

# Upgrading to S78000 and S88000 PMF CRUs


See [Change History](#) for a list of changes made to this topic.

Use this procedure to upgrade both PMF CRUs in an enclosure to S78000 or S88000.

S7400, S7600, and S7800 PMF CRUs can be upgraded online, but S7000 PMF CRUs *must* be upgraded *offline*. See PMF CRUs That Can Be Upgraded Online and Coexist Permanently in Mixed Systems.

## Notes:

- Do not attempt to upgrade to unsupported configurations.
- IOMF and IOMF 2 CRUs are supported. IOMF 2 is needed for ServerNet II.
- IOMF and IOMF 2 CRUs can coexist briefly in an enclosure for online upgrade. For performance reasons, both IOMF CRUs in an enclosure must be IOMF or IOMF 2 CRUs.
- When the first S72000 PMF CRU in an enclosure is replaced with an S76000 or later, or when an S7400 PMF CRU is replaced with an S7600 or later, an OSM or TSM ServerNet path down alarm is generated. This normal condition is created by router chip protocol differences. Ignore these alarms and messages. Replace the other PMF CRU. When both PMF CRUs in an enclosure have been replaced, the system returns to normal, and the alarms disappear.

 **Caution:** Ask your service provider to verify the daughter board connectors on the PMF CRU are fully seated before installing the CRU. Instructions are in Technical Bulletin TB20051B. This affects S7800, S76000, S86000, S78000, and S88000.

## Preparing for the Upgrade

- 1 If you are upgrading an S7000 system, a power shelf and two power supplies must be installed in each processor enclosure by a trained service provider. Contact your service provider for more details.

- 2 If you are upgrading from S7000 (NSR-W), you must change the processor type entry in the CONFTEXT file ALLPROCESSORS statement before you replace the PMF CRUs. Enter NSR-H (for S78000) or NSR-Z (for S88000). You can specify only one processor type. S7000 cannot be in a system with mixed processor types.

After changing the CONFTEXT file, you must perform all required DSM/SCM requests to create a new SYSnn. System load of the new SYSnn is required after the new hardware is installed. Failure to change the processor type causes an immediate %100441 halt when the new SYSnn is loaded. See the appropriate G06.24 or later Release Version Update Compendium for migration and fallback details.

- 3 In systems with S78000 or S88000 PMF CRUs, MSEBs must be installed in slots 51 and 52 in enclosures 1 through 8 for the processor ServerNet fabric. All cabling previously used to connect the SEBs must be replaced with MSEB serial copper or fiber-optic cables. You can still use SEBs to attach I/O enclosures.
- 4 If you are installing MSEBs and replacing the interconnecting ECL cables with serial copper or fiber-optic cables, you can perform these upgrades either offline or online on one fabric at a time. OSM or TSM server product version T7945ABB (from G06.16) or later and TSM client 2002B T8154ABB or later are needed to down the selected SEB or MSEB and all the SEBs or MSEBs cabled to it. On earlier versions of TSM, you must perform separate operations to bring down both ends of a link before replacing a cable. See [Upgrading SEBs to MSEBs on One Fabric at a Time](#).

## Required Tools and Documentation

For this upgrade procedure, you need:

- The G06.24 or later Software Installation and Upgrade Guide.
- OSM or TSM guided procedure for replacing PMF CRUs. See Guided Procedures for more information.

## Required Software

- S88000 requires G06.24 or later software.
- S78000 is introduced in G06.24 and supported on G06.16 and later.

G06.16 through G06.24 require these OSM or TSM SPRs:

OSM: T2723AAL (OSM Connection Library)  
T2724AAL (OSM Provider Interface Library)  
T2725AAL (OSM Configuration)  
T2726AAL (OSM XML API)  
T2727AAL (OSM CIMOM)

T2728AAL (OSM Service Provider)

T2730AAL (OSM Event Viewer)

T2751AAI (OSM Web-Based Suite)

These 3 new client-based numbers replace T2752 OSM Application Suite


T0632 AAI OSM Notification Director

T0633 AAI OSM Low-Level Link

T0634 AAI OSM Console Tools

TSM T7945ABN (TSM Server)

T8154ABG (TSM Client), first shipped on G06.22.

 **Note:** G06.24 and later OSM and TSM have been enhanced to handle S88000 hardware error freeze (HEF) scan strings and reset the affected processors.

 **Cautions:**

- To upgrade the boot millicode to T7892ABD or later using the online update function, you must have the G06.24 version of the TSM server (T7945ABN) or later or all G06.24 OSM server based SPRs and their prerequisites configured and running. See the Software Installation and Upgrade Guide (G06.24 or later) and Hotstuff HS02865 for details. If you attempt to do an online update without these, the processors will halt. When migrating from an earlier RVU to G06.24 or later, you must use a hard reset as described in Step 4b or install the SPRs first. After G06.24 or SPRs T2728AAL (OSM) or T9745ABN (TSM) are installed and running, the boot code can be updated online. The online bootcode update option is available on all S-series systems except S7000.
- G06.06 provides a new disk bootstrap program. If you are migrating from an RVU prior to G06.06, you must replace the disk bootstrap microcode with the new version.

## Upgrading to S78000 PMF CRUs

You must perform these steps in exactly the order listed here, even if you have successfully completed previous upgrades by doing these steps in a different order.

- 1 Install the G06.24 SUT or appropriate RVUs. For further instructions, see the Software Installation and Upgrade Guide (G06.24 or later).

If you are running G06.16 or an earlier RVU and migrating to a later RVU, see the appropriate G06.xx version of the Software Installation and Upgrade Guide. The migration involves different considerations from other migrations you might have performed in the past. For those migrating from a pre-G06.06 RVU, the guide describes an additional step to perform after the SUT is installed.

- 2 If you are migrating from an RVU prior to G06.06, replace the disk bootstrap microcode.
- 3 Update service processor firmware.
- 4 Update the processor boot code.
  - a. If you are running G06.24 or later or if SPRs T2728AAL (OSM) or T9745ABN (TSM) are installed and running, you can perform the update online.
  - b. If you are running G06.23 or earlier and SPRs T2728AAL (OSM) or T9745ABN (TSM) are not installed, use the standard (offline) procedure and postpone the hard reset until Step 6.



**Caution:** Do not use the Online Processor Boot Code Update unless G06.24 or SPRs T2728AAL (OSM) or T9745ABN (TSM) are installed and running on the system.

- 5 Run the ZPHIRNM program.
- 6 Halt and perform hard resets on all processors.
- 7 Load the G06.24 RVU.
- 8 Update the SCSI boot code and perform post-load steps as needed.
- 9 Use the OSM Service Connection or the TSM Service Application to check for alarms and verify that the system is operating properly. Resolve problems before you install new hardware.
- 10 Replace one PMF CRU by using the OSM action or guided replacement procedure.

When the procedure prompts you to physically replace the PMF CRU, a help button appears that enables you to access detailed instructions.



**Caution:** Verify the Gemini daughter boards are fully seated before installing the PMF CRUs. See Tech Bulletin TB20051B.

- 11 Verify that the PMF CRU is operational, and then immediately replace the other PMF CRU in the same enclosure by using another OSM action or guided replacement session.

# Change History for Upgrading to S78000 and S88000 PMF CRUs

January 31, 2005

- **Changed**
  - Added caution to ensure PMF CRU daughter board connectors are fully seated before installing the CRUs. Instructions for service providers are in Tech Bulletin TB20051B.
  - Added caution under required software for upgrading to G06.24 boot millicode (hard reset is required for systems running G06.23 and earlier without specified SPRs.).
  - Added new step 2 to Preparing for the Upgrade, to change the processor code in the CONFTEXT file if you are upgrading from S7000. Failure to change the processor code halts the system when the new SYSnn is loaded.
  - Changed Step 4 in Upgrading to S78000 and S88000 PMF CRUs to specify hard reset for systems running G06.23 and earlier without specified SPRs.

October 26, 2004

- **Changed** Revised topic; added caution statement to refer to Hotstuff HS02865.

September 16, 2004

- **New!** Added topic: Upgrading to S78000 and S88000 PMF CRUs.

# Upgrading SEBs to MSEBs on One Fabric at a Time

**i Note:** If you are replacing SEBS and ECL cables prior to installing the G06.17 or later RVU, use OSM software or TSM server product version T7945ABB (from G06.16) and TSM client 2002B T8154ABB to replace them on one fabric at a time. These products bring down the selected SEB or MSEB and all SEBs or MSEBs that are cabled to it. On earlier versions of TSM, you must perform separate operations to bring down both ends of a link before replacing a cable.

To replace the SEBs on one fabric at a time, run a separate replacement procedure for each SEB to be replaced (you can use OSM replace actions or Replace SEB or MSEB guided procedures):

- 1 Start the procedure to replace one of the SEBs.
- 2 Run the procedure until you are prompted to "Replace the SEB." Then start a new copy of the procedure for another of the SEBs, continuing up to the manual replace prompt.
- 3 Repeat Steps 1 and 2 until the procedures for all the SEBs to be replaced in one fabric display the manual replace message.
- 4 Physically remove all selected SEBs and ECL links, and install MSEBs and new links.
- 5 Complete one procedure. Allow this copy of the procedure to complete before repeating for each of the other replacements.

Replace the SEBs and cables in the other fabric, using this procedure, after verifying that the newly installed MSEBs and links work properly.

See:

- Tetra 8 Topology X-Fabric Cabling Diagram
- Tetra 8 Topology Y-Fabric Cabling Diagram
- Tetra 16 Topology X-Fabric Cabling Diagram
- Tetra 16 Topology Y-Fabric Cabling Diagram