

## HP Documentation

HP 9000 Series 9x7 Owner's Guide (5960-3110)

HP 3000/9x7 and HP 9000 Series 8x7 and F/G/H/I Class Memory Upgrade Manual (A1707-92016)

## Determine System Memory Size (optional step)

Perform an orderly shutdown of the MPE operating system. Reference the Owner's Guide for detailed instructions.

Reboot the system. Before the system boots MPE, the CPU firmware will display the amount of memory recognized by the system. If the autoboot flag is set ON, then the system will wait 10 seconds then boot MPE automatically. In order to get a more detailed listing on the memory, press any key within 10 seconds after the system displays the memory size. At the "boot from primary boot path (Y or N)?" prompt, type *n*. At the "boot from alternate boot path (Y or N)?" prompt, type *n*. At the "enter boot path, command, or ?" prompt, type *info* to get the PDC information. The memory status table provides the size of the cards installed in each slot and the system memory size. Note HP has an error in the CPU firmware, if more than 1GB is installed in the system, the firmware only displays 1GB but MPE recognizes and uses the total memory.

## System Shutdown

Perform an orderly shutdown of the MPE operating system. Reference the Owner's Guide for detailed instructions.

If the system is connected to an UPS, put the UPS output switch in the OFF (0) position. Disconnect the system power cable and the power cord of any peripheral devices from the ac wall outlets or UPS.

## Remove Cables from the Rear Panel

Label each cable and its corresponding point of attachment to make it easier to reconnect it after you have finished the installation. Remove all the cables from the rear panel.

## Remove Rear Plastic Cover (Bezel)

Remove the seven Torx screws that secure the bezel to the rear of the system. Store the screws. Remove the bezel.

## Remove Metal Cover

The metal cover plate shielding the CPU/memory compartment is located on the right side when view the system from the rear. Loosen the four captive mounting screws on the metal cover plate using a Torx screwdriver. Remove the metal cover plate.

## Remove the Memory Extender Card

Attach the ESD Wrist Strap using the instructions on the 3M package. Pull the red extractor handles on the memory extender card and slide the card out of the SPU cabinet. Place the memory extender card on an antistatic bag or pad. Position the card with the backplane connector facing away from you and the 130-pin memory connectors running from left to right. The low-end systems (9x7 LX (all), 937 RX & SX, 947 RX & SX, 957 RX & SX, 967 RX & SX) may or may not have a memory extender installed. The low-end systems may have one memory set installed directly on the system backplane.

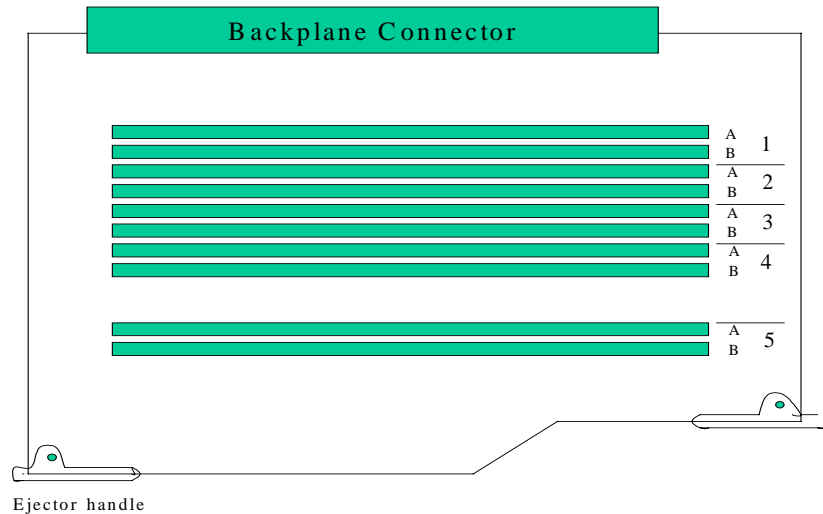
## Rules for Installing Memory Cards

The 9x7 family can be separated into the low-end and the high-end systems. The installation rules for the low-end systems are different than those for the high-end systems. The low-end systems consist of the 9x7 LX (all), 937 RX & SX, 947 RX & SX, 957 RX & SX, and 967 RX & SX. The high-end systems consist of the 977 SX, and 987 RX & SX.

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The **rules for the low-end systems** are as follows:

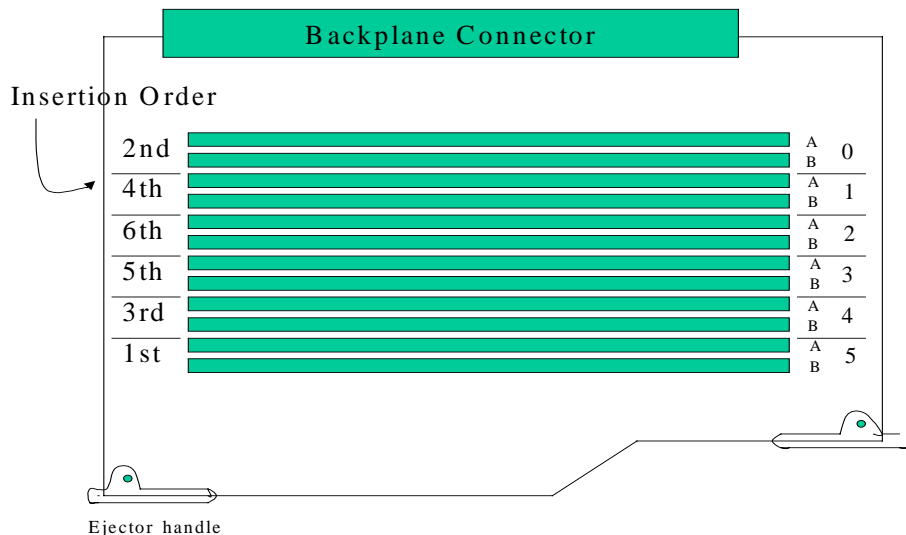
- [1] The memory modules must be installed as pairs where each card in the pair is the same size. For example, a 128MB set consists of two 64MB modules.
- [2] If the memory extender card (e.g. 5-slot pair extender) is installed, then it must have at least one memory set installed in it.
- [3] The memory sets can be installed in any paired connector slots. The paired connector slots are 1A & 1B, 2A & 2B, 3A & 3B, 4A & 4B, and 5A & 5B.



The **rules for the high-end systems** are as follows:

- [1] The memory modules must be installed as pairs where each card in the pair is the same size. For example, a 128MB set consists of two 64MB modules.
- [2] The memory sets must be installed in the following order.
  - The first memory pair must be installed in slots 5A & 5B
  - The second memory pair must be installed in slots 0A & 0B
  - The third memory pair must be installed in slots 4A & 4B
  - The fourth memory pair must be installed in slots 1A & 1B
  - The fifth memory pair must be installed in slots 3A & 3B
  - The sixth memory pair must be installed in slots 2A & 2B
- [3] The memory pair sizes do not have to go in any special sequence except if you are installing 16MB sets (e.g. 8MB modules). The 16MB sets must be the last sets installed using the above installing rules.

On power-up, the memory self tests check the memory configuration. If the system firmware (PDC) finds an invalid configuration, it will stop booting and issue a self test halt code (hex 707C).



## Installing Memory Cards

Position the extender card with the backplane connector facing away from you and the 130-pin memory connectors running from left to right. Examine the memory extender card and identify the location and numbering of the connector slots to determine where you will install each pair. Remember to follow the rules outlined above.

Select a pair of modules for installation. Verify that the modules are the same memory size. Pick up one of the two cards. Position the card so that the 130-pin connector is down and facing towards you. Slide the card down the guide rails for the specific slot you have chosen. The card should mate with the connector on the extender card. Visually verify that the card is positioned correctly to mate with the extender. If so, press the memory module **down firmly** until you feel it seat into the connector slot. You must apply enough force to snap the card into place. You may need to use both hands to exert enough force to properly seat the card. The most common problem encountered when installing memory in these systems is not applying enough force to seat the card properly. Repeat until all the cards have been installed.

## Verify Memory Modules are Seated Correctly

After all the memory modules have been installed, check to ensure that they are seated evenly and that all the modules are the same height. An incorrectly seated memory module may stick out above the other.

## System Reassembly

Carefully align the extender card with the notched guide slots at the top and bottom of the CPU/Memory compartment on the right side of the SPU cabinet. Slide the memory extender card back into the system. Firmly press the card into the system backplane connector. Attach the CPU/memory cover plate using the four screws. Attach the bezel using the seven screws. Reconnect the I/O cables. Reconnect the power cords.

## Verify the New System Memory

Power up the peripherals first, then power up the system. The system memory is automatically configured to the system by the software. If there is a problem with the installed memory, then the boot process could be halted.

Before the system boots MPE, the CPU firmware will display the amount of memory recognized by the system. If the autoboot flag is set ON, then the system will wait 10 seconds then boot MPE automatically. In order to get a more detailed listing on the memory, press any key within 10 seconds after the system displays the memory size. At the "boot from primary boot path (Y or N)?" prompt, type *n*. At the "boot from alternate boot path (Y or N)?" prompt, type *n*. At the "enter boot path, command, or ?" prompt, type *info* to get the PDC information. The memory status table provides the size of the cards installed in each slot and the system memory size. Note HP has an error in the CPU firmware, if more than 1GB is installed in the system, the firmware only displays 1GB but MPE recognizes and uses the total memory (this can be verified once HPUNIX is running).

If the system has errors or the memory status table does not reflect the expected configuration then the possible error sources are the modules are not seated properly, the modules are not paired, an incorrect value matching of paired modules, or an invalid slot pair sequence. If errors exist or the table does not reflect the expected configuration, then repeat the installation procedure but take special care to seat the modules properly and in the correct pair sizes and sequence.

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