# **Dell PowerEdge R940**

Upgrading the dual processor to quad processor system



Copyright  $\ensuremath{\mathbb C}$  2017 Dell Inc. or its subsidiaries. All rights reserved.

2017 - 10 **Part Number** - 7WCG8

# Upgrading the dual processor to quad processor system for the PowerEdge R940

To view this document in Chinese Simplified, visit Dell.com/poweredgemanuals. Navigate to the PowerEdge R940 product page.

To view this document in Spanish, visit Dell.com/poweredgemanuals. Navigate to the PowerEdge R940 product page.

To view this document in Turkish, visit Dell.com/poweredgemanuals. Navigate to the PowerEdge R940 product page.

To view this document in Korean, visit Dell.com/poweredgemanuals. Navigate to the PowerEdge R940 product page.

To view this document in Danish, visit Dell.com/poweredgemanuals. Navigate to the PowerEdge R940 product page.

To view this document in Japanese, visit Dell.com/poweredgemanuals. Navigate to the PowerEdge R940 product page.

To view this document in French, visit Dell.com/poweredgemanuals. Navigate to the PowerEdge R940 product page.

For more information on upgrading the dual processor to quad processor system, watch the video at www.Dell.com/QRL/PER940/2S-to-4S-Upgrade



#### Figure 1. QRL for R940 dual processor to quad processor system upgrade

**CAUTION:** Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions that are shipped with your product.

**CAUTION:** The PEM processors and DIMMs must be installed after the PEM is installed into the chassis. Failure to do so may result in the PEM tempan getting damaged.

- Always wear ESD protection when working inside the system.
- Torx #T30 tool required.
- Turn off the system and unplug all cables.
- · 0 NOTE: The DIMM sockets have to be installed with either DIMMs or DIMM blanks.

### (i) NOTE: It is recommended to order a heat sink along with every new processor ordered.

- 1 Using a screwdriver, rotate the latch release lock counter clockwise to the unlocked position on the system cover.
- 2 Lift the latch till the system cover slides back and the tabs on the system cover disengage from the guide slots on the system.



#### Figure 2. Removing the system cover

Hold the cover on both sides, and lift the cover away from the system.

- 3 Remove the air shroud for the dual processor system.
  - (i) NOTE: The dual processor system air shroud can be discarded.
  - (i) NOTE: If applicable, remove the two 3UPI cables from the system board. If you have a dual processor 1UPI system, then you might not require to remove any cables.
  - INOTE: If NVMe drives are installed, then you need to remove and discard the dual processor NVMe cables and replace them with new NVMe cables. The NVMe extender cards will need to be moved from the system board PCIe slots to the I/O riser PCIe slots.
- 4 Install the 5UPI cables available in the kit to the connectors on the system board. For more information, refer to the System Information Label (SIL) for cabling.
- 5 Hold the PEM (Processor Expansion Module) power board by the edges and install the PEM power boards into the connector on the system board.



#### Figure 3. Installing PEM power board

6 Place the heat sinks, processors, and processor brackets for installation on the static-safe work table.

(i) NOTE: The heat sinks, processors, processor brackets, and memory DIMMs are not part of the kit. They have to be ordered separately.

7 Flex the outer edges of the bracket around the processor ensuring that the processor is locked into the clips on the bracket.

(i) NOTE: Ensure that the pin 1 indicator on the bracket is aligned with the pin 1 indicator on the processor before placing the bracket on the processor.



#### Figure 4. Installing the processor bracket

8 Place the heat sink on the processor and push down until the processor bracket locks onto the heat sink.



#### Figure 5. Installing the heat sink onto the processor

9 Hold the PEM vertically by using the PEM handle and align the slots on the sides of the PEM with the standoffs on the sides of the system.



#### Figure 6. Installing the PEM

- 10 Connect the 5UPI and clock cables to the PEM. Refer to the System Information Lable (SIL) for cabling.
- 11 Hold the PEM handle and rotate the PEM to closed position until it is firmly seated.
- 12 Remove the processor socket dust covers on the PEM.
- 13 Align the pins on the heat sink to the guides on the PEM and then place the processor and heat sink module (PHM) on the processor socket.



#### Figure 7. Installing processor and heat sink module

- 14 Push the blue retention clips inward to allow the PHM to drop into place.
- 15 Using Torx #T30 screwdriver, tighten the screws on the PHM in the order below:

- a Partially tighten the first screw (approximately 3 turns).
- b Tighten the second screw completely.
- c Return to the first screw and tighten it completely.

If the PHM slips off the blue retention clips when the screws are partially tightened, follow these steps to secure the PHM:

- a Loosen both the screws completely.
- b Lower the PHM onto the blue retention clips, follow the procedure described in step 8.
- c Secure the PHM to the PEM board, follow the procedure described in step 9.
- 16 Repeat the steps 12 to 14 to install the other PHM.
- 17 Install the memory modules on the memory sockets of the PEM board.
- 18 If applicable, move the NVMe extender cards from the system board to the appropriate I/O riser slot per the Installation and Service Manual or System Information Lable (SIL), and connect the new NVMe cables per requirement. For more information on cabling, please watch the video at www.Dell.com/QRL/PER940/4S-NVMe-cabling.
- 19 Remove the protective covers on the PEM that covers the riser connectors.
- 20 On the riser, rotate the release lever to upward position and insert the riser to the system.



#### Figure 8. Installing the expansion card riser

- 21 Align the guide rail on the side of the riser with the slot on the side of the system and lower the riser into the system.
- 22 Lower the release lever until the connector on the riser connects with the connector on the processor expansion module.
- 23 Repeat the steps 19 to 22 to install the other riser.
- 24 Install the four socket air shroud on the system.



## Figure 9. Installing the air shroud

- 25 Align the tabs on the system cover with the guide slots on the system.
- 26 Close the system cover latch. Using a screwdriver, rotate the latch release lever lock to locked position.



Figure 10. Installing the system cover