system programs. Then select **Set startup sequence** and press **Enter**.
3. An informational warning screen appears. Read the information and then press **Enter**.
4. Record the current selectable drive-startup sequence either by pressing the **Print Screen** key (if you have a printer), or writing it down.
5. Exit **Set startup sequence** without changing anything.
6. Go to "Installing the New Reference and Diagnostic Diskettes" in topic 2.4.3.

2.4.3 Installing the New Reference and Diagnostic Diskettes

To install the new (updated) versions of the Server 85 Reference Diskette and Diagnostic Diskette continue with the following instructions:

1. Turn the computer off, then insert the new Reference Diskette into the primary diskette drive. This diskette contains the new system programs for the computer.
2. Turn on all of the attached options and then the computer.
3. Wait until the Main Menu of the Reference Diskette appears. (This might take up to two minutes.)
4. Select **Update system programs** from the Main Menu, then follow the instructions on the screen.

Note: If a screen message appears asking you to make a backup copy of the System Partition, ignore the screen message. You will make a backup copy later in this procedure.

5. If you *do not* need to reset a selectable drive-startup sequence, go to step 6. If you *do* need to reset the sequence, do the following:
 - a. Select **Set features** from the Main Menu. Then select **Set startup sequence**.
 - b. Use the information that you recorded in "Recording the Drive-Startup Sequence" in topic 2.4.2 and reset the startup sequence (using the **F5** and **F6** keys).
 - c. Press the **F10** key to save the drive-startup sequence.
 - d. Return to the Main Menu.
6. Select **Set configuration** from the Main Menu. Then select **Restore configuration**. (This restores the customized configuration.)
7. Press **F3**. A message appears stating that the configuration is changed. Continue with the next step.
8. Press **Enter**. (This restarts the computer.)

Note: An error message screen might reappear after the computer restarts asking **Automatic configuration - Y/N?** If this occurs, do the following:

- a. Press **N** to bypass the automatic configuration and go to the Main Menu of the system programs.
 - b. Select **Set configuration**, and then **View configuration**.
 - c. Make sure your customized configuration has been restored correctly and make any necessary changes.
 - d. Press **F10** to save your configuration.
 - e. When you are done, return to the Main Menu of the system programs.
9. If you are enabling the ECC memory mode, go to "ECC Memory" in topic 3.0. Otherwise, make a new backup copy of the System Partition (see "Backing Up the Current System Partition" in topic 2.4.1).

3.0 ECC Memory

ECC memory has been used for many years in mainframe computers and minicomputers. It uses redundant bits that allow the computer to detect and then correct memory errors. The memory shipped in your computer is parity memory. After updating your system programs with the three system diskettes in this package, you will have the option of enabling the ECC memory mode. This is done by using the updated system programs; no new hardware or memory modules are required.

While ECC memory results in a significant reduction in memory errors, it will cause some reduction in overall system performance. The updated system programs allow you to change back from ECC memory mode to parity memory mode.

To enable the ECC memory mode, go to "Enabling the ECC Memory Mode" in topic 4.0.

4.0 Enabling the ECC Memory Mode

You must install the updated system programs included in this package before you can enable the ECC memory mode. If you have not yet installed the updated system programs, go to "Installing the New System Diskettes" in topic 2.0.

To enable the ECC memory mode, start the system programs from the hard disk as follows:

1. Remove all removable media, such as diskettes and CDs, from the computer.
2. Turn on the computer, and allow the self-tests to finish.
3. Press and hold **Ctrl+Alt**, and then press **Del**. Release the keys. Watch the cursor closely. When the cursor moves to the top-right corner of the screen, press and hold **Ctrl+Alt**, and then press **Ins**. Release the keys.
4. Select **Set configuration** from the Main Menu of the system programs, and then select **Change configuration**. The system configuration will be displayed, starting with the amount of memory in the computer.
5. Select **Memory-Checking Method** in the list of options. Press **F5** or **F6** to toggle from **Parity** to **ECC**. Press **F10** to save the change, and then press **F3** to exit the Configuration Menu and to restart the computer.
6. Make a new backup copy of the System Partition (see "Backing Up the Current System Partition" in topic 2.4.1).