Recycling Compute Node Components

This chapter contains the following topics:

- Compute Node Recycling Overview, on page 1
- Removing the Trusted Platform Module (TPM), on page 1
- Recycling the Component PCB Assemblies (PCBAs), on page 3

Compute Node Recycling Overview

This chapter documents the procedures to disassemble key compute node components for recycling and e-waste. When recycling your Cisco UCS hardware, always make sure to follow local e-waste and recycling regulations.

Note **For Recyclers Only!** The procedures in this chapter are not standard field-service options. These procedures are for recyclers who will be reclaiming the electronics for proper disposal to comply with local eco design and e-waste regulations.

To disassemble compute node component parts, see the following topics:

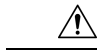
- Removing the Trusted Platform Module (TPM), on page 1
- Recycling the Motherboard PCBA, on page 3

Removing the Trusted Platform Module (TPM)

The TPM module is attached to the printed circuit board assembly (PCBA). You must disconnect the TPM module from the PCBA before recycling the PCBA. The TPM module is secured to a threaded standoff by a tamper-resistant screw. If you do not have the correct tool for the screw, you can use a pair of pliers to remove the screw.

Caution Removing the TPM destroys the part so that it cannot be reinstalled or reused!

Before you begin



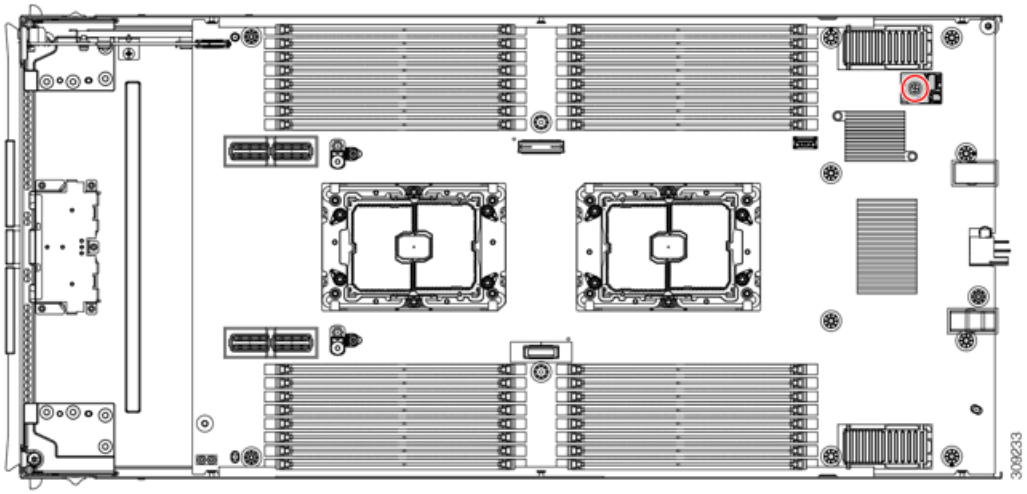
Caution **For Recyclers Only!** This procedure is not a standard field-service option. This procedure is for recyclers who will be reclaiming the electronics for proper disposal to comply with local eco design and e-waste regulations.

To remove the Trusted Platform Module (TPM), the following requirements must be met for the compute node:

- It must be disconnected from facility power.
- It must be removed from the equipment rack.
- The top cover must be removed. If the top cover is not removed, see Removing and Installing the Compute Node Cover.

Procedure

Step 1 Locate the TPM module.



Step 2 Using the pliers, grip the head of the screw and turn it counterclockwise until the screw releases.

Step 3 Remove the TPM module and dispose of it properly.

What to do next

Remove and dispose of the PCB Assembly. See Recycling the Motherboard PCBA, on page 3.

Recycling the Component PCB Assemblies (PCBAs)

In addition to the main motherboard PCBA, some key components also contain PCBAs that need to be recycled. Always comply with your local regulations governing recycling and e-waste.

Use the following procedures to recycle the appropriate components.

- Recycling the Motherboard PCBA, on page 3
- Recycling the Front Mezzanine Module PCBA, on page 6

Recycling the Motherboard PCBA

Each compute node has a PCBA that is connected to the compute node's faceplate and sheet metal tray. You must disconnect the PCBA from the faceplate and tray to recycle the PCBA. Each compute node is attached to the sheet metal tray be the following:

- Four M3 screws
- Two hexagonal standoffs.

For this procedure you will need the following tools:

- Screwdrivers: #2 Phillips, one 6mm slotted, one T8, T10, and T30.
- Nut driver: One 6mm hex

You will need to recycle the PCBA for each compute node.

Before you begin

Note **For Recyclers Only!** This procedure is not a standard field-service option. This procedure is for recyclers who will be reclaiming the electronics for proper disposal to comply with local eco design and e-waste regulations.

To remove the printed circuit board assembly (PCBA), the following requirements must be met:

- The compute node must be disconnected from facility power.
- The compute node must be removed from the equipment rack.
- The compute node's top cover must be removed. See Removing and Installing the Compute Node Cover.

Procedure

Step 1 (Optional) If the CPUs and heat sinks are still installed, remove them.

See Removing the CPU and Heatsink.

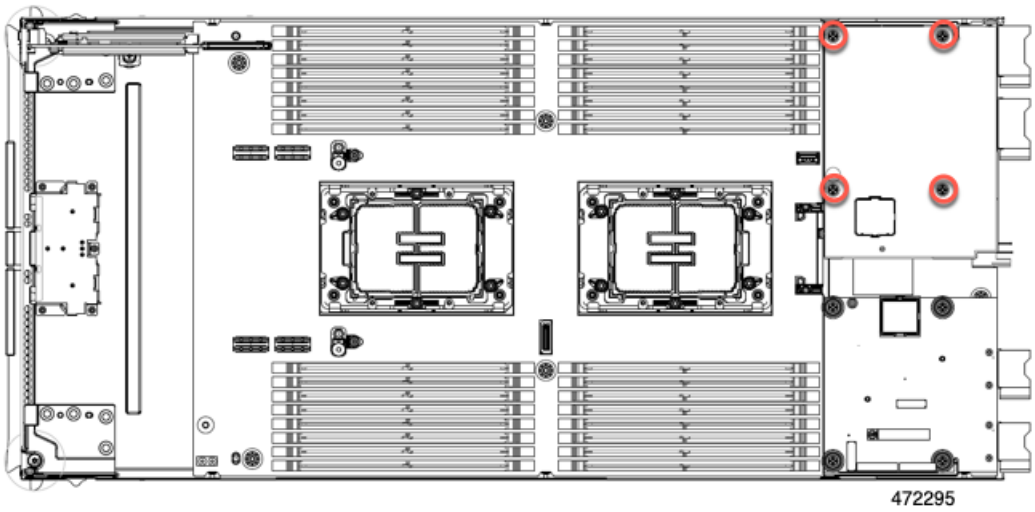
Step 2 (Optional) If the front mezzanine module is installed, remove it.

See Removing the Front Mezzanine Module.

Step 3 (Optional) If the rear bridge card is installed, remove it.

See Removing the Bridge Card.

Step 4 (Optional) If the rear mezzanine card is installed, use a #2 screwdriver to remove the four captive screws, then remove the card.



Step 5 (Optional) If the MLOM VIC is installed, remove it.

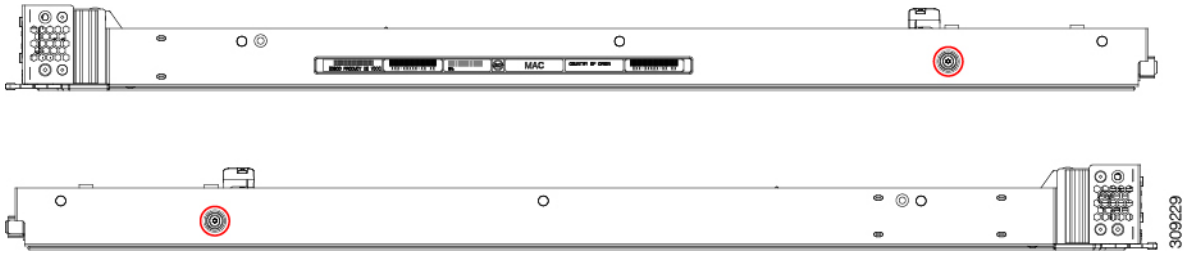
See Removing the mLOM.

Step 6 Remove the M.2 module.

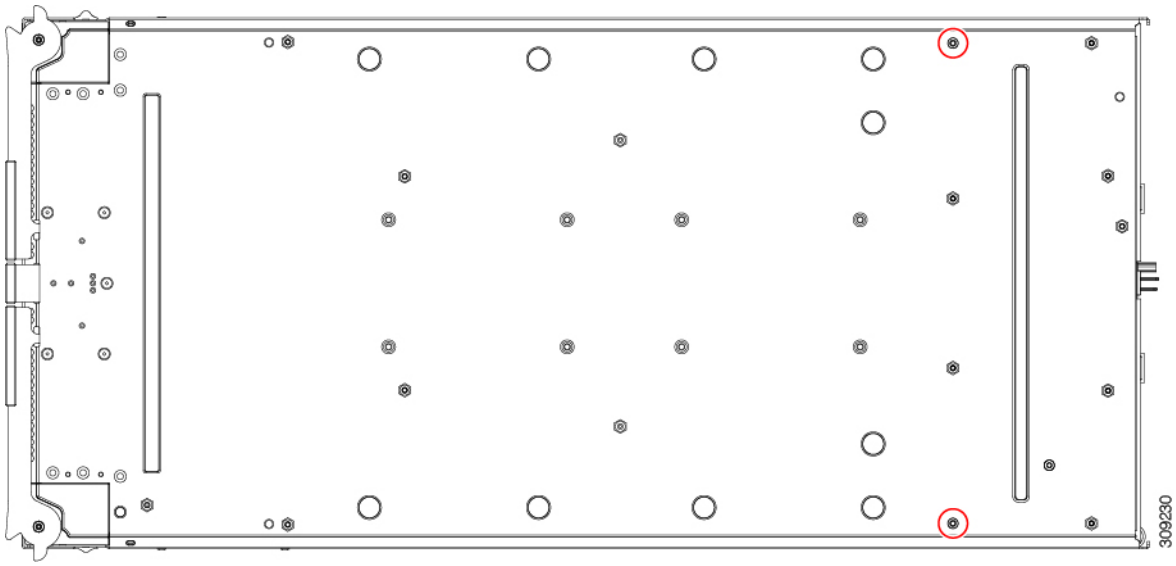
See Removing the M.2 RAID Controller Module or NVMe Pass-Through Module.

Step 7 Remove the compute node's rear frame.

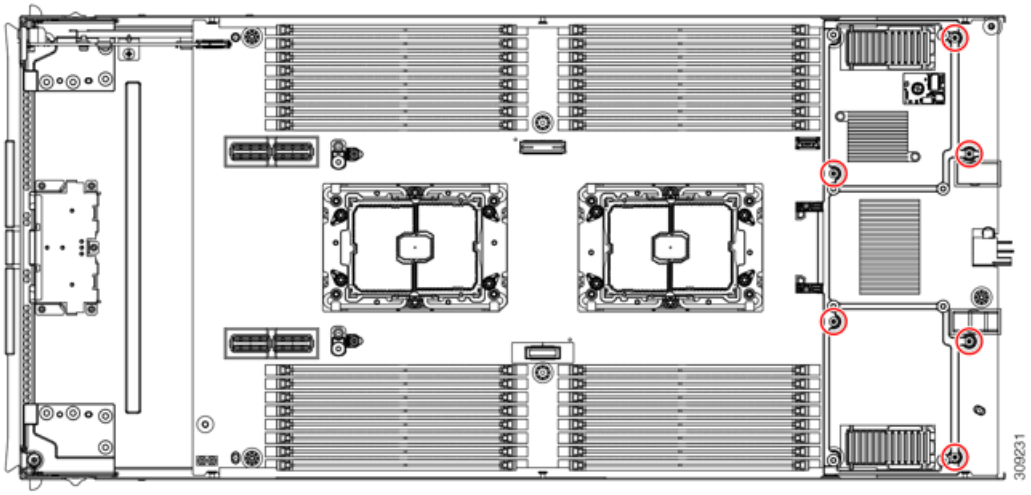
a) Use the T8 screwdriver to remove the M3 bottom mounting screw on each exterior side of the compute node.



b) Turn the compute node upside down and use the T10 screwdriver to remove the two M3 mounting screws on the bottom of the sheet metal.



c) Turn the compute node component side up and use the T10 screwdriver to remove the six M3 mounting screws at the rear of the compute node.

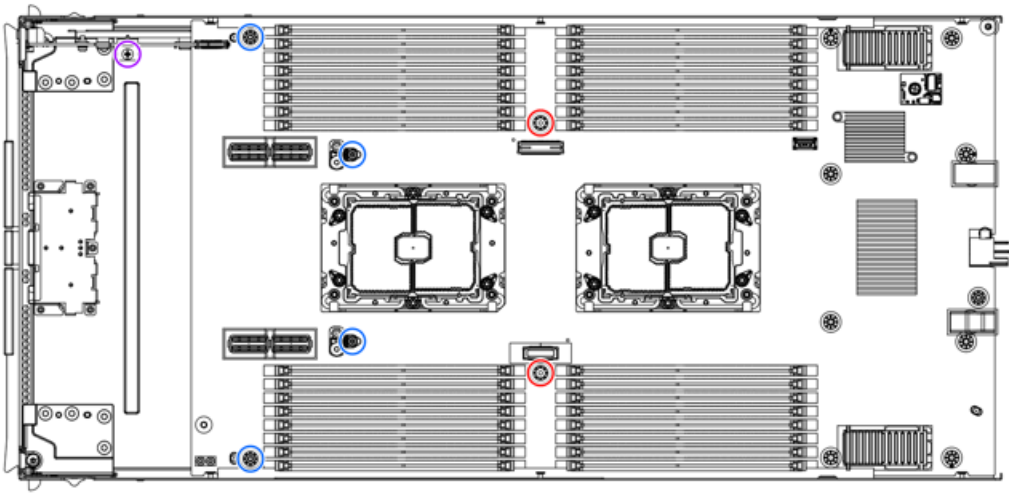


Step 8 If the TPM is installed, remove it.

See Removing the Trusted Platform Module (TPM), on page 1.

Step 9 Disconnect the motherboard from the compute node's sheet metal.

a) Use the 6mm hex nut driver to remove the two standoffs.
b) Use the #2 Phillips screwdriver to remove the front mezzanine cage retaining screw, then remove the cage.
c) Use the T10 screwdriver to remove the four M3 screws.



Red circles (○)	6 mm standoffs (2)
Blue circles (○)	M3 screws (4)
Purple circle (○)	Front mezzanine cage retaining screw (1)

Step 10 Recycle the sheet metal and motherboard in compliance with your local recycling and e-waste regulations.

Recycling the Front Mezzanine Module PCBA

The compute node's front mezzanine module contains one PCBA, which sits horizontally and connects the drive backplane to the main motherboard. The PCBA is attached to the front mezzanine module's sheetmetal by four T8 screws.

You must disconnect the PCBA from the sheetmetal before recycling the PCBA.

Before you begin

Note **For Recyclers Only!** This procedure is not a standard field-service option. This procedure is for recyclers who will be reclaiming the electronics for proper disposal to comply with local eco design and e-waste regulations.

To remove the printed circuit board assembly (PCBA), the following requirements must be met:

- The compute node must be removed from the chassis.
- The compute node's top cover must be removed. See Removing a Compute Node Cover.

Gather the following tools:

- A T8 Torx screwdriver

- A #2 Phillips screwdriver

Procedure

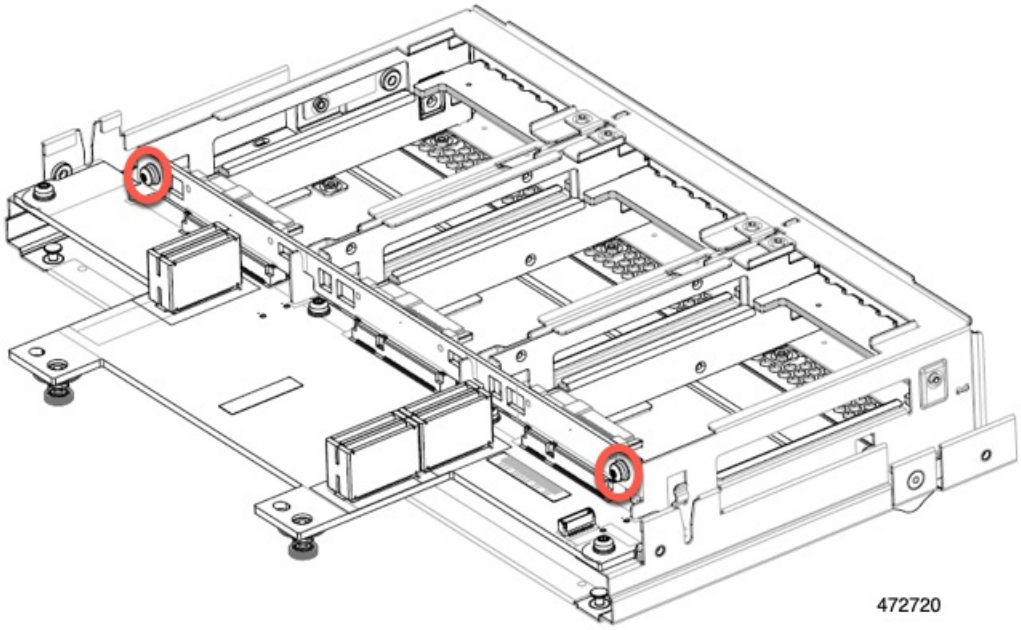
Step 1 Remove the front mezzanine module from the compute node.

a) Go to Removing the Front Mezzanine Module.

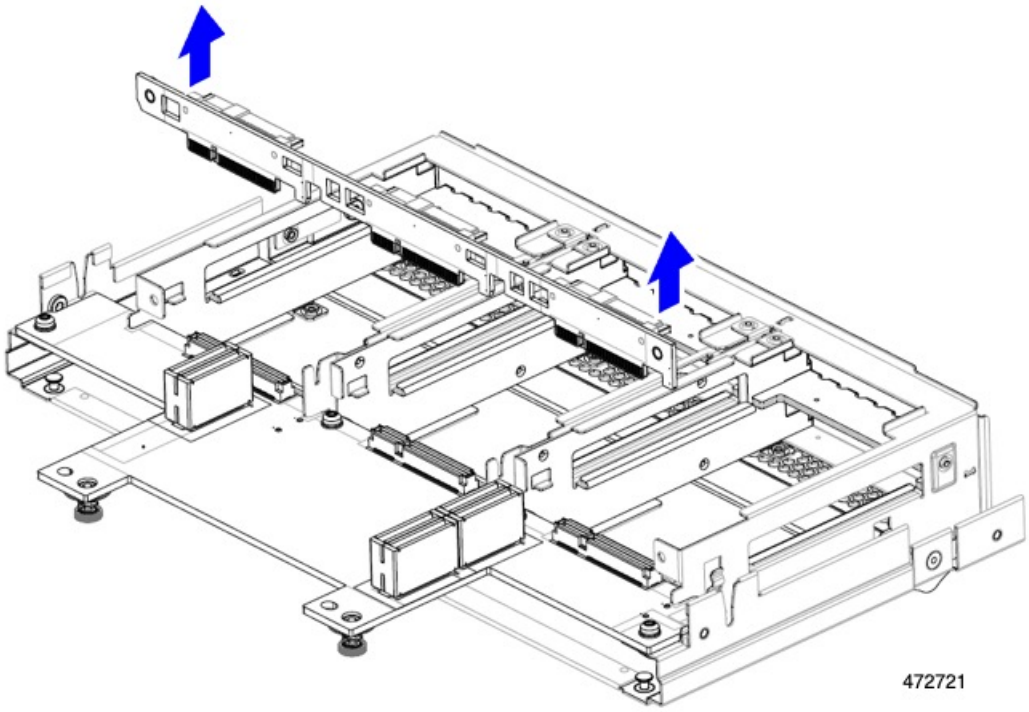
b) Place the front mezzanine module upside down on a rubberized mat or other ESD-safe work surface.

Step 2 Disconnect the drive backplane.

a) Using a #2 Phillips screwdriver, remove the two screws on the drive backplane.

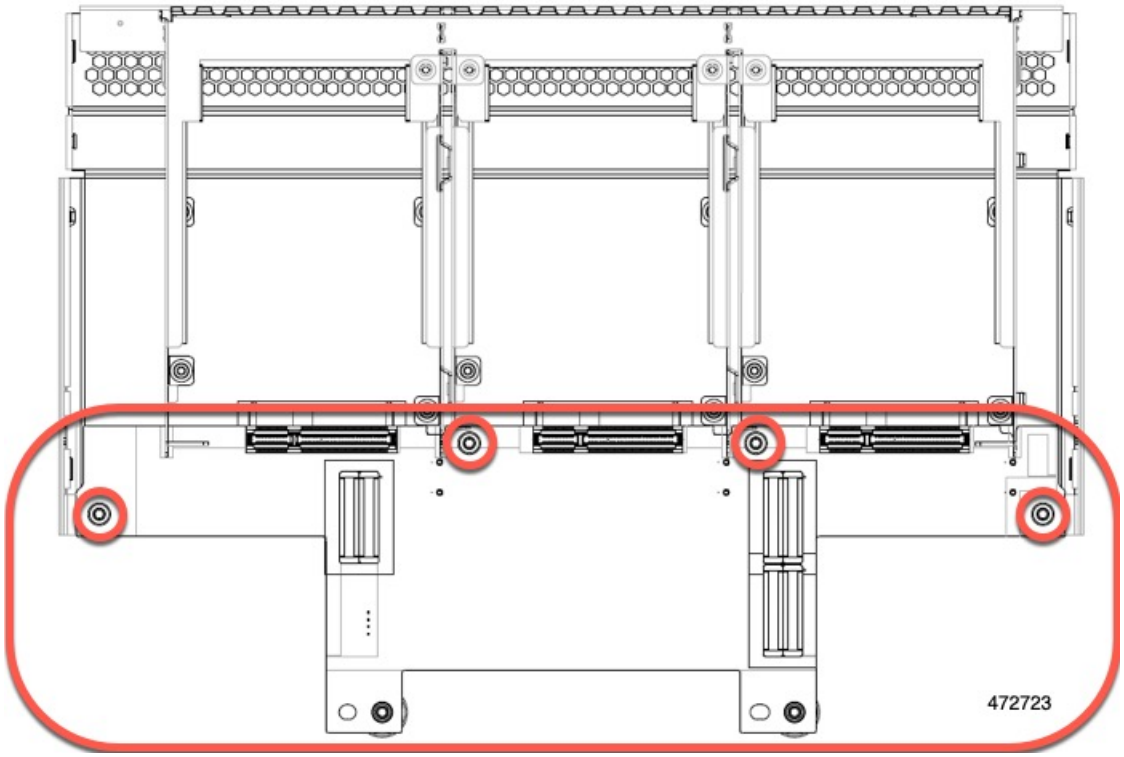


b) Grasp the drive backplane and lift it off of the sheetmetal frame.

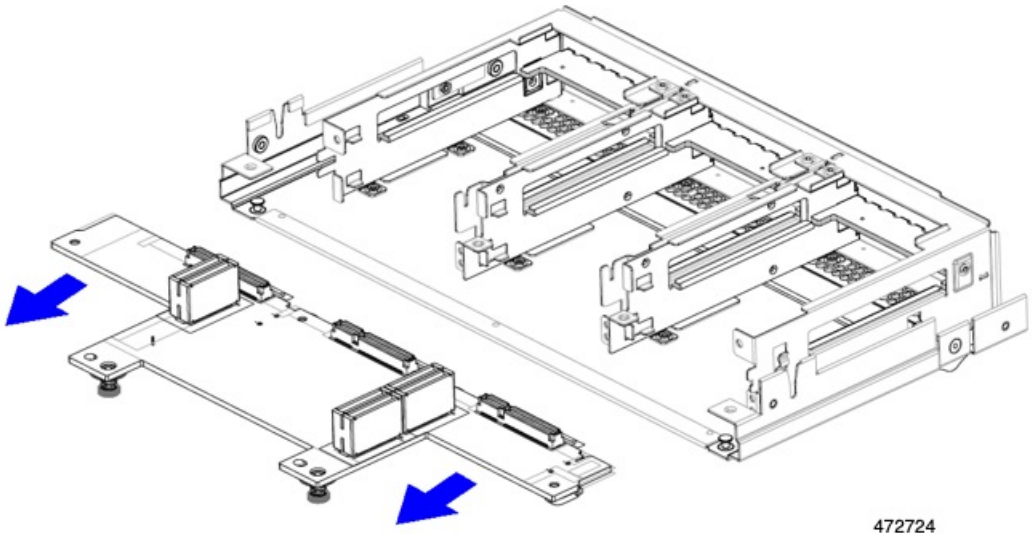


Step 3 Disconnect the PCBA from the sheetmetal frame.

a) Locate the PCBA and use a T8 Torx screwdriver to remove the four screws that secure the PCBA to the sheetmetal frame.



b) Grasp the PCBA and detach it from the front mezzanine module.



Step 4 Dispose of the PCBA properly in accordance with your local recycling and e-waste laws.

Recycling the Front Mezzanine GPU Module's PCBA

The compute node supports an optional front mezzanine module configuration of one or two Cisco T4 GPUs. The X10c Front Mezzanine GPU Module, UCSX-X10C-GPUFM, has a PCBA that must be recycled.

For information about recycling the PCBA in the X10c Front Mezzanine GPU Module, go to Recycling the Front Mezzanine GPU Module PCBA.