



# **Intel® Compute Module HNS2600BP Product Family**

## ***Compute Module Replacement Guide***

This document provides instruction for the replacement of Intel® Compute Module HNS2600BP impacted by Intel® Technical Advisory TA-1132

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Intel® Server Products and Solutions

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## ***Disclaimers***

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# Warnings

**Heed safety instructions:** Before working with your server product, whether you are using this guide or any other resource as a reference, pay close attention to the safety instructions. You must adhere to the assembly instructions in this guide to ensure and maintain compliance with existing product certifications and approvals. Use only the described, regulated components specified in this guide. Use of other products/components will void the UL listing and other regulatory approvals of the product and will most likely result in noncompliance with product regulations in the region(s) in which the product is sold.

**System power on/off:** The power button DOES NOT turn off the Server Chassis AC power. To remove power from the Server Chassis, you must unplug the AC power cord from the wall outlet. Make sure the AC power cord is unplugged before you open the Server Chassis.

Power down the Compute Module and remove it from the Server Chassis before performing any integration or service. Remove power feeds from the Server Board.

**Hazardous conditions, devices and cables:** Hazardous electrical conditions may be present on power, telephone, and communication cables. Turn off the Compute Module remove it from the Server Chassis and disconnect all telecommunications systems, networks, and modems attached to the Server Board before servicing it. Otherwise, personal injury or equipment damage can result.

**Installing or removing jumpers:** A jumper is a small plastic encased conductor that slips over two jumper pins. Some jumpers have a small tab on top that you can grip with your fingertips or with a pair of fine needle nosed pliers. If your jumpers do not have such a tab, take care when using needle nosed pliers to remove or install a jumper; grip the narrow sides of the jumper with the pliers, never the wide sides. Gripping the wide sides can damage the contacts inside the jumper, causing intermittent problems with the function controlled by that jumper. Take care to grip with, but not squeeze, the pliers or other tool you use to remove a jumper, or you may bend or break the pins on the board.

Electrostatic Discharge (ESD)

Electrostatic discharge can cause damage to your computer or the components within it. ESD can occur without the user feeling a shock while working inside the system chassis or while improperly handling electronic devices like processors, memory or other storage devices, and add-in cards.



Intel recommends the following steps be taken when performing any procedures described within this document or while performing service to any computer system.

- Where available, all system integration and/or service should be performed at a properly equipped ESD workstation.
- Wear ESD protective gear like a grounded antistatic wrist strap, sole grounders, and/or conductive shoes.
- Wear an anti-static smock or gown to cover any clothing that may generate an electrostatic charge.
- Remove all jewelry.
- Disconnect all power cables and cords before opening the Server Chassis
- Power down the Compute Module and remove it from the Server Chassis, remove power feed from the Server Board before performing any integration or service
- Touch any unpainted metal surface of the chassis before performing any integration or service.
- Hold all circuit boards and other electronic components by their edges only.
- After removing electronic devices from the system or from their protective packaging, place them component side up on to a grounded anti-static surface or conductive foam pad. **Do not** place electronic devices on to the outside of any protective packaging.

**Caution:** Slide/rail mounted equipment is not to be used as a shelf or a work space.



Intel warrants that this product will perform to its published specifications. However, all computer systems are inherently subject to unpredictable system behavior under various environmental and other conditions.

This product is not intended to be the sole source for any critical data and the user must maintain a verified backup. Failure to do so or to comply with other user notices in the product user guide and specification documents may result in loss of or access to data.

## Introduction

This document is being provided in support of **Intel Technical Advisory TA-1132**. Its intent is to provide Intel customers with instructions necessary to replace impacted Intel Compute Modules with newly received Intel Compute Modules via Intel Advanced Warranty Replacement. It will provide high level removal and installation instructions for possible configuration options integrated within the compute module including: Processor assemblies, Memory (DIMMs), Bridge Boards, and other accessory options. For complete removal and installation instructions for all configuration options, please reference the *HNS2600BP\_S2600BNP Integration and Service Guide* available for download at the following Intel web site:

<https://www.intel.com/content/www/us/en/support/articles/000024318/server-products/server-boards.html>

## Before You Begin

- Locate all Intel Compute Modules impacted by the issue identified in Intel Technical Advisory TA-1132
- Ensure receipt of replacement Intel Compute Module(s) via Intel Advanced Warranty Replacement before attempting any of the procedures included in this document
- For all documented procedures, observe all safety and ESD precautions found in the Warnings section at the beginning of this document.

## Returning Impacted Compute Modules to Intel

When returning impacted compute modules back to Intel, Do **NOT** send a fully configured compute module. All added component options must be removed before shipping.

Configuration options to be removed (if present) include (See Figure 1):

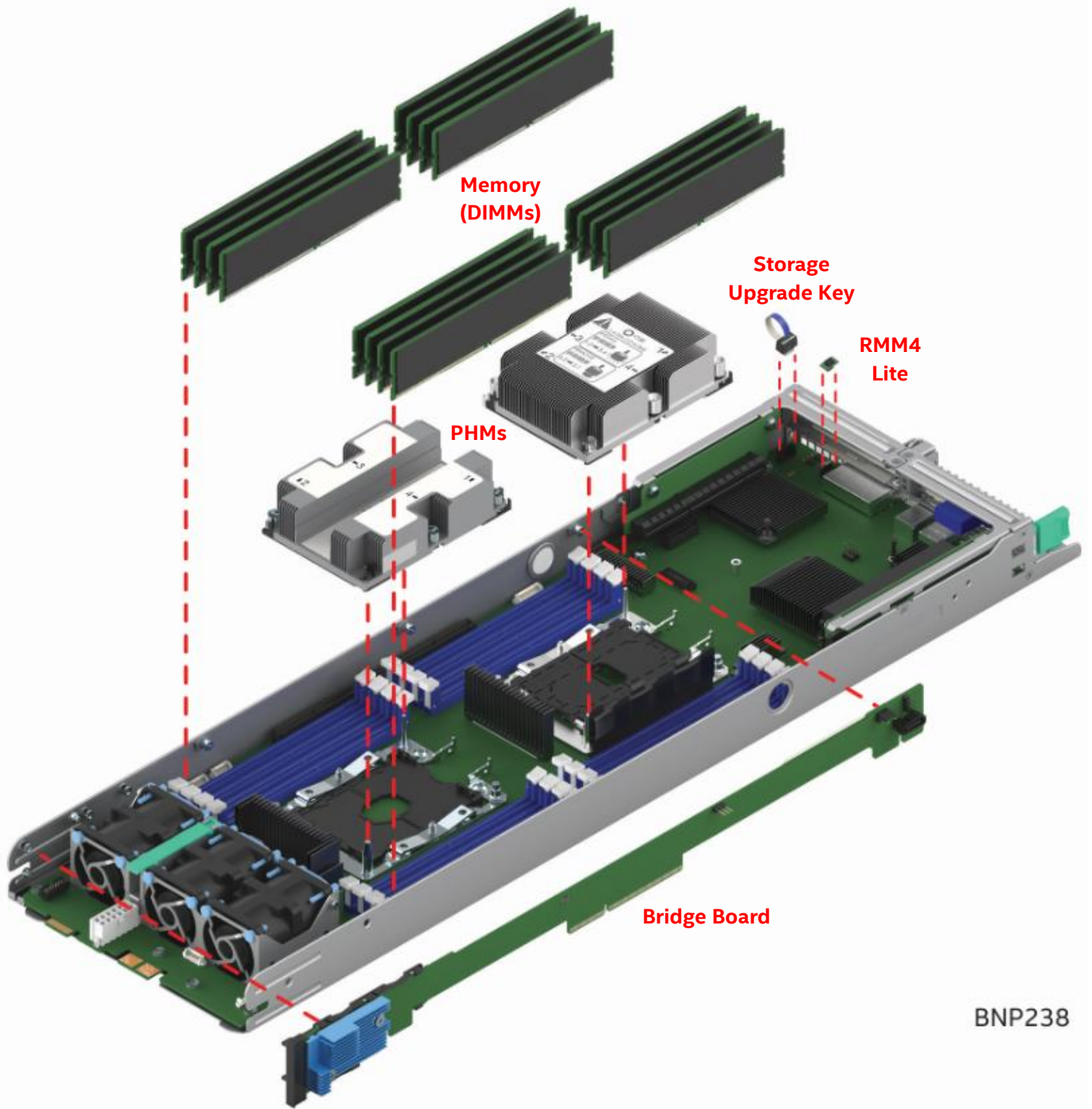
- All installed Processor assemblies (PHMs)
- All Memory (DIMMs)
- Bridge Board
- Intel® RMM4 Lite Key
- Intel® Storage Upgrade Key
- All add-in cards and associated cables
- All M.2 SSD Devices

Impacted compute modules to be shipped back to Intel should use the packaging that the replacement compute module came in. The compute module to be returned to Intel **should include** the module sheet metal tray with the following components installed:

- Server Board
- System Fans
- Air Duct
- Riser Card Assemblies
- Node Docking Board
- Black plastic processor socket covers

## Tools and Supplies Needed

- Anti-static wrist strap and conductive foam pad (recommended)
- Phillips\* (cross head) screwdriver (#2 bit)
- T30 Torx bit screwdriver



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Figure 1. Compute Module Config Options to be removed before shipping

## Locate the Impacted Compute Module

Locate the Intel compute module that exhibits the issue identified in Intel Technical Advisory TA-1132 and place it onto a properly equipped ESD work surface.

An impacted Intel compute module that is still installed within a chassis should be properly shut down and removed from the chassis, then placed onto a properly equipped ESD work surface.

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**Caution** – A recently powered down compute module may have hot surfaces. Compute modules should be allowed to cool down before being removed from a chassis. Care should be taken to avoid touching any hot surfaces

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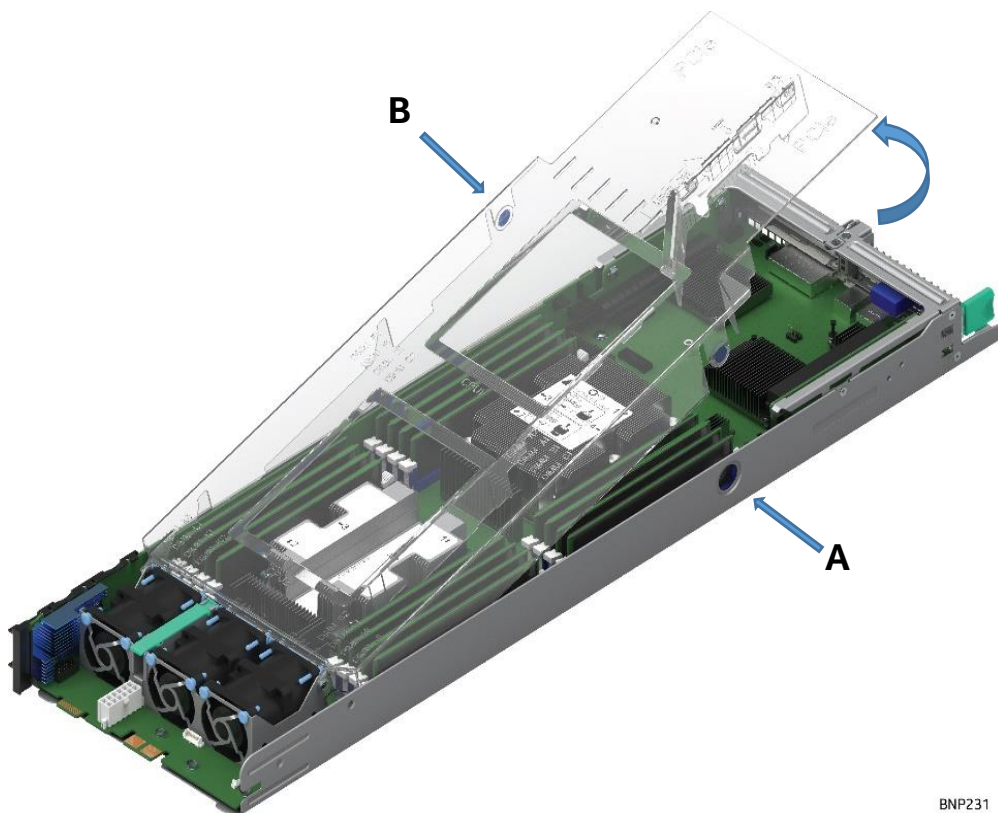
## Replacement Compute Module Preparation

- Carefully unpack the new Intel Compute Module and place side-by-side with the impacted compute module on a properly equipped ESD work surface
- Retain all packaging to send the impacted compute module back to Intel

## Air Duct Removal

Remove the air duct from both compute modules

- Press in and hold the air duct side latch (see Letter **A**)
- Carefully lift the back edge of the air duct to disengage the latch from the module base
- Press in and hold the second air duct latch and pull the air duct away from the module base (See letter **B**)



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Figure 2. Air Duct Removal



Use the following high level procedures to swap all installed options between the existing impacted compute module and the new replacement compute module. For complete removal / installation procedures, reference the *HNS2600BP\_S2600BNP Integration and Service Guide* for complete removal and installation instructions.

### Processor Heat Sink Module (PHMs) Removal

**WARNING:** Processor heat sink modules (PHMs) can become extremely hot during normal system operation. Before attempting to remove the PHM from a recently operational server board, allow the processor heat sinks to fully cool.

Failing to follow the indicated disassembly sequence, may cause damage

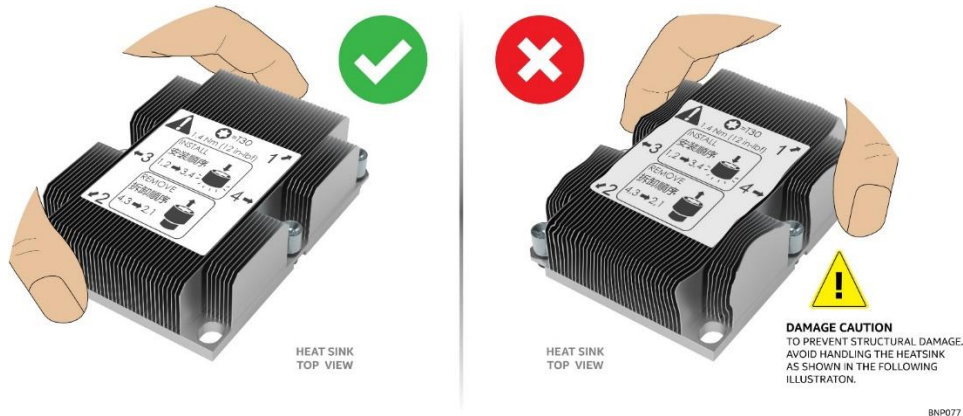


Figure 3. Processor Heat Sink Handling

Remove the PHM from the impacted compute module.

- Using a T30 Torx bit screwdriver, loosen each heat sink fastener in the sequence shown on the label located on the top of the heat sink (see Letter A)
- Lift the processor heat sink module (PHM) straight up from the server board until it is free from the processor socket bolster plate guide pins (see Letter B)

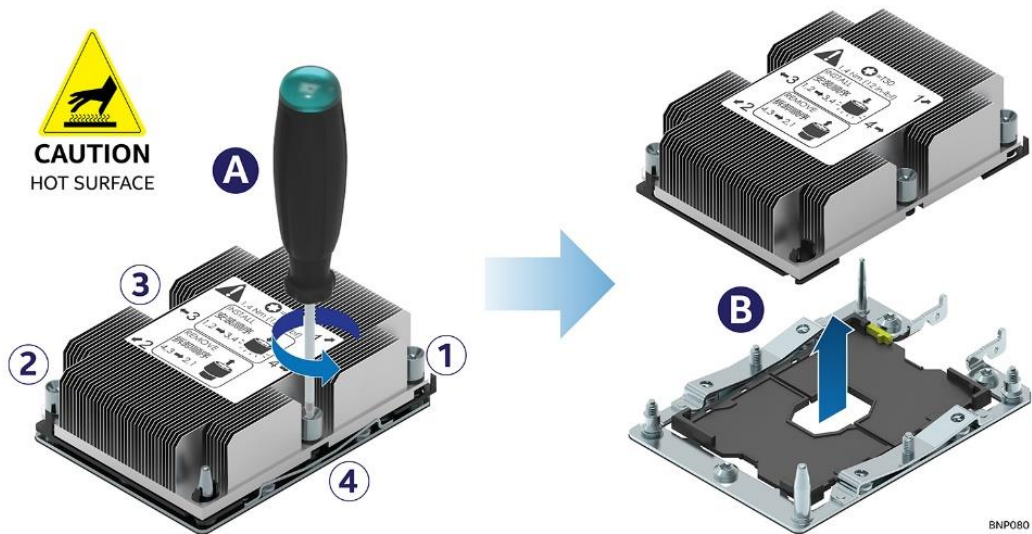
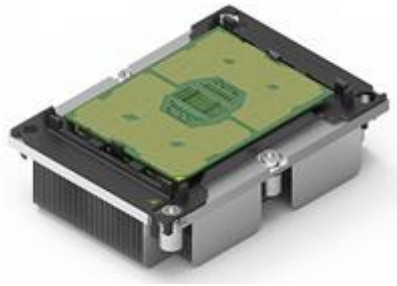


Figure 4. Uninstalling the Processor Heat Sink Module (PHM)

**NOTE:** The processor heat sinks for CPU 1 and CPU 2 are different. When removing the PHM from the server board, note which processor socket location it was removed from. When re-installing the PHMs onto the new server board, care must be taken to place the correct heat sink onto the proper processor socket location. Failure to do so will result in processors over heating when the module is in operation.

- With the heat sink facing down, place the Processor Heat Sink Module (PHM) onto a flat non-conductive surface



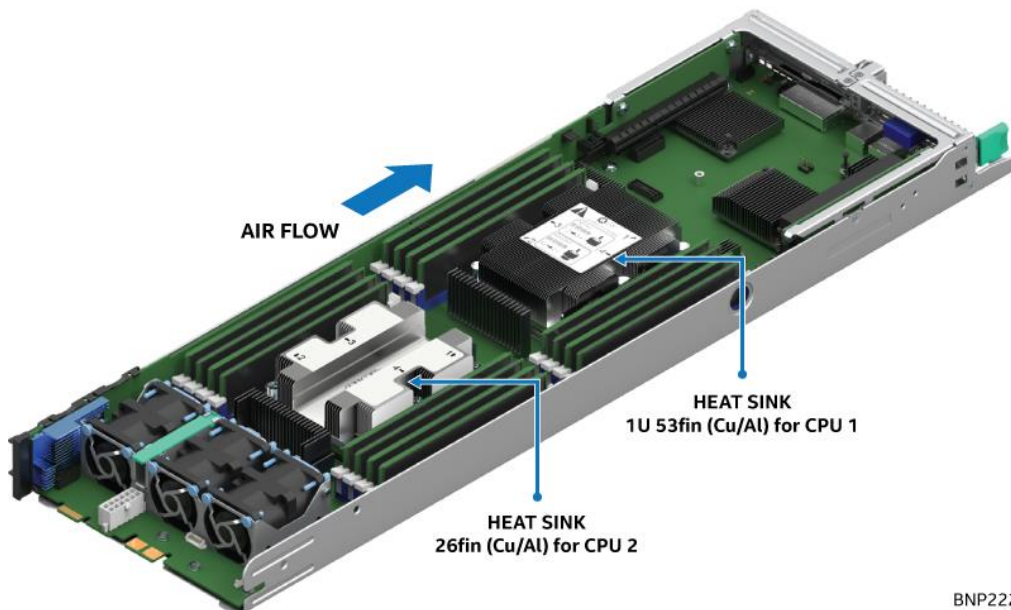
**Figure 5. PHM Removed from Compute Module**

- Repeat the process for 2<sup>nd</sup> PHM

NOTE: It is not necessary to fully disassemble the PHM when the objective is to swap the PHM from one compute module to another.

## Processor Heat Sink Module (PHMs) Installation

When re-installing the PHMs onto the new server board, care must be taken to place the correct heat sink onto the proper processor socket location. Failure to do so will result in processors over heating when the module is in operation



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**Figure 6. Correct PHM Placement onto CPU 1 and CPU 2**

From the new replacement compute module, carefully remove the plastic covers from the processor sockets on the server board

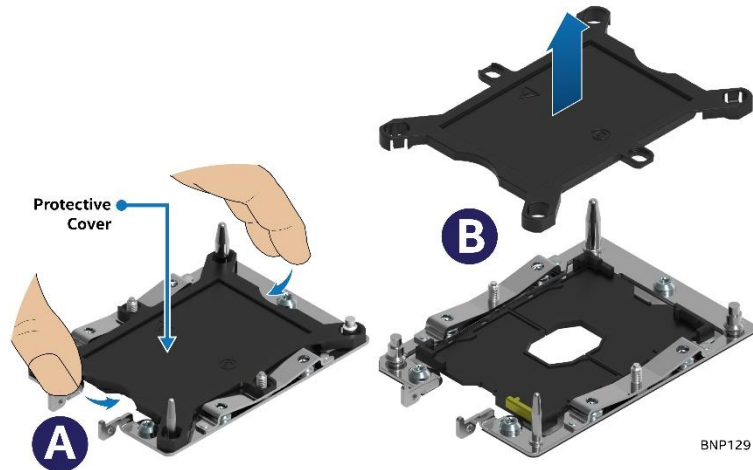


Figure 7. Plastic processor socket cover removal

- Grasp the processor cover as shown in the following figure (see Letter A)
- Carefully pull it up away from the processor socket, ensuring no contact is made with any of the pins within the socket. (see Letter B)

Carefully install the plastic processor socket covers onto the two processor sockets of the **impacted compute module**

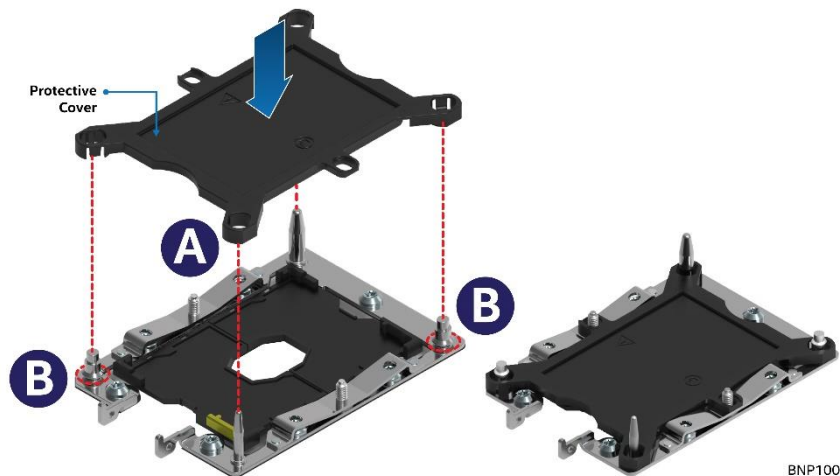


Figure 8. Plastic Processor Socket Cover Installation

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**CAUTION:** When re-installing the socket cover, make sure it properly snaps into place. Improper installation will cause it to become loose and damage the processor socket.

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Place the PHM into the replacement compute module

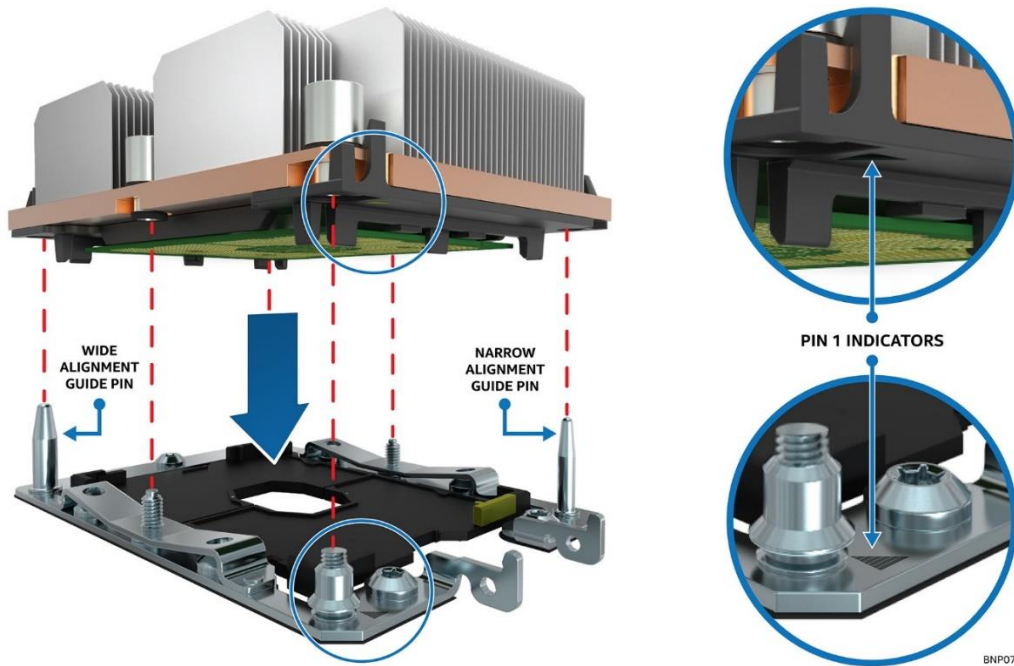


Figure 9. PHM Alignment Features

- Align the mounting holes of the PHM (located on diagonal corners) to the guide pins of the processor socket as shown in the following figure.
- Lower the PHM onto the processor socket assembly

**CAUTION:** Processor socket pins are delicate and bend easily. Use extreme care when placing the PHM onto the processor socket, do not drop it.

The PHM assembly is properly installed when seated flat and evenly upon the processor socket assembly

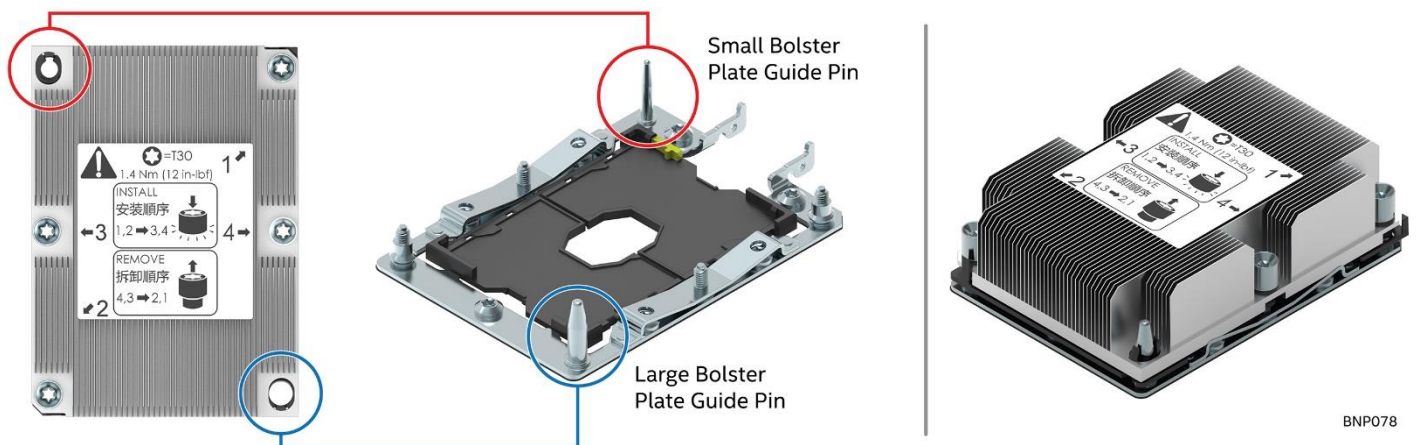


Figure 10. Correct PHM Placement

**NOTE:** The PHM is NOT installed properly if it does not sit level with the processor socket assembly. Improperly installed PHMs cannot be fastened down. PHMs can only be fastened down if correctly installed.

- Using a T30 Torx bit screwdriver, securely tighten (12 in-lb) each fastener in the sequence shown on the label located on the top of the heat sink



**Figure 11. Securing the PHM**

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**CAUTION:** Failure to tighten the heat sink screws in the specified order may cause damage to the processor socket assembly. Each heat sink screw should be fully tightened to 12 in-lb torque before securing the next screw in the sequence.

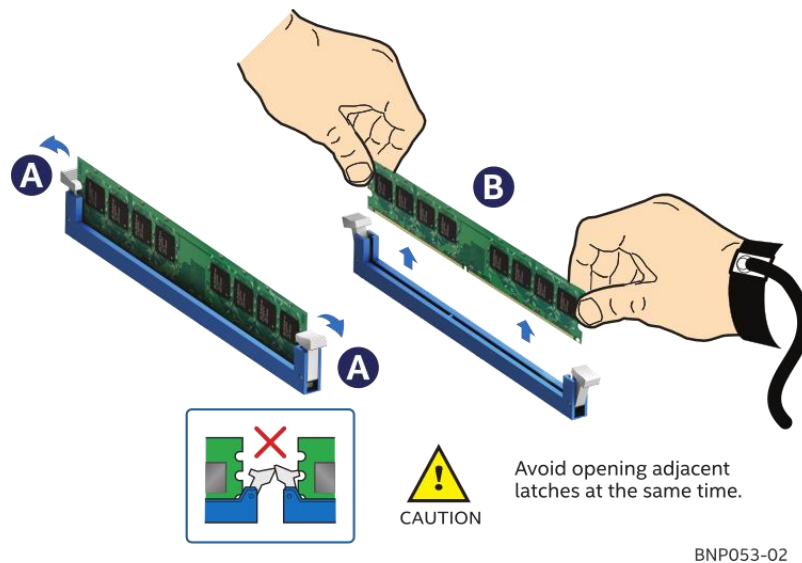
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For a second processor, repeat the processor installation instructions above.

For single processor configurations where a 2<sup>nd</sup> processor is not configured, install the CPU#2 heat on to the CPU #2 socket to ensure proper air flow when the compute module is operational.

## Memory Module (DIMM) Removal

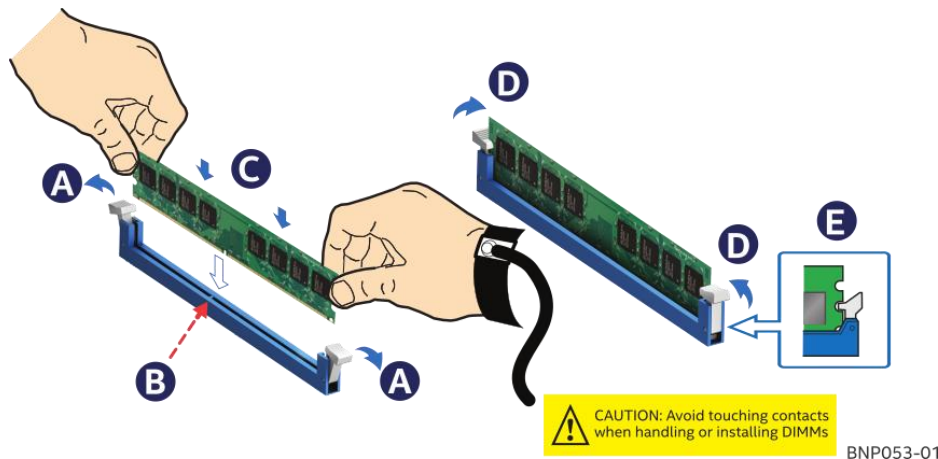
When installing memory (DIMMs) into the new replacement compute module, ensure the DIMMs are installed in the same DIMM slots as they were in the impacted compute module.



**Figure 12. Memory (DIMM) Removal**

- Open the DIMM slot latches at either end of the selected DIMM socket (see Letter **A**). The DIMM will lift up from the socket connectors.
- Holding the DIMM by its edges, lift it away from the socket (see Letter **B**)
- Repeat steps 1 and 2 for all remaining DIMMs

## Memory Module (DIMM) Installation



**Figure 13. Installing the Memory**

- Locate the desired DIMM slot
- Rotate the white retention clips located on each end of the DIMM slot, out to the open position (see Letter **A**)
- Holding the DIMM by its edges, ensure the DIMM alignment notch and DIMM slot key are properly aligned (see Letter **B**)
- Carefully insert the DIMM into the DIMM Slot (see Letter **C**).
- Firmly push down on the top edge of the DIMM until the retaining clips snap into place (see Letter **D**).
- Visually check that both retention clips are firmly in place (see Letter **E**).

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**NOTE:** Avoid opening adjacent latches at same time

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Repeat removal/installation steps for all DIMMs to be swapped between the two compute modules.

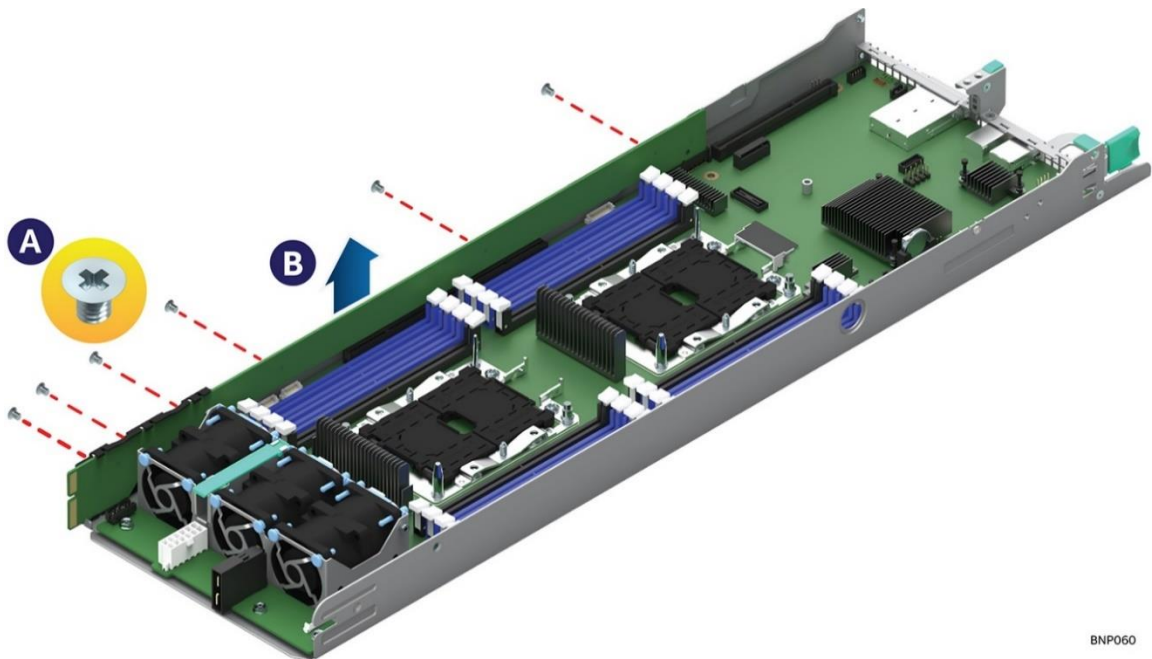
## 4-port Bridge Board Removal

This section describes the removal procedures associated with each type of Bridge Board available for this compute module product family.

These removal instructions apply to the following Intel Bridge Boards

- **AHWBPBGB**
- **AHWBP12GBGB**
- **AHWBP12GBGBIT**
- **AHWBP12GBGBR5**

Tools Required: **Phillips screw driver**

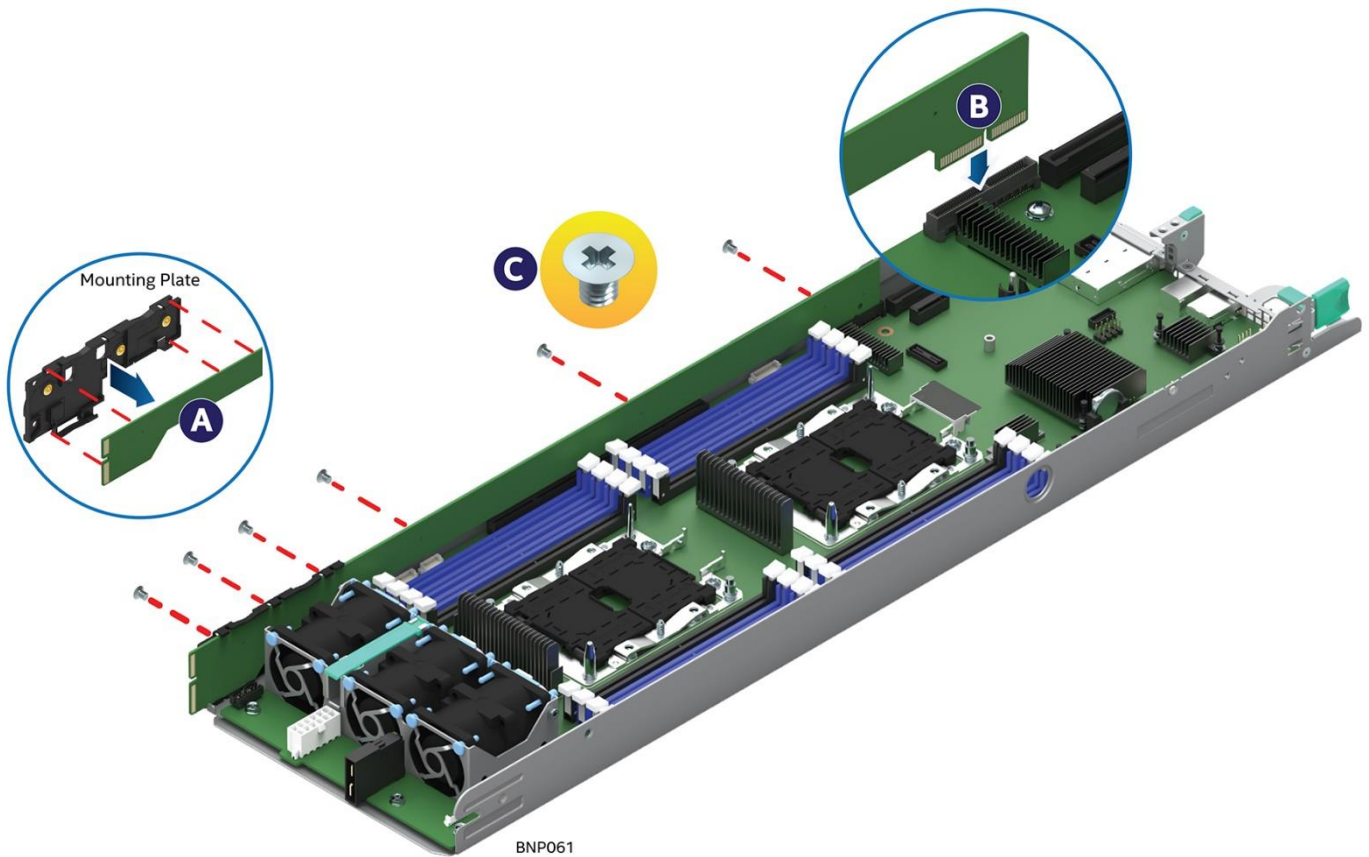


\*Middle edge connector on AHWBP12GBGB, AHWBPB12GBGBIT and AHWBP12GBGBRS only

**Figure 14. 4-port Bridge Board Removal**

- Remove the six screws securing the bridge board to the compute module base (Letter **A**)
- Carefully lift each end of the bridge board up from riser slots on the server board
- With the bridge board free from the server board, lift it away from the compute module (Letter **B**)

## 4-port Bridge Board Installation



\*Middle edge connector on AHWBP12GBGB, AHWBPB12GBGBIT and AHWBP12GBGBRS only

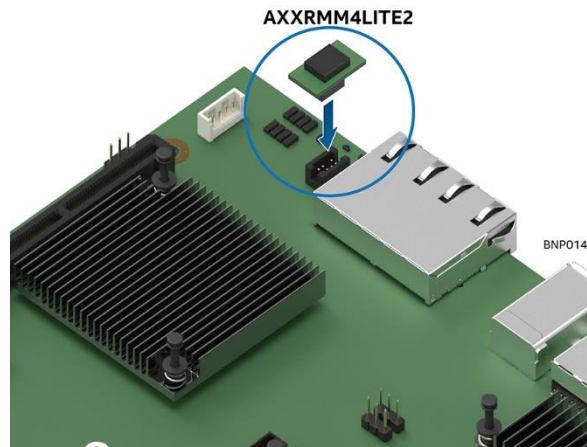
**Figure 15. 4-port Bridge Board Installation**

- If the black plastic mounting plate dislodged from the bridge board in the previous procedure, reposition it onto the back side of the Bridge Board as shown in the illustration below (see Letter **A**).
- Insert bridge board edge connector(s) into matching slot connectors on the server board (see Letter **B**)
- Using six screws, secure the bridge board to the compute module side wall (see Letter **C**)



## Intel® Remote Management Module 4 Lite (RMM4 Lite) Removal / Installation

Your impacted compute module may or may not have an Intel RMM4 Lite component installed. If present, remove the component from the impacted compute module and re-install it into the new replacement module using the following procedure.

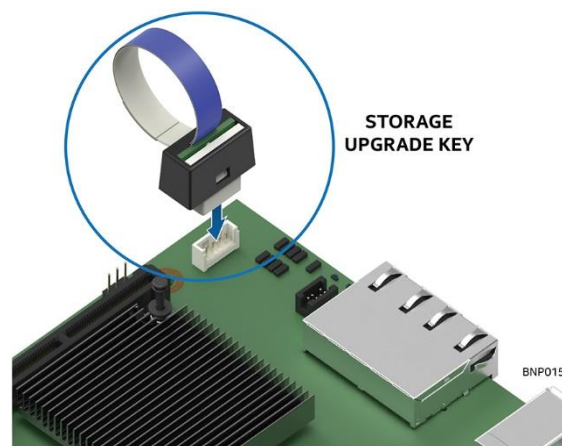


**Figure 16. Removing / Installing the Intel® RMM4 Lite**

- To remove the RMM4 Lite component from the server board, carefully grasp the component by its edges, and pull straight up until it is disengaged from the onboard connector.
- To install the RMM4 Lite component onto the new server board, match the orientation of the RMM4 Lite component connector to the matching 8-pin connector on the server board. Press the component straight down into the onboard connector until it is fully seated.

## Intel Storage Upgrade Key Removal / Installation

Your impacted compute module may or may not have an Intel Storage key installed. If present, remove the key from the impacted compute module and re-install it into the new replacement module using the following procedure.



**Figure 17. Removing / Installing the Intel® Storage Upgrade Key**

- To remove the Storage Upgrade key from the server board, locate the RAID key on the server board next to Riser Slot 2. Using the key pull tab, pull the key up until it disengages from the on board connector
- To install the Storage Upgrade key onto the new server board, locate the RAID key connector on the server board next to Riser Slot 2 and match the orientation of the key connector to the connector on the server board. Press the storage upgrade key down onto the server board connector until fully seated.

## Riser Slot #1 Configuration

The riser assembly installed into Riser Slot #1 in the impacted compute module may not match the shipping configuration of the replacement compute module. Should the riser assembly be different, it will be necessary to swap the riser card assemblies between the two compute modules.

Depending on the server board model, Riser Slot #1 can be configured to support different options. If necessary, reference the *HNS2600BP\_S2600BNP Integration and Service Guide* for complete removal / installation procedures for all supported Riser #1 options.

<https://www.intel.com/content/www/us/en/support/articles/000024318/server-products/server-boards.html>

## Riser Slot #2 Configuration

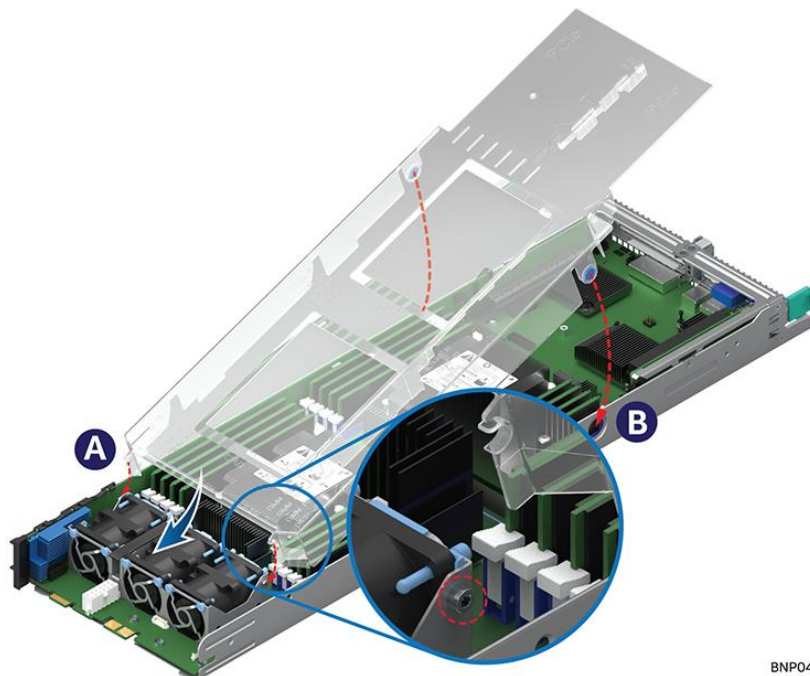
The riser assembly installed into Riser Slot #2 has the option to support both a PCIe add-in card and a M.2 SATA SSD. Should the impacted compute module have either of these options installed, it will be necessary to swap the fully assembled riser assemblies between the two compute modules.

If necessary, reference the *HNS2600BP\_S2600BNP Integration and Service Guide* for complete removal / installation procedures for all supported Riser #2 options.

<https://www.intel.com/content/www/us/en/support/articles/000024318/server-products/server-boards.html>

## Air Duct Installation

The air duct must be installed to both compute modules.



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**Figure 18. Air Duct Installation**

- Align and attach the hinge slots located on the front end of the air duct with the hinge posts located on both sides of the fan bracket (see Letter **A**)
- Lower the air duct down until the left and right side buttons snap into place (see Letter **B**)