



Cisco UCS X10c Pass Through Controller for E3.S Installation and Service Guide

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CONTENTS

CHAPTER 1	Overview	1
	Overview	1
	Front Mezzanine E3.S Module	1
	Drive Bays	2
	Drives and Drive LEDs	2

CHAPTER 2	Installing The Front Mezzanine Module	5
	Installing and Removing The Front Mezzanine	5
	Required Equipment	5
	Removing a Compute Node Cover	6
	Installing a Compute Node Cover	6
	Removing the Front Mezzanine Module	7
	Installing the Front Mezzanine Module	9
	Front Mezzanine Module Configuration	11

CHAPTER 3	Servicing The Front Mezzanine Module	13
	Servicing the Front Mezzanine Module	13
	Replacing a Drive	13
	E3.S PCIe SSD Requirements and Restrictions	13
	Hot Plug Considerations	14
	Removing a Drive	14
	Installing a Drive	15
	Removing a Drive Blank Filler	16
	Installing a Drive Blank Filler	17

CHAPTER 4	Recycling The Front Mezzanine Module	19
------------------	---	-----------

Front Mezzanine Recycling Overview 19
Recycling the Component PCB Assemblies 19
 Recycling the Front Mezzanine Module PCBA 19

APPENDIX A

Technical Specifications 23
 E3.S Drive Specifications 23
 Front Mezzanine Module Specifications 23



Preface

This chapter contains the following topics:

- [Bias-Free Documentation](#), on page v
- [Full Cisco Trademarks with Hardware License](#), on page v
- [Communications, Services, and Additional Information](#), on page vii

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CHAPTER 1

Overview

This chapter contains the following topics:

- [Overview, on page 1](#)
- [Front Mezzanine E3.S Module, on page 1](#)

Overview

The Cisco UCS X10c Pass Through Controller for E3.S drives (UCSX-X10C-PTE3) is a passive PCIe Gen 5 front mezzanine option for Cisco UCS X-Series compute nodes, including the Cisco UCS X210c M8 Compute Node and the Cisco UCS X215c M8 Compute Node.

Each Cisco UCS X10c Pass Through Controller consists of E3.S 1T PCIe Gen5 drives.

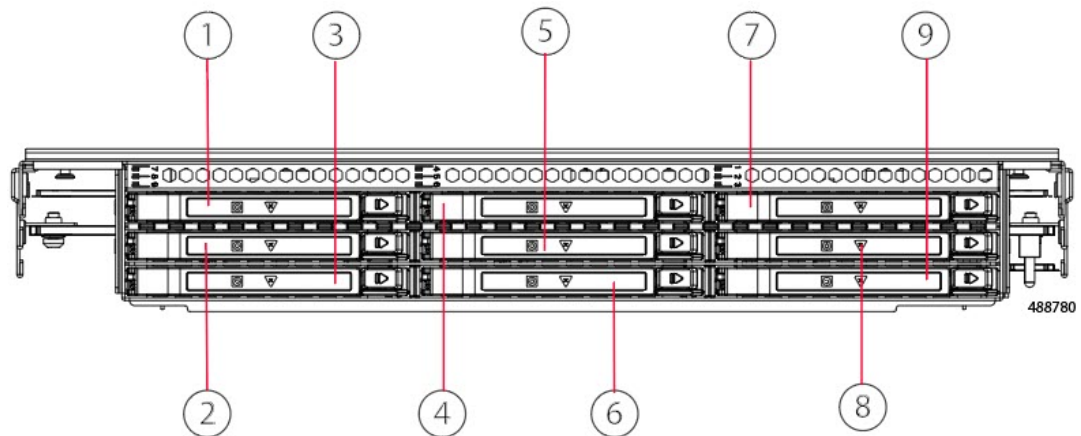
- A maximum of nine E3.S drives is supported when the UCSX-X10C-PTE3 is installed on the Cisco UCS X210c M8 Compute Node
- A maximum of eight E3.S drives is supported when the UCSX-X10C-PTE3 is installed on the Cisco UCS X215c M8 Compute Node

Front Mezzanine E3.S Module

The E3.S front mezzanine module supports a varying number of E3.S PCIe drives.

- When the UCSX-X10C-PTE3 front mezzanine module is installed on the Cisco UCS X210c M8 Compute Node, the module supports up to nine drives, as shown in the illustration.
- When the UCSX-X10C-PTE3 front mezzanine module is installed on the Cisco UCS X215c M8 Compute Node, the module supports up to eight drives.

The following illustration shows the location of the drives. Drive slot numbering is the same regardless of which X Series M8 Compute Node the UCSX-X10C-PTE3 front mezzanine module is installed on.



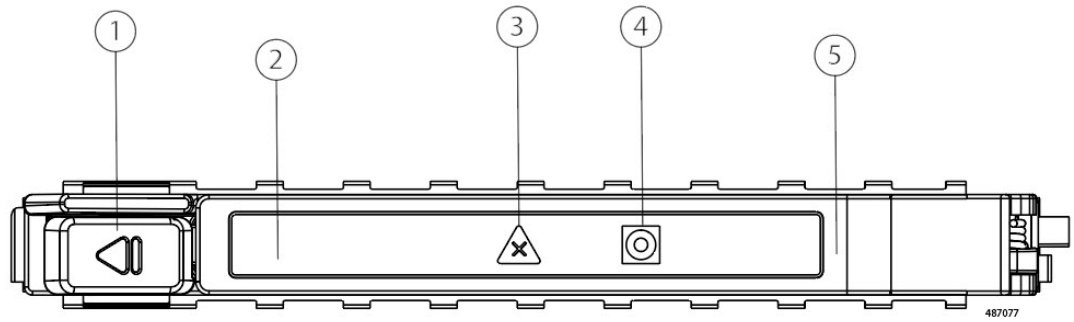
1	E3.S drive slot 1
2	E3.S drive slot 2
3	E3.S drive slot 3
4	E3.S drive slot 4
5	E3.S drive slot 5 Note On a Cisco UCS X215c M8 Compute Node only, this drive slot cannot be populated with an E3.S SSD. The slot must be covered with a drive slot filler panel (UCSC-E3S1T-F)
6	E3.S drive slot 6
7	E3.S drive slot 7
8	E3.S drive slot 8
9	E3.S drive slot 9

Drive Bays

Each front mezzanine ES.3 module has a front mezzanine can support a maximum of nine 7.5mm E3.S 1TB PCIe5 drives. A drive blank panel (UCSC-E3S1T-F) must cover any empty drive bays.

Drives and Drive LEDs



Each E3.S drive is a front-loading drive that slides into and out of the front mezzanine module's storage cage.



1	Ejector Button	2	E3.S Drive
3	Drive Status LED	4	Drive Activity LED
5	E3.S Drive Carrier		

Each E3.S drive also has LEDs that indicate drive health and activity.

Table 1: Drive LEDs, NVMe (VMD Enabled)

Green Activity/Presence LED 	Amber Blue Status/Fault LED 	Description
Off	Off	Drive not present or drive powered off
On	Off	Drive present, but no activity
4HZ	Off	Drive present and drive activity
On	Blue, 4HZ	Drive Locate indicator or drive prepared for physical removal
On	Amber ON	Failed or faulty drive
On	Amber, 1Hz	Drive Rebuild



CHAPTER 2

Installing The Front Mezzanine Module

This chapter contains the following topics:

- [Installing and Removing The Front Mezzanine](#) , on page 5
- [Front Mezzanine Module Configuration](#), on page 11

Installing and Removing The Front Mezzanine

The front mezzanine module installs into the front mezzanine slot of Cisco UCS X-Series compute nodes. See the following:

- [Required Equipment](#), on page 5
- [Installing the Front Mezzanine Module](#) , on page 9
- [Removing the Front Mezzanine Module](#) , on page 7

Required Equipment

There is no special kit required to install the Cisco UCS XE3.S front mezzanine module. However make sure the following items are available during installation:

- The front mezzanine including:
 - The drive cage which supports a maximum of nine E3.S drives.
 - Filler blanks.



Note If you order the Cisco UCS X10c front mezzanine E3.S module with one E3.S drive, the unused E3.S slots are pre-populated with filler blanks. You can purchase additional filler blanks from Cisco (UCSC-E3S1T-F).

The following additional equipment, which is not provided by Cisco, is required to install or remove the E3.S module.

- T8 Torx screwdriver

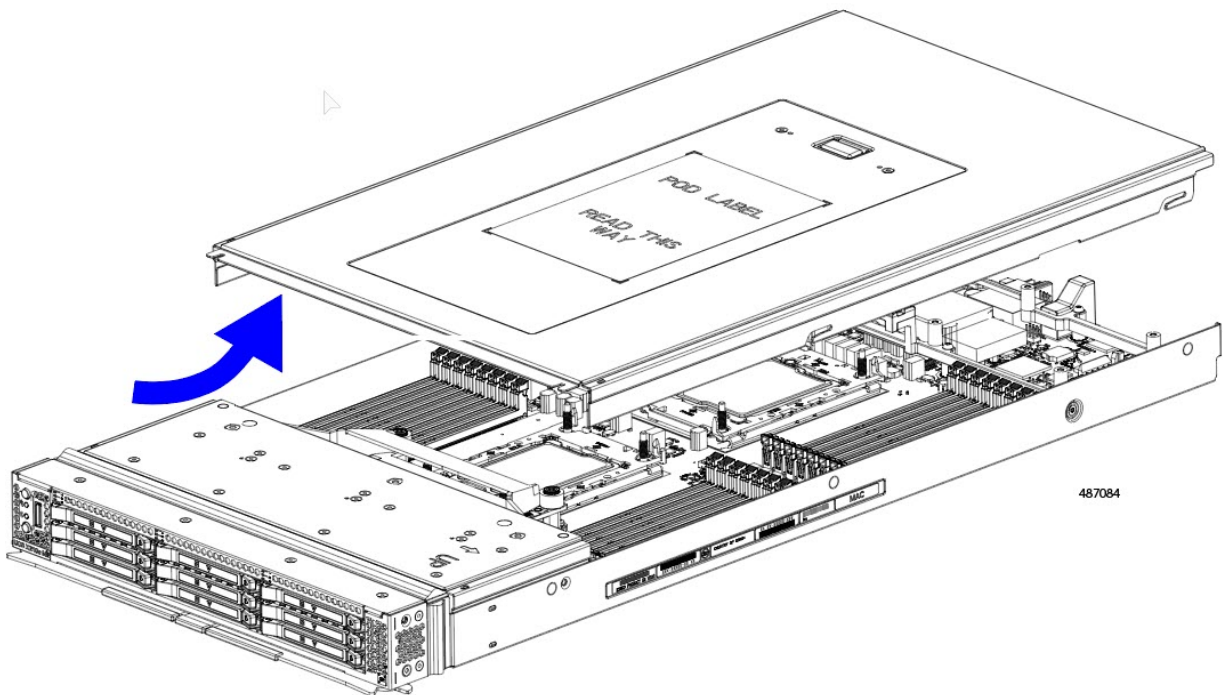
- #2 Phillips screwdriver
- Torque driver

Removing a Compute Node Cover

To remove the cover of the compute node, follow these steps:

Procedure

Step 1 Press and hold the button down as shown in the figure below.



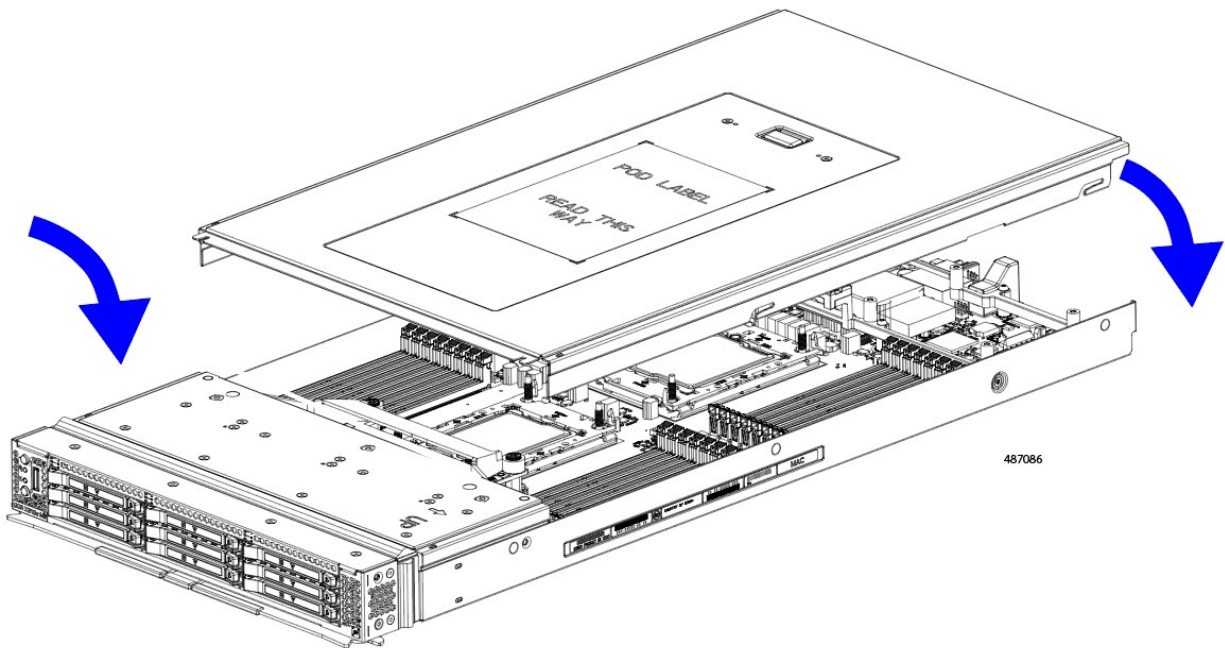
Step 2 While holding the back end of the cover, slide it back, then pull it up to lift the top cover off of the compute node. By sliding the cover back, you enable the front edge to clear the metal lip on the rear of the front mezzanine module.

Installing a Compute Node Cover

Use this task to install a removed top cover on the compute node.

Procedure

- Step 1** Notice the cutouts on the rear of the top cover.
These cutouts receive the stopper pins on the compute node.



- Step 2** Holding the top cover with the rear angled down, lower it onto the compute node.
Step 3 Slide the compute node's cover until it hits the stopper pins.
Step 4 Lower the front of the top cover onto the compute node.
Step 5 Keeping the compute node's cover flat, slide it forward until the release button clicks.

Removing the Front Mezzanine Module

To remove an existing front mezzanine module, you will remove screws on the side of the compute node's sheet metal tray and on the node's motherboard.



Caution Do not operate the compute node without a front mezzanine module installed.

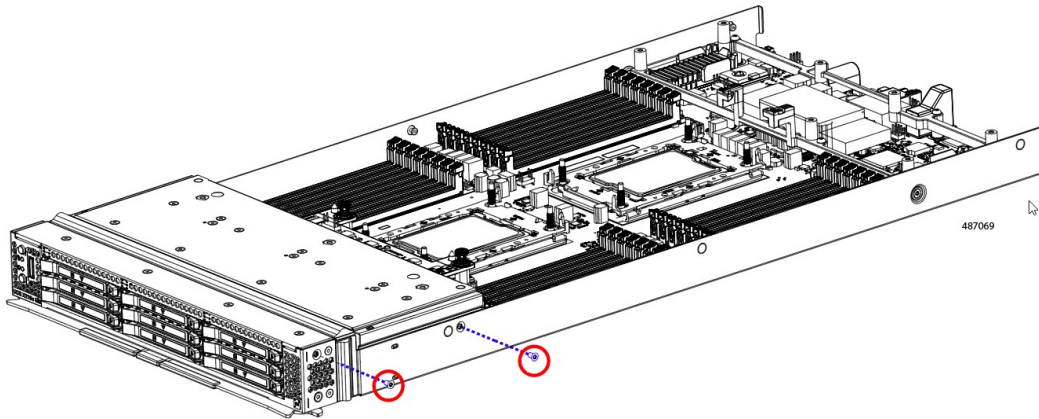
Use the following procedure to remove an existing front mezzanine module.

Before you begin

The compute node must be removed from the chassis to perform this task.

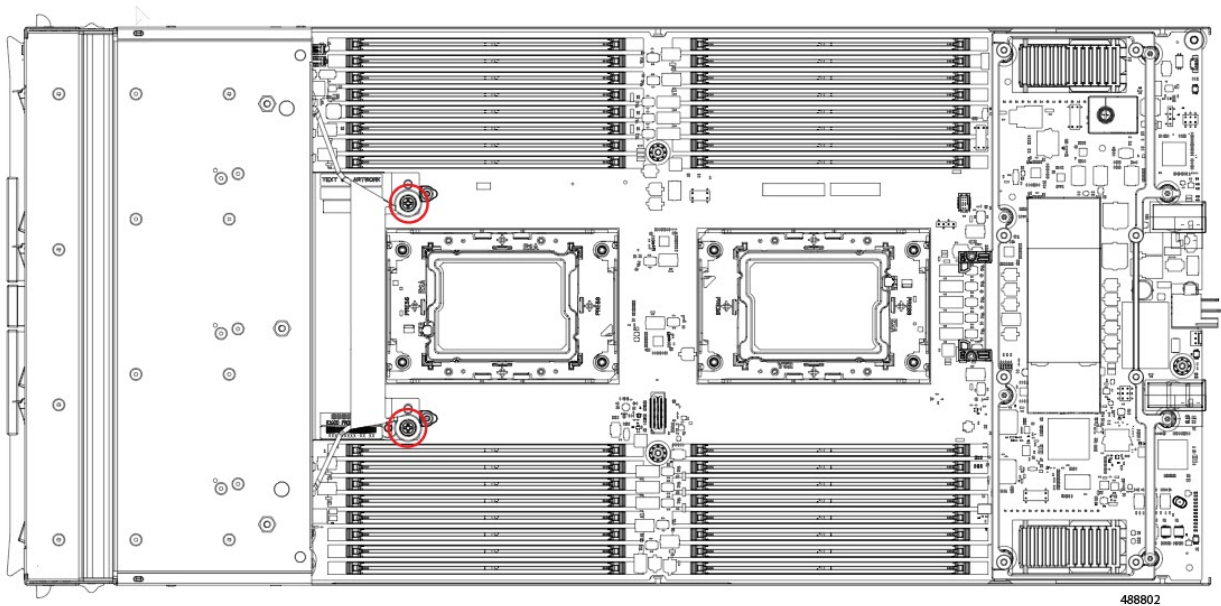
Procedure

Step 1 Remove the top cover of the compute node. See [Removing a Compute Node Cover](#), on page 6.

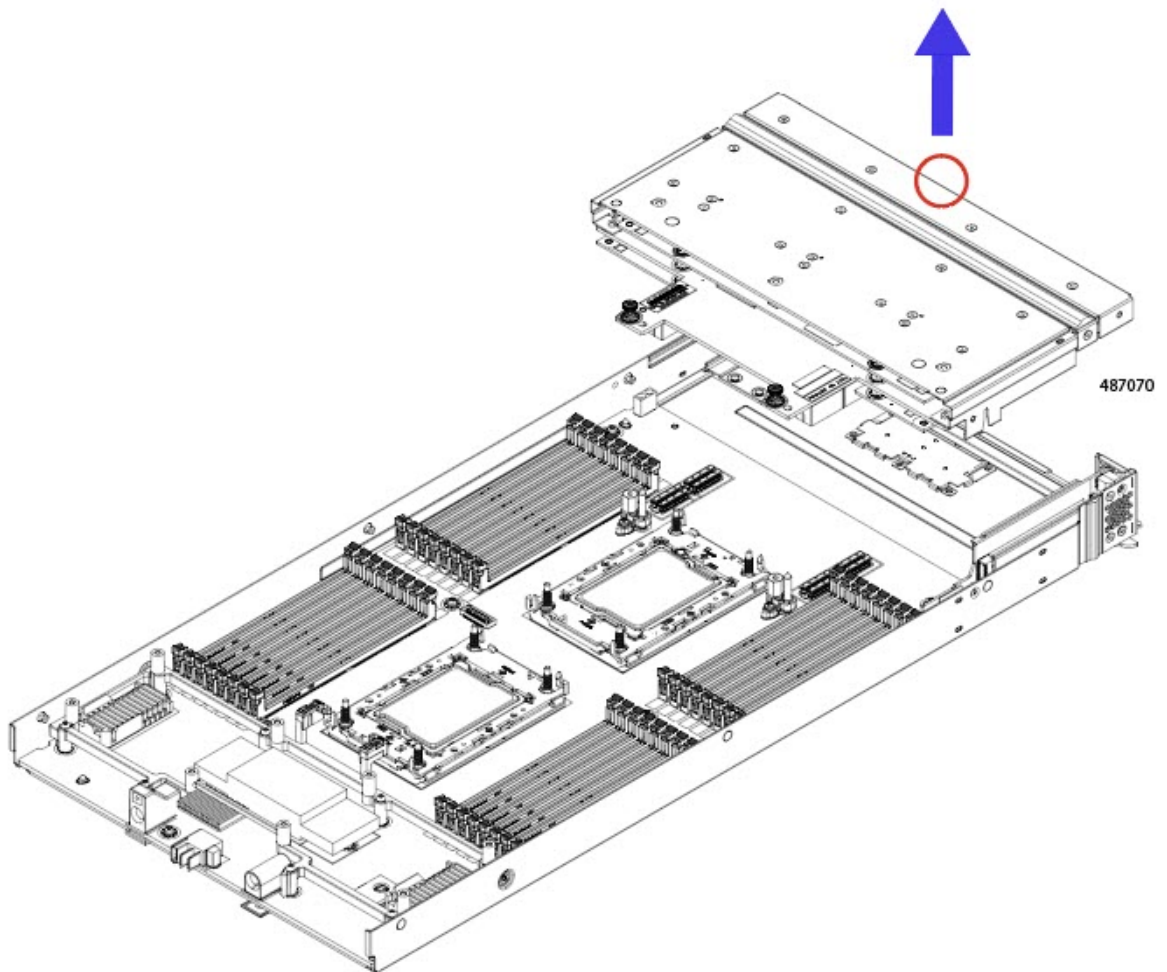


Step 2 Remove the screws.

- Using a T8 Torx screwdriver, remove the four T8 Flat head screws, two screws per side.
- Using a #2 Phillips screwdriver, loosen the two #2 Phillips captive screws at the rear of the front mezzanine module.



Step 3 Grasp the front mezzanine module at the middle of the top front edge and lift the front mezzanine module straight up to remove it from the compute node.

**What to do next**

Connect the front mezzanine E3.S Drive module to the compute node. See [Installing the Front Mezzanine Module](#) , on page 9

Installing the Front Mezzanine Module

To install the front mezzanine module, you will insert screws on the side of the compute node's sheet metal tray and on the node's motherboard.

Use the following task to install the front mezzanine module.

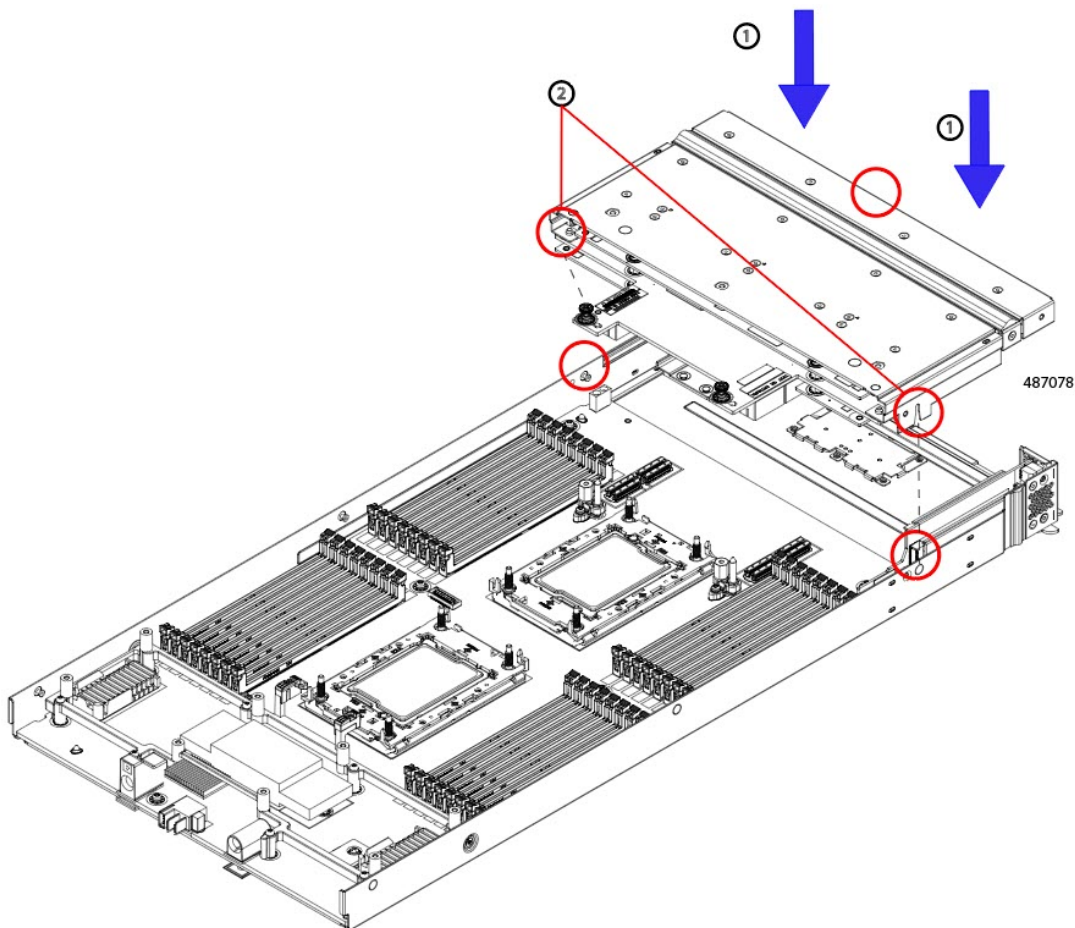
Procedure

Step 1 Holding the front mezzanine module by the center of the top edge, keep the module level, and lower it down onto the compute node (1).

Step 2 Align the rear captive screws with the threaded standoffs (2).

Note

The front mezzanine and compute node sidewall has guide pins that assist with installing the module onto the compute node. Use these guide pins while installing the module.



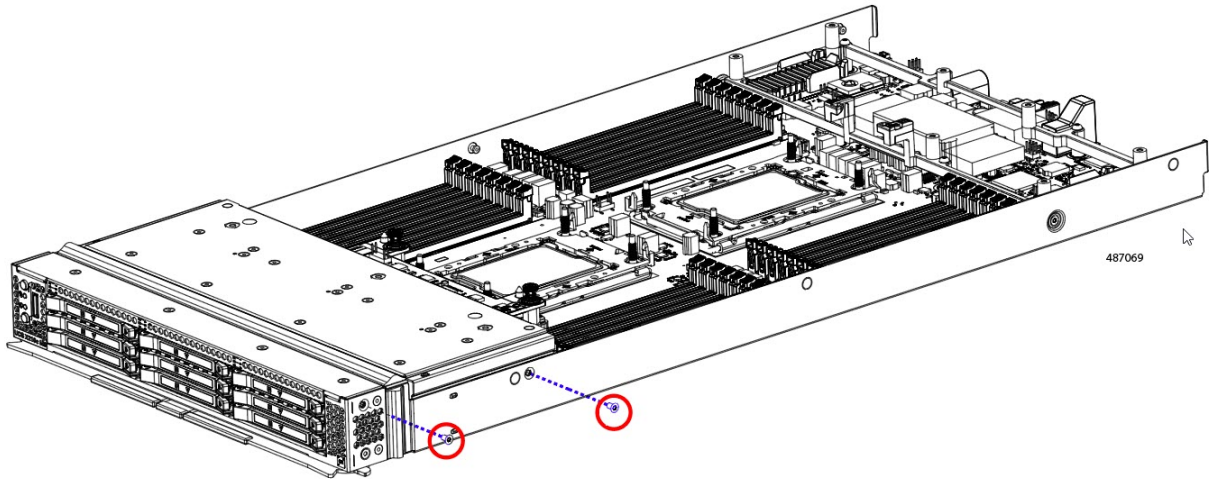
Step 3 Press down evenly on the module to seat the module's connectors into their sockets on the front mezzanine and compute node sidewall.

Step 4 Using a Phillips screwdriver, and the torque driver, tighten the two rear captive screws to 5 in-lb of torque.

Warning

Make sure you do not over tighten the rear captive screws.

- Step 5** Using a T8 Torx driver, tighten the four T8 flat head screws on the sides of the compute node (2 screws per side) to secure the module to the compute node.



- Step 6** Replace the compute node top cover and reinstall the compute node into the chassis.
See [Installing a Compute Node Cover](#) , on page 6.

Front Mezzanine Module Configuration

The Cisco UCS X10c front mezzanine module can be configured and managed using the Cisco Intersight management platform in Intersight Managed Mode (Cisco Intersight Managed Mode). For details, see the *Cisco Intersight Managed Mode Configuration Guide*, which is available at the following URL: [Cisco Intersight Managed Mode Configuration Guide](#).



CHAPTER 3

Servicing The Front Mezzanine Module

This chapter contains the following topics:

- [Servicing the Front Mezzanine Module, on page 13](#)

Servicing the Front Mezzanine Module

The front mezzanine contains E3.S PCIe drives and field-replacable components.

To service these components, see the following topics:

- [Replacing a Drive, on page 13](#)
- [Installing a Drive, on page 15](#)

Replacing a Drive

The UCSX-X10C-PTE3 Pass Through Controller supports 7 mm E3.S PCIe Gen 5 SSD drives. Each drive is front-loading into the front of the controller.

The maximum number of drives supported per Pass Through Controller, either nine or eight, depends on the X Series Compute Node that hosts the controller.



Note In one case, slot 5 cannot accept an E3.S drive. For more information, see [E3.S PCIe SSD Requirements and Restrictions, on page 13](#).

Use the following tasks to replace a E3.S drive.

- [Removing a Drive, on page 14](#)
- [Installing a Drive, on page 15](#)

E3.S PCIe SSD Requirements and Restrictions

For 7.5mm E3.S PCIe SSD drives, be aware of the following.

General Requirements and Restrictions

The following requirements and restrictions apply to any UCS X Series M8 Compute Node that hosts the UCSX-X10C-PTE3 front mezzanine module.

- UEFI boot mode can be configured through the Boot Order Policy setting in the Server Policy supported by Cisco Intersight Managed Mode (IMM). For instructions about setting up UEFI boot mode through Cisco IMM, go to:
[Cisco Intersight Managed Mode Configuration Guide](#)
- PCIe SSDs cannot be controlled with a SAS RAID controller because PCIe SSDs interface with the compute node via the PCIe bus.
- UEFI boot is supported in all supported operating systems.

Requirements and Restrictions for the Cisco UCS X215c M8 Compute Node

The following requirements and restrictions apply to the UCS X215c M8 Compute Node, which is the AMD processor version, when it hosts the UCSX-X10C-PTE3 front mezzanine module.

- With this combination of compute node and front mezz module, the maximum number of E3.S drives that can be installed is eight.
- Slot 5 cannot support an E3.S drive due to electrical reasons. Slot five on the UCSX-X10C-PTE3 front mezzanine module must be covered with a drive filler panel (UCSC-E3S1T-F).

Hot Plug Considerations

Enabling Hot Plug Support

Surprise and OS-informed hot plug is supported with the following conditions:

- VMD must be enabled to support hot plug. VMD must be enabled before installing an OS on the drive.
- If VMD is not enabled, surprise hot plug is not supported, and you must do OS-informed hot plug instead.
- VMD is required for both surprise hot plug and drive LED support.

Removing a Drive

Use this task to remove a E3.S PCIe drive from the front mezzanine drive module.



Caution Do not operate the system with an empty drive bay. If you remove a drive, you must reinsert a drive or cover the empty drive bay with a drive blank.

Procedure

Step 1 Push the ejector button to open the ejector arm, swing the ejector arm open and then pull the drive from its slot.

Caution

To prevent data loss, make sure that you know the state of the system before removing a drive.

- Step 2** Place the drive on an antistatic mat or antistatic foam if you are not immediately reinstalling it in another compute node.
- Step 3** Install a drive blanking panel to maintain proper airflow and keep dust out of the drive bay if it will remain empty.
-

What to do next

Cover the empty drive bay. Choose the appropriate option:

- [Installing a Drive, on page 15](#)
- [Installing a Drive Blank Filler, on page 17](#)

Installing a Drive



Caution For hot installation of drives, after the original drive is removed, you must wait for 20 seconds before installing a drive. Failure to allow this 20-second wait period causes the management software to display incorrect drive inventory information. If incorrect drive information is displayed, remove the affected drive(s), wait for 20 seconds, then reinstall them.

To install a E3.S PCIe drive, follow this procedure:

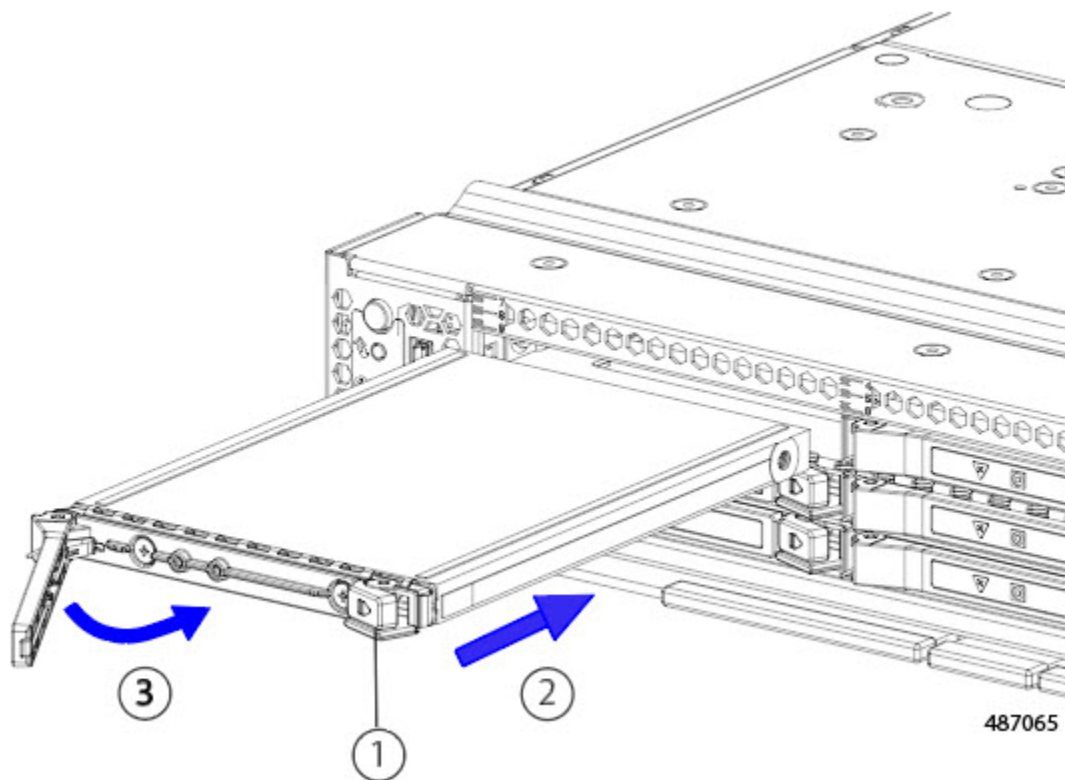
Before you begin



Note Depending on the compute node where the pass through controller is installed, slot 5 cannot accept an E3.S drive. For more information, see [E3.S PCIe SSD Requirements and Restrictions, on page 13](#).

Procedure

- Step 1** Place the drive ejector arm into the open position by pushing the ejector button.
- Step 2** Placing your fingers in the center of the drive, gently slide the drive into the empty drive bay until it seats into place.
- Step 3** Push the drive ejector arm into the closed position.
- You should feel the ejector arm click into place when it is in the closed position.



Removing a Drive Blank Filler

E3.S drives are contained in the front mezzanine storage module.



Note For the Cisco UCS X215c M8 Compute Node only, slot 5 must always have a filler panel because that slot does not support a drive.

If your front mezzanine module has fewer than nine E3.S drives (UCSX-210c-M8) or eight E3.S drives (UCSX-215c-M8), you must install drive blank filler in the empty drive bays. All drive slots must contain a drive or drive blank filler.

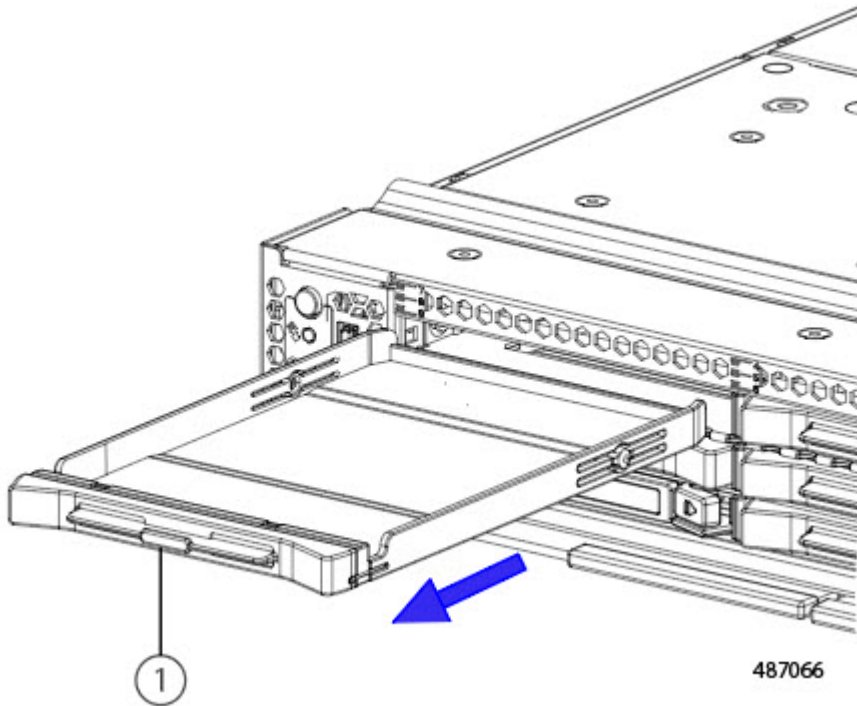


Note Do not operate a front mezzanine E3.S module that has empty drive bays without a drive blank filler.

Use this procedure to remove a drive blank filler.

Procedure

Grasp the front lip of the drive blank filler and pull the drive blank filler out of the slot.



What to do next

Cover the empty drive bay. Choose the appropriate option:

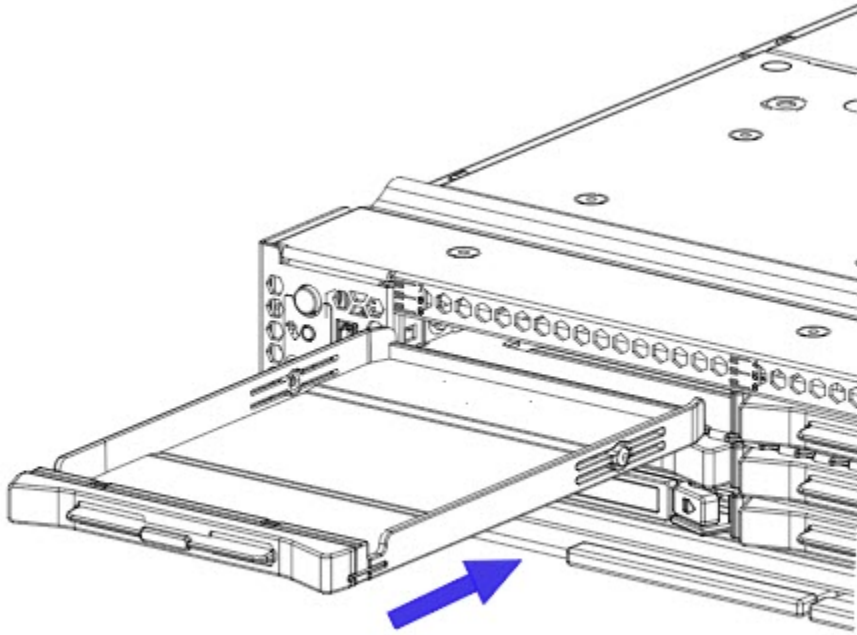
- [Installing a Drive, on page 15](#)
- [Installing a Drive Blank Filler, on page 17](#)

Installing a Drive Blank Filler

Use this task to install a drive blank.

Procedure

- Step 1** Align the drive blank filler so that the plastic bottom surface is facing down.
- Step 2** Holding the drive blank filler level, slide it into the empty slot.



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CHAPTER 4

Recycling The Front Mezzanine Module

This chapter contains the following topics:

- [Front Mezzanine Recycling Overview](#), on page 19
- [Recycling the Component PCB Assemblies](#), on page 19

Front Mezzanine Recycling Overview

This chapter documents the procedures to disassemble key module 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 the module component parts, see the following topic:

- [Recycling the Front Mezzanine Module PCBA](#), on page 19

Recycling the Component PCB Assemblies

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 Front Mezzanine Module PCBA](#), on page 19

Recycling the Front Mezzanine Module PCBA

The front mezzanine module contains three PCBAs, which sit horizontally and connects the drive backplane to the main motherboard. The PCBA is attached to the front mezzanine module's sheetmetal by five T10 screws.

You must disconnect the PCBAs from the sheetmetal before recycling them.

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:

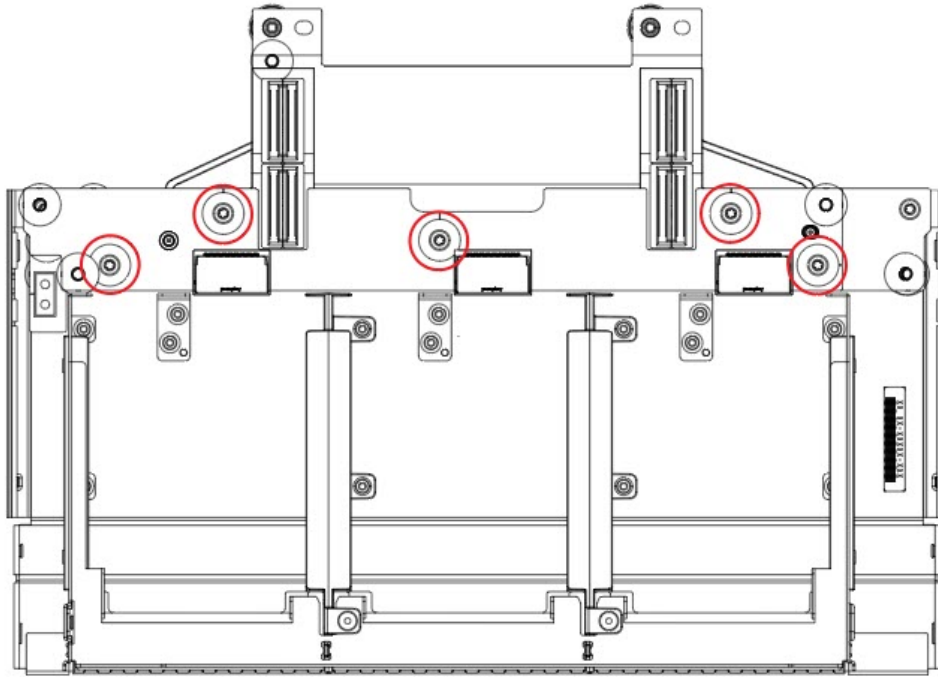
- The compute node must be removed from the chassis.
- The compute node's top cover must be removed.

Gather the following tools:

- A T10 screwdriver
- A Hex nut driver

Procedure

- Step 1** Remove the front mezzanine module from the compute node.
- a) Go to [Removing the Front Mezzanine Module](#), on page 7.
 - b) Place the front mezzanine module upside down on a rubberized mat or other ESD-safe work surface.
- Step 2** Disconnect the bottom PCBA.
- a) Using a T10 screwdriver, remove the five M3 screws on the bottom of the PCBA.

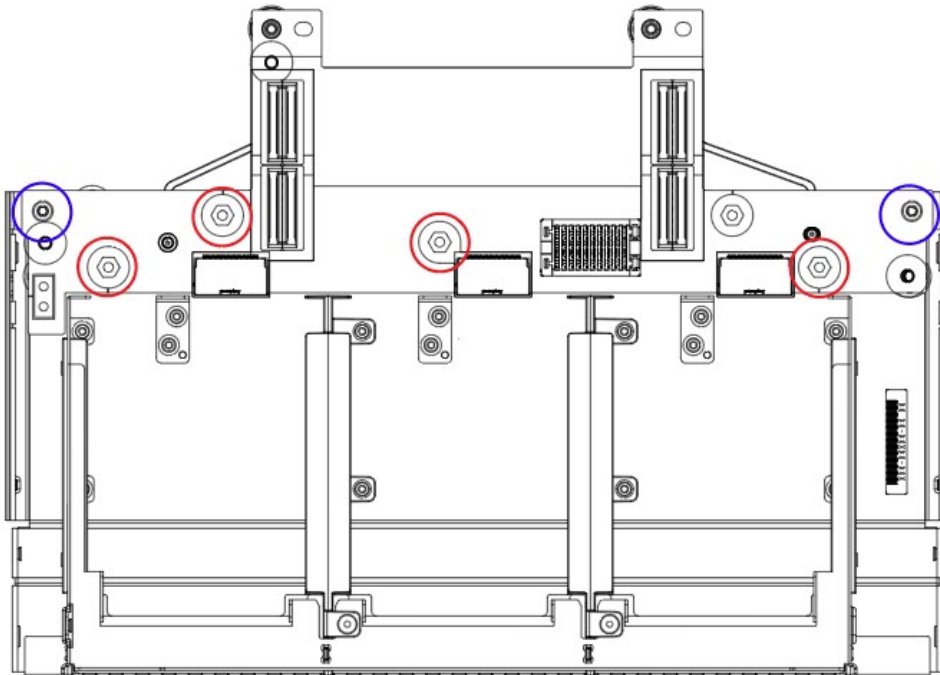


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Step 3

Disconnect the middle PCBA.

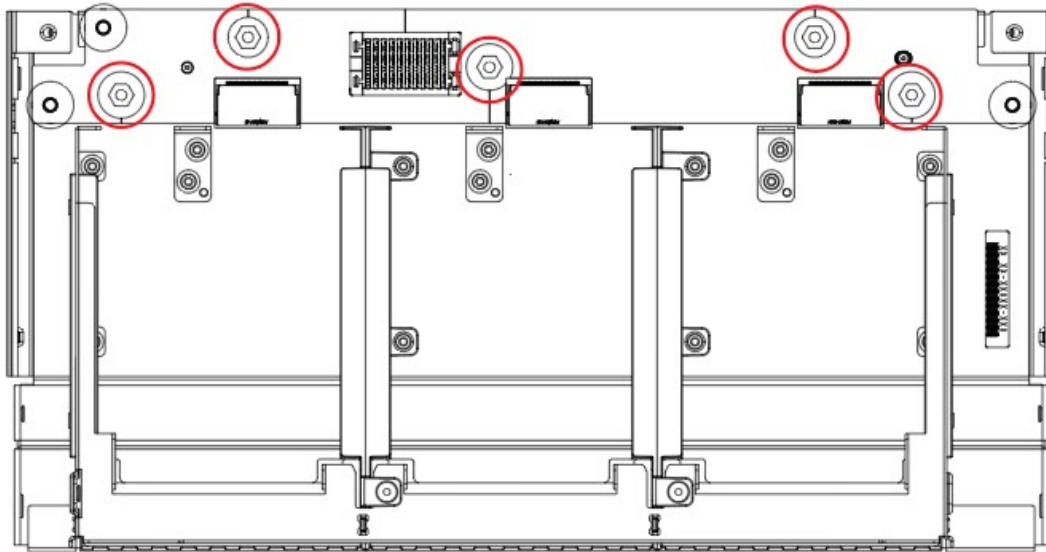
- a) Using a T10 screwdriver, remove two M3 screws.
- b) Using the hex nut driver, remove the five 6mm hex standoffs.



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Step 4 Disconnect the top PCBA.

- a) Use the hex nut driver to remove five 6mm hex standoffs from the top PCBA.



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Step 5 Dispose of the PCBAs properly in accordance with your local recycling and e-waste laws.



APPENDIX **A**

Technical Specifications

This chapter contains the following topics:

- [E3.S Drive Specifications, on page 23](#)
- [Front Mezzanine Module Specifications, on page 23](#)

E3.S Drive Specifications

Physical Specifications

Specification	Value
Height	2.99 inches (76 mm)
Width	0.295 inches (7.5 mm)
Depth	4.94inches (125.5 mm)
Weight	The weight depends on the components installed. <ul style="list-style-type: none">• Drive weight: 0.26 lb (0.12 kg)

Environmental Specifications

The Cisco UCS X10c Front Mezzanine E3.S module installs into a supported compute node. Therefore, the E3.S module itself inherits the environmental and power specifications from the compute node that is hosting the module.

Front Mezzanine Module Specifications

Physical Specifications

Specification	Value
Height	1.76 inches (44.70 mm)

Specification	Value
Width	11.28 inches (286.51 mm)
Depth	8.11 inches (205.99 mm)
Weight	The weight depends on the components installed. <ul style="list-style-type: none">• Minimally configured compute node weight: 1.96 lb (0.89 kg)• Fully configured compute node weight: 3.86 lb (1.75 kg)

Environmental Specifications

The Cisco UCS X10c Front Mezzanine E3.S module installs into a supported compute node. Therefore, the E3.S module itself inherits the environmental and power specifications from the compute node that is hosting the module.



INDEX

C

compute node cover, installing [6](#)
compute node cover, removing [6](#)

D

drive blank, installing [17](#)
drive, installing [15](#)
drive, removing [14, 16](#)

E

ewaste [19](#)

I

installing compute node cover [6](#)

installing drive [15](#)
installing, drive blank [17](#)

L

LED [3](#)
drive activity [3](#)
drive health [3](#)

P

pass through controller, recycling [19](#)

R

recycling, controller PCBA [19](#)
removing compute node cover [6](#)
removing drive [14, 16](#)

