

---

**A V  R E**

# **FXT 5000 Series Installation Guide**

**Avere Systems, Inc.**

**Apr 05, 2018**

**[www.averesystems.com](http://www.averesystems.com)**

*Part number 0456-004-0171, rev E (electronic version)*

*Part number 0456-004-0191, rev E (printed version)*



# CONTENTS

<b>1</b>	<b>Introduction</b>	<b>1</b>
1.1	Cautions and Warnings . . . . .	1
1.2	The FXT 5000 Series Platform . . . . .	1
1.3	Avere Documentation . . . . .	2
<b>2</b>	<b>Product Specifications and Requirements</b>	<b>3</b>
2.1	Dimensions and Specifications . . . . .	3
2.2	Power and Thermal Specifications . . . . .	4
2.3	FXT 5000 Series Front and Rear Illustrations . . . . .	6
2.4	Environmental Requirements . . . . .	8
<b>3</b>	<b>Precautions for Product Use</b>	<b>9</b>
3.1	Unpacking and Handling FXT Series Equipment . . . . .	9
3.2	Electrical Considerations . . . . .	10
3.3	Racked FXT Series Nodes . . . . .	11
3.4	General Precautions . . . . .	12
3.5	Laser Radiation . . . . .	13
3.6	Thermal Considerations . . . . .	13
3.7	Electrostatic Discharge (ESD) Precautions . . . . .	14
<b>4</b>	<b>Installing an FXT 5000 Series Edge Filer Node in a Rack</b>	<b>15</b>
4.1	Precautions . . . . .	15
4.2	Rack Installation . . . . .	16
4.3	Removing an FXT 5000 Series Node from a Rack . . . . .	17
4.4	Installing and Removing the Front Bezel . . . . .	18
<b>5</b>	<b>Making Network Connections to the FXT 5000 Series Node</b>	<b>21</b>
5.1	IP Address Requirements and Cluster Configuration . . . . .	21
5.2	Physical Connections . . . . .	21
5.3	Connecting Network Cables . . . . .	22
5.4	Cable Guidelines . . . . .	24
5.5	Network Connections to the IPMI Port . . . . .	26
5.6	Connecting to the Serial Port (if necessary) . . . . .	27
<b>6</b>	<b>Power Connections for the FXT 5000 Series Edge Filer</b>	<b>29</b>
6.1	Connecting Power Cables . . . . .	29
6.2	Powering On an FXT 5000 Series Node . . . . .	29
6.3	Powering Off an FXT 5000 Series Edge Filer Node . . . . .	30
<b>7</b>	<b>Monitoring the FXT 5000 Series Edge Filer</b>	<b>31</b>
7.1	Monitoring System Health . . . . .	31
7.2	Status LEDs . . . . .	31
<b>8</b>	<b>Regulatory Information for FXT 5000 Series Nodes</b>	<b>37</b>
8.1	Electrical Safety . . . . .	37
8.2	Electromagnetic Compatibility . . . . .	37
8.3	Environmental Compliance . . . . .	38

<b>9</b>	<b>EU Declaration of Conformity</b>	<b>39</b>
<b>10</b>	<b>Preparing a Node for Return to Avere Systems</b>	<b>41</b>
<b>11</b>	<b>Copyright and Trademark Information</b>	<b>43</b>
11.1	Copyright Information . . . . .	43
11.2	Trademark Information . . . . .	43
11.3	Document Numbers . . . . .	43

## INTRODUCTION

The *FXT 5000 Series Installation Guide* is written for system administrators who need to install and administer Avere FXT Edge Filer hardware nodes in an Avere cluster. It assumes that you have a basic knowledge of networked storage, including planning for and installing networked data storage components in a data center.

### 1.1 Cautions and Warnings

The following highlights are used in this document:

#### 1.1.1 Precaution Statements Used in this Document

This document uses the following highlights to draw attention to potentially hazardous or undesirable situations:



A warning indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.



A caution indicates a potentially hazardous situation that, if not avoided, could result in minor or moderate injury.



A notice indicates information considered important, but not related to personal harm or injury.

### 1.2 The FXT 5000 Series Platform

The FXT 5000 Series platform describes a product line of servers, also called filers or nodes, that run the Avere OS software.

Each model in the FXT 5000 Series contains and uses multiple types of storage media and high-speed Gigabit Ethernet data ports (either 25GbE or 10GbE) to support high-bandwidth network traffic. FXT 5000 Series nodes feature NVRAM to protect written data in the event of a power outage or other failure, and redundant power supplies.

The table below shows the features for each server type.

### 1.2.1 FXT 5000 Series Specifications

	FXT 5200	FXT 5400	FXT 5600	FXT 5850
CPU Cores	16	16	16	16
NVRAM (GB)	4	4	4	4
DRAM (GB)	128	256	384	768
Network Ports	4 10GbE, 4 1GbE	4 10GbE, 4 1GbE	4 10GbE, 4 1GbE	4 dual-rate 25GbE/10GbE, 4 1GbE
SAS HDD Capacity	7.2 TB	–	–	–
SAS SSD Capacity	–	4.8 TB	9.6 TB	19.2 TB

Multiple Avere FXT Edge Filer nodes are configured together to provide an Avere cluster.

Note that the FXT 5000 Series is physically different from the FXT 4000 Series and other older Avere products. Read *Differences from FXT 4000 Series and Earlier Models* (page 15) in the rack installation section section to familiarize yourself with the changes before starting to set up an FXT 5000 Series node.

## 1.3 Avere Documentation

This document explains requirements and precautions for working with FXT 5000 Series hardware, and describes how to install and set up FXT 5000 Series nodes. This document explains how to install a node in an equipment rack, the type of network cables to use and how to install them, procedures for applying power and starting up or shutting down a node, and information about using the chassis's LED indicators to monitor status and troubleshoot a node.

After following the guidelines in this document, refer to the [FXT Cluster Creation Guide](http://library.averesystems.com/#fxt_cluster) ([http://library.averesystems.com/#fxt\\_cluster](http://library.averesystems.com/#fxt_cluster)) for the software configuration steps to create an Avere cluster from the hardware nodes you've installed.

Here is a quick reference list of other documentation you might find useful in addition to this *FXT 5000 Series Installation Guide*. Click the links to visit the <http://library.averesystems.com> website, where you can download PDF documents or view online information.

- [FXT Cluster Creation Guide](http://library.averesystems.com/#fxt_cluster) ([http://library.averesystems.com/#fxt\\_cluster](http://library.averesystems.com/#fxt_cluster)) - How to create and do the initial configuration for a production Avere cluster. The cluster creation guide covers the next step after installing and cabling the hardware according to the instructions in this guide.
- [Configuration Guide](http://library.averesystems.com/#operations) (<http://library.averesystems.com/#operations>) - How to configure and administer your Avere cluster
- [Avere Control Panel Dashboard Guide](http://library.averesystems.com/#operations) (<http://library.averesystems.com/#operations>) - How to monitor the status of your cluster from the Avere Control Panel
- [Release Notes](http://library.averesystems.com/#release_notes) ([http://library.averesystems.com/#release\\_notes](http://library.averesystems.com/#release_notes)) - Information about periodic Avere OS software updates
- [FXT 5000 Series Field Service Guide](http://library.averesystems.com/#service) (<http://library.averesystems.com/#service>) - A technician's guide to servicing replaceable parts in the FXT hardware

Additional documentation may be available online - visit <http://library.averesystems.com> for the most recent publications.

## PRODUCT SPECIFICATIONS AND REQUIREMENTS

This section gives product specifications and describes requirements for installing and using FXT 5000 Series nodes.

### 2.1 Dimensions and Specifications

These dimensions apply to each of the FXT 5000 Series models.

#### 2.1.1 FXT 5000 Series Modular Dimensions

<b>Modular Dimensions</b>	
<i>The FXT 5000 Series is designed to fit in a standard equipment rack and is one rack unit high.</i>	
Height	1U (1.75 inches, 44.5 mm, nominal EIA standard)
Width	19 inches (482.6 mm, nominal EIA standard)

#### 2.1.2 FXT 5000 Series Actual Dimensions

<b>Actual Dimensions</b>	
Height	1.7 inches (43 mm)
Width (rack ears)	19.1 inches (485 mm)
Width (main enclosure with slide rails attached)	17.6 inches (447 mm)
Depth (rack ears to main enclosure rear)	27.9 inches (709 mm)
Depth (rack ears to furthest rear protrusion)	28.2 inches (716 mm)
Depth (rack ears to furthest front protrusion, without bezel)	0.9 inches (23 mm)
Depth (rack ears to furthest front protrusion, with bezel)	2.5 inches (64 mm)

#### 2.1.3 FXT 5000 Series Weight

<b>Weight</b>	
Gross Weight (includes all packaging)	48 pounds (21.8 kg)
Net Weight (without packaging, including accessories)	39 pounds (17.7 kg)
Node Weight (without packaging, without accessories)	33 pounds (15.0 kg)

## 2.2 Power and Thermal Specifications

FXT 5000 Series nodes use variable speed fans, so power depends on temperature. Maximum fan speeds are unlikely to occur even at the highest specified ambient temperature (35° C/95° F). Power and thermal specifications are for a system using 1+1 redundant power supplies, both supplying power.

### 2.2.1 FXT Series Nameplate Ratings

Nameplate Ratings for FXT 5000 Series Models
100 - 240 V ac
60 - 50 Hz
9.5 - 4.5 A

### 2.2.2 FXT 5850 Power and Thermal Measurements

FXT 5850 power at room temperature or at maximum fan speed

FXT 5850	At 22° C (71.6° F) Inlet Temperature					At Maximum Fan Speeds				
	100	120	208	230	240	100	120	208	230	240
Voltage (V)	100	120	208	230	240	100	120	208	230	240
Frequency (Hz)	60	60	60	50	50	60	60	60	50	50
Current (A)	2.89	2.39	1.41	1.29	1.24	3.57	2.94	1.73	1.57	1.51
Apparent Power (VA)	289	287	293	297	298	357	353	360	361	362
Power Factor	0.99	0.99	0.95	0.95	0.95	0.99	0.99	0.96	0.96	0.96
Real Power (W)	286	284	279	282	283	353	349	345	347	348
Thermal Dissipation (BTU/Hr)	976	969	951	962	965	1206	1192	1179	1183	1187

### 2.2.3 FXT 5600 Power and Thermal Measurements

FXT 5600 power at room temperature or at maximum fan speed

FXT 5600	At 22° C (71.6° F) Inlet Temperature					At Maximum Fan Speeds				
	100	120	208	230	240	100	120	208	230	240
Voltage (V)	100	120	208	230	240	100	120	208	230	240
Frequency (Hz)	60	60	60	50	50	60	60	60	50	50
Current (A)	2.56	2.12	1.30	1.17	1.12	3.29	2.73	1.63	1.46	1.41
Apparent Power (VA)	256	255	270	269	268	329	328	339	336	338
Power Factor	0.99	0.99	0.94	0.93	0.93	0.99	0.99	0.96	0.96	0.95
Real Power (W)	254	252	253	250	249	326	324	325	322	321
Thermal Dissipation (BTU/Hr)	866	861	865	854	851	1111	1107	1111	1100	1097



**2.2.4 FXT 5400 Power and Thermal Measurements**

FXT 5400 power at room temperature or at maximum fan speed

FXT 5400	At 22° C (71.6° F) Inlet Temperature					At Maximum Fan Speeds				
	100	120	208	230	240	100	120	208	230	240
Voltage (V)	100	120	208	230	240	100	120	208	230	240
Frequency (Hz)	60	60	60	50	50	60	60	60	50	50
Current (A)	2.48	2.06	1.22	1.11	1.06	3.21	2.67	1.56	1.40	1.35
Apparent Power (VA)	248	248	255	255	254	321	320	324	322	324
Power Factor	0.99	0.99	0.94	0.93	0.93	0.99	0.99	0.96	0.96	0.95
Real Power (W)	246	245	240	237	236	318	317	312	309	308
Thermal Dissipation (BTU/Hr)	839	837	817	809	805	1084	1082	1063	1055	1050

**2.2.5 FXT 5200 Power and Thermal Measurements**

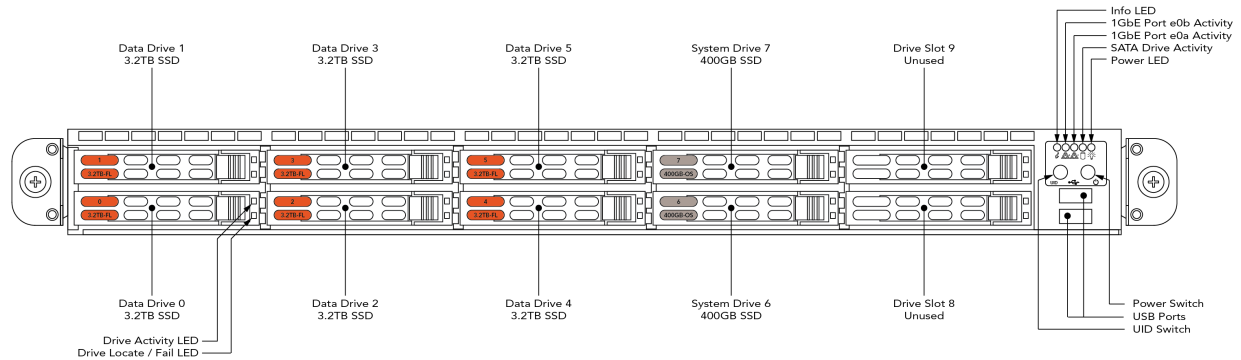
FXT 5200 power at room temperature or at maximum fan speed

FXT 5200	At 22° C (71.6° F) Inlet Temperature					At Maximum Fan Speeds				
	100	120	208	230	240	100	120	208	230	240
Voltage (V)	100	120	208	230	240	100	120	208	230	240
Frequency (Hz)	60	60	60	50	50	60	60	60	50	50
Current (A)	2.52	2.09	1.24	1.15	1.10	3.21	2.70	1.59	1.43	1.37
Apparent Power (VA)	252	251	258	265	264	321	324	331	329	329
Power Factor	0.99	0.99	0.94	0.93	0.93	0.99	0.99	0.96	0.96	0.95
Real Power (W)	249	248	242	246	246	318	321	317	316	312
Thermal Dissipation (BTU/Hr)	851	847	827	839	838	1084	1094	1083	1077	1066

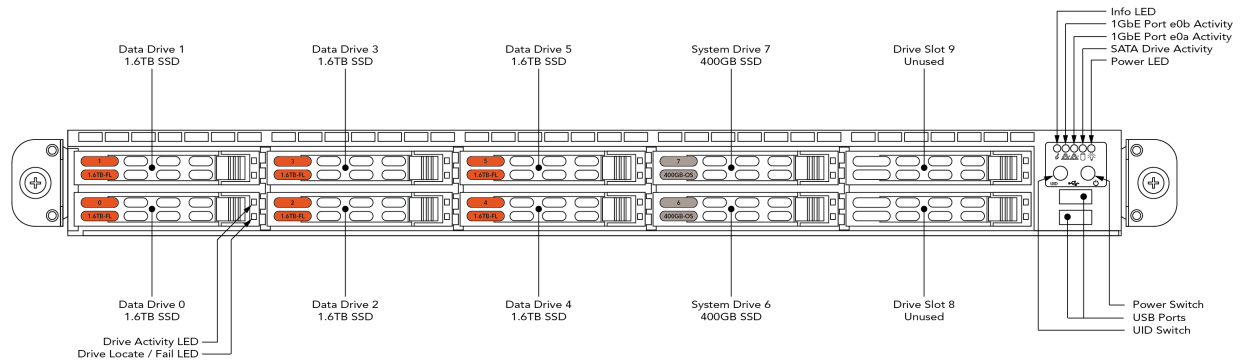
## 2.3 FXT 5000 Series Front and Rear Illustrations

These diagrams show the front and rear layouts of FXT 5000 Series nodes. Front views are shown without the optional bezel.

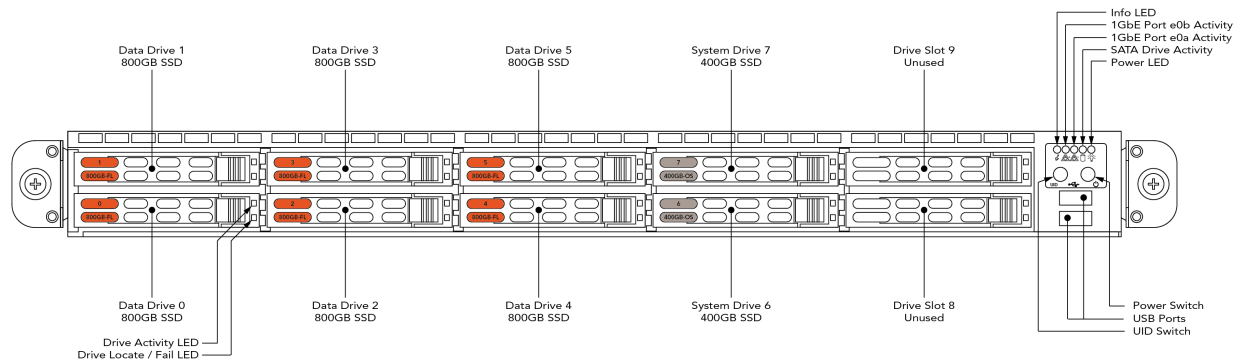
### 2.3.1 FXT 5850 Front Illustration



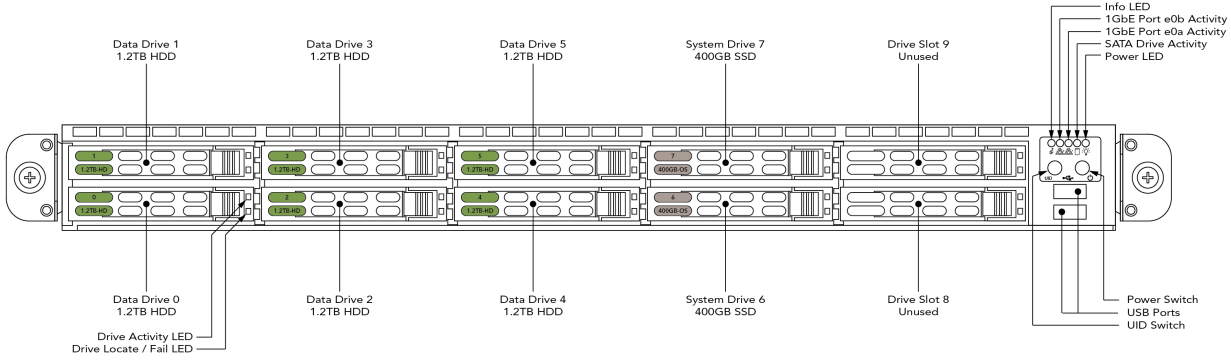
### 2.3.2 FXT 5600 Front Illustration



### 2.3.3 FXT 5400 Front Illustration



### 2.3.4 FXT 5200 Front Illustration

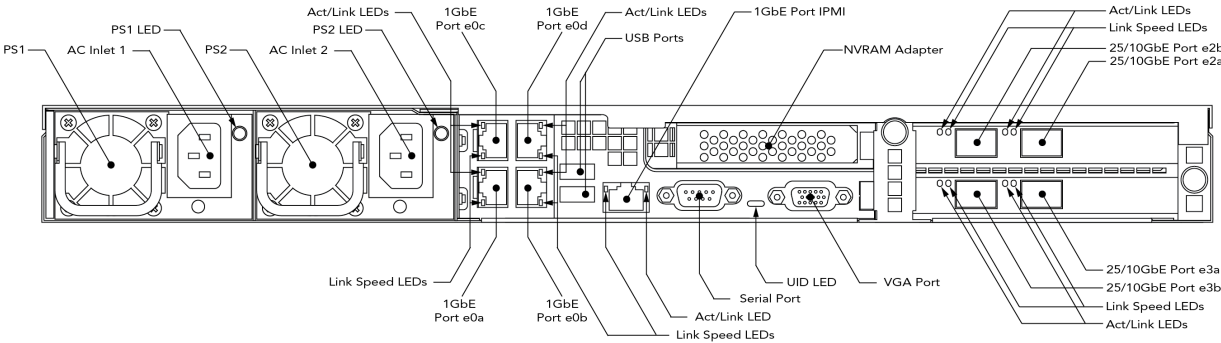


### 2.3.5 Rear View of the FXT 5000 Series Models

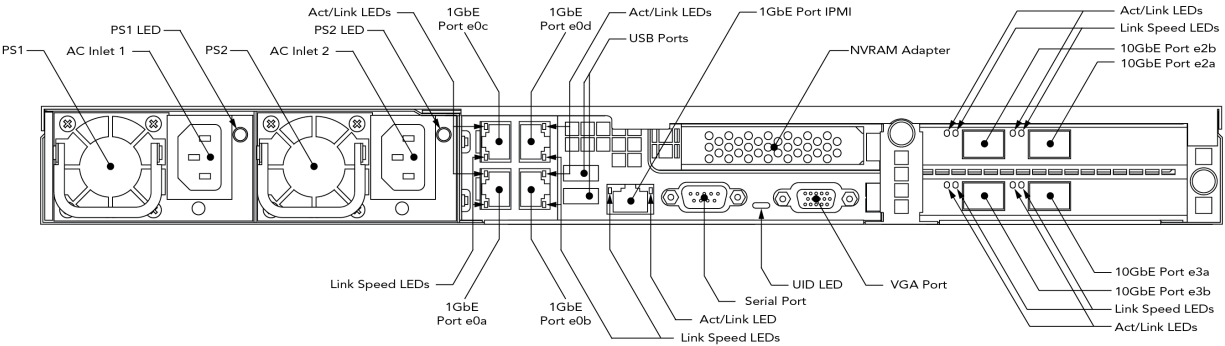
The FXT 5200, FXT 5400, and FXT 5600 models have the same back layout. The FXT 5850 looks similar, but it has four 25GbE ports instead of the 10GbE ports on the other models. (The 25GbE ports are also compatible with 10GbE traffic.)

#### FXT 5850 Rear Illustration

The 25GbE data ports on the rear of the FXT 5850 are also compatible with 10GbE connections.



#### FXT 5200, FXT 5400, and FXT 5600 Rear Illustration



## 2.4 Environmental Requirements

<b>Description</b>	<b>Specification</b>
Operating Temperature	10° to 35° C (50° to 95° F), sea level
Non-operating Temperature	-40° to 60° C (-40° to 140° F)
Operating Relative Humidity	8% to 90% (noncondensing)
Non-operating Relative Humidity	5% to 95% (noncondensing)
Operating Elevation	0 to 2,000 m (0 to 6,562 ft.) Ambient temperature is specified at sea level. For altitudes above sea level, derate 1.0° C per 305 m, or 1.8° F per 1,000 ft., above sea level. The maximum derated altitude is 2,000 m (6,562 ft.)
Non-operating Elevation	0 to 12,192 m (0 to 40,000 ft.)

## PRECAUTIONS FOR PRODUCT USE

This section discusses considerations you must take before installing and using Avere FXT Edge Filer nodes.

### 3.1 Unpacking and Handling FXT Series Equipment

To prevent damage to the Avere FXT Edge Filer or components, carefully unpack and handle the FXT Series node and related components.

Inspect the boxes the node or component was shipped in and note whether there is any damage. If the shipment shows evidence of damage, file a damage claim with the carrier that delivered it.

#### 3.1.1 No User-Serviceable Parts



There are no user-serviceable parts in an FXT 5000 Series node. All servicing of FXT 5000 Series nodes must be performed by trained personnel. Refer to the [FXT 5000 Series Field Service Guide](http://library.averesystems.com/#service) (<http://library.averesystems.com/#service>) for more information.

#### 3.1.2 Restricted Access



The FXT 5000 Series nodes must be installed in a restricted-access location. A restricted-access location is defined as a location that can be accessed only by use of a tool, lock and key, or other means of security and is controlled by the authority responsible for the location.

Anyone entering the restricted-access location, or installing or replacing modules in an FXT 5000 Series node, must be trained in the potential hazards associated with the FXT 5000 Series node, including but not limited to exposure to hazardous energy levels when the cover is removed, when modules have been removed, or when modules are being replaced.

#### 3.1.3 Preventing Condensation



Condensation can occur when exposing a colder product to a warmer and/or more humid environment.

If an item has been moved from an environment that is colder and less humid than the current installation and operating environment, allow it to reach the same temperature as the current environment before unpacking it, and before installing it or powering it on.

If you notice condensation on any part of the item, Avere Systems recommends waiting a minimum of 24 hours for it to acclimate before installation and use.

## 3.2 Electrical Considerations

This section lists guidelines for safe electrical handling of the FXT 5000 Series node.

### 3.2.1 Electrical Code Compliance



To avoid the possibility of an electrical shock hazard, the electrical installation of an FXT 5000 Series node and its associated rack(s) and power distribution units (PDUs) must comply with all applicable local, state, and national electrical codes and regulations. Contact a qualified electrician if you are unsure about proper electrical installation.

### 3.2.2 Earth Grounding



- The building site, rack, and PDU electrical receptacles powering the FXT 5000 Series node must be properly grounded during the lifetime of the installation.
- The earth-ground connection for the rack must be designed and installed specifically for the rack, and must not rely solely on unintentional grounding connections made through FXT 5000 Series nodes and other equipment installed into the rack.
- The Avere FXT Edge Filer node has been approved for use only with TN-type earth grounding systems. It has not been approved for use with IT-type earth grounding systems. Do not connect the node to any non-TN type of earth grounding system.
- To avoid the possibility of an electrical shock hazard, the FXT 5000 Series node must be properly connected to earth ground during the lifetime of the installation. The node receives its earth ground connection through the AC power cords.

To ensure the integrity of the ground connection, observe the following guidelines:

- Use only power cords with a grounding plug.
- Inspect the ground pins of each power cord before initial use.
- Never remove or disable the grounding pin on a power cord or use an adapter that might affect the integrity of the ground connection.

### 3.2.3 AC Mains Disconnect



- The AC power cords serve as AC mains disconnect for the FXT 5000 Series node and therefore must remain readily accessible during the lifetime of the installation.
- The FXT 5000 Series node is provided with multiple power cords, and has a power-on/standby type power switch. This switch does not function as an AC mains disconnect. To disconnect all power for maintenance or an electrical emergency, remove all power cords.

### 3.2.4 Power Supply Replacement



The power supply units for FXT 5000 Series nodes have detachable power cords. Disconnect the power cord at the power supply unit before removing it from the node. When installing a power supply unit, insert the unit into the node before connecting the power cord.



When running on a single power supply unit, the node has an increased probability of losing all power as a result of the single unit failing. Always replace a failed power supply unit as soon as possible after failure.

### 3.2.5 Hazardous Energy Levels



- To avoid potential injury, remove all chains, rings, watches, and other metal jewelry before performing maintenance on powered-on equipment. Burns and other injuries can be caused by the flow of current through a metallic object if the metallic object comes in contact with powered circuits.
- When replacing externally accessible components while power is applied to the node, never reach into the empty space created by the removed components, because hazardous energy levels may be present.

## 3.3 Racked FXT Series Nodes



To avoid the potential of serious injury and equipment damage, observe the following precautions before installing nodes into racks or before removing them from racks:

- Ensure that the node's weight is fully supported by two people at all times while it is being installed into or removed from a rack.
- The rack installation must be designed to remain stable while supporting the full weight of the installed equipment in its maximum extended position.

- Follow the rack manufacturer's recommendations and use the appropriate load calculator if available when designing and installing rack systems.
- Contact the rack manufacturer or an engineering consultant if you require assistance determining the stability of the rack for its intended purpose.
- For single-rack installations, specify and install stability options such as ballast kits, bolt-down kits, and extensible or permanent stabilizing mechanisms.
- In multiple-rack installations, specify and install a multirack tie kit option. If the multirack tie kit is not sufficient to guarantee stability, then install ballast kits, bolt-down kits, and extensible or permanent stabilizing mechanisms.
- Unless the rack installation is designed otherwise, extend only one piece of equipment from the rack at a time.
- Install the first piece of equipment into the bottom of the rack, with future equipment installed above that.
- For installing multiple pieces of equipment at the same time, first install the heavier equipment at the bottom, then install the lighter equipment sequentially above that.
- Rack-mounted equipment should not be used as a shelf, work space, step, or seat.

### 3.4 General Precautions

Observe the following precautions to prevent injury to yourself and damage to the FXT 5000 Series node.

#### 3.4.1 Service Area Clearance



To permit service personnel to perform maintenance procedures on the FXT 5000 Series node, a minimum of 24 inches of clearance must be provided in front of and behind the immediate area being serviced.

#### 3.4.2 California Perchlorate Warning



This product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

The following notice is provided in accordance with California Code of Regulations Title 22, Division 4.5 Chapter 33. Best Management Practices for Perchlorate Materials. This product includes a lithium manganese dioxide battery that contains a perchlorate substance.

Perchlorate Material – special handling may apply. See [www.dtsc.ca.gov/hazardouswaste/perchlorate](http://www.dtsc.ca.gov/hazardouswaste/perchlorate).



### 3.4.3 Two-Person Lift



A bare node without accessories and outer rails weighs 33 pounds (15.0 kilograms). For ease of installation it is recommended to use two people to lift and install the node into the rack. When lifting a node, handle it in such a way that the weight is evenly distributed and stabilized. Be sure to comply with any personal lifting limits that may be in effect for your locale.

### 3.4.4 Battery Replacement



DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISPOSE OF USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

ATTENTION: IL Y A DANGER D'EXPLOSION S'IL Y A REMPLACEMENT INCORRECT DE LA BATTERIE, REMPLACER UNIQUEMENT AVEC UNE BATTERIE DU MÊME TYPE OU D'UN TYPE ÉQUIVALENT RECOMMANDÉ PAR LE CONSTRUCTEUR. METTRE AU REBUT LES BATTERIES USAGÉES CONFORMÉMENT AUX INSTRUCTIONS DU FABRICANT.

The motherboard battery maintains clock and CMOS settings when the node is without power for any reason. Contact Avere Global Services if you suspect that the motherboard battery needs to be replaced.

## 3.5 Laser Radiation

### NOTICE

CLASS 1 LASER PRODUCT

FXT Series nodes that contain optical networking ports may emit invisible laser radiation from those ports. When no fiber-optic cable is connected, do not stare into the open apertures. In addition, install protective covers over any optical ports that will not have a cable connected.

## 3.6 Thermal Considerations

### NOTICE

- FXT 5000 Series nodes use front-to-back cooling airflow. If the node is installed in a rack, the installer is responsible for ensuring that adequate airflow is available through the rack to effectively cool the node.
- Environmental ambient temperature requirements apply to the area immediately around the node. For a node installed into an enclosed rack or a rack with perforated doors, the ambient temperature requirement applies to the area inside the rack or door, immediately around the node.

- Operating the FXT 5000 Series node in a rack with open EIA U spaces can cause unintended airflow paths and associated temperature inconsistencies. To maintain proper airflow and temperatures, cover all open rack spaces with blank panels.
- Ensure that the node cover is in place when the node is operating to assure proper airflow and cooling. Thermal damage to the system can occur if this practice is not strictly followed.
- Do not remove disk drives or power supply units unless a replacement component is immediately available. If you remove a replaceable component, replace it before putting the unit back into service to ensure proper airflow and cooling. Damage to the system can occur if this practice is not strictly followed.

### 3.7 Electrostatic Discharge (ESD) Precautions

#### **NOTICE**

An ESD event occurs when two objects with different electrical charges come into contact with each other. Electronic devices can be severely damaged by ESD.

When handling electronic modules such as disk drives, printed circuit boards (PCBs), and power supplies, observe the following basic ESD precautions to prevent damage.

- If possible, perform any maintenance at an approved ESD-safe workstation.
- Do not unpack or install electronic modules without using a properly grounded wrist or heel strap.
- Keep all electronic modules such as power supplies, PCBs, and disk drives in their original ESD-protective packaging until you are ready to install them. Handle all electronic modules carefully. Do not touch connectors, contacts, or component leads.
- Ensure that electronic modules do not come into contact with insulators such as clothing and plastics.

## INSTALLING AN FXT 5000 SERIES EDGE FILER NODE IN A RACK

This chapter provides safety notices, instructions, and guidelines for installing an FXT 5000 Series node into a typical square-hole, non-threaded four-post server rack.

### 4.1 Precautions



To avoid injury and equipment damage, observe the electrical and other cautions listed in *Precautions for Product Use* (page 9).

To avoid the potential for serious injury and equipment damage caused by rack tip-over, the equipment rack must be properly designed and installed.



These instructions are for installing an Avere FXT 5000 Series node into a typical four-post server rack. Every effort has been made to supply the most accurate instructions possible. However, rack designs can vary greatly from model to model and from manufacturer to manufacturer. Because Avere Systems cannot anticipate every known rack design, the installer assumes the following responsibilities:

1. The installer must determine if the instructions provided apply to the installer's specific rack.
2. The installer must determine whether or not the instructions provided will result in a safe rack installation in the installer's specific rack.

If there is any doubt about the applicability or safety of using the provided instructions, do not proceed. Immediately contact Avere Global Services, the rack manufacturer, or both for assistance.

In addition to the information provided by Avere Systems, also refer to the installation and safety instructions that came with the rack unit that you are using. If there is any conflicting information, do not proceed. Immediately contact Avere Global Services, the rack manufacturer, or both for assistance.

#### 4.1.1 Differences from FXT 4000 Series and Earlier Models

The physical design of the FXT 5000 Series node is significantly different from earlier Avere products like the FXT 4000 and 3000 series:

- The node height of the FXT 5000 Series is 1U instead of 2U.
- Rail assemblies are different in the FXT 5000 Series, and different installation steps are required.
- Inner rails on the FXT 5000 Series do not extend the full length of the node's chassis. The back of the node must be supported when removing it from a rack. Read *Removing an FXT 5000 Series Node from a Rack* (page 17) to learn how to safely extract a node.

- Several connectors and ports are different from previous systems, and some are installed in a different orientation than they were in other Avere Systems products.

Even if you have previously worked with Avere FXT systems, be sure to read the instructions here before attempting to install an FXT 5000 Series filer.

## 4.2 Rack Installation

These instructions are for installing an FXT 5000 Series node in a square-hole, non-threaded, four-post server rack. For any other type of installation, contact Avere Global Services.

The FXT 5000 Series ships with two snap-together outer rail assemblies. Inner rails are pre-installed on the sides of the node chassis.

Installation steps include:

- Assembling the rails
- Attaching the rails to the server rack
- Sliding the FXT 5000 Series node into the rails in the rack

Read the detailed instructions below before beginning the process.

### 4.2.1 Tools

No tools are required to install the FXT 5000 Series node in a standard rack. However, if your rack is not pre-marked with rack unit measurements, you might want the following tools for setting the rail height:

- A tape measure to find holes at the correct height on each corner of the rack where the rails should be installed
- A marker, grease pencil, or other means to mark the holes on the rack where the rails should be installed

### 4.2.2 Assembling the Rails

The left and right outer rails for the FXT 5000 Series are identical. Follow these instructions to assemble the slide rails.

1. Find the four rail pieces included in the package with the node. There are two identical short pieces and two identical long pieces.
2. Join the short and long rail pieces by latching the t-shaped fastener in the center of the short piece into the keyhole slot in the center of the long piece:
  - (a) Locate the protruding circular T fastener (resembling a nail head) in the center channel of the shorter piece.
  - (b) Position the short piece, fastener facing up, underneath the long piece. (The concave surfaces should nest together.)
  - (c) Align the circular head of the fastener on the short piece with the circular hole on the long piece.
  - (d) Set the fastener inside the hole, and slide the shorter piece down the keyhole slot to latch the two together.

Repeat this procedure for the second set of rails.

### 4.2.3 Attaching the Rails to the Rack

After assembling the slide rails, install them in the equipment rack:

1. Decide where to install the rails for your FXT 5000 Series node. If necessary, use a tape measure and marker to identify the same set of holes on each of the four corners.
2. Locate the FRONT and BACK markings on each rail. Use these to position the rails appropriately in the rack.
3. Set the square pegs on the front of one of the rails into the appropriate holes in the rack. Apply pressure from the front until the latch behind the pegs engages.
4. Repeat this step to latch the back of the rail into the appropriate holes in the rack.
5. Repeat steps 3 and 4 with the remaining rail on the other side of the rack.

### 4.2.4 Placing the Node in the Rack



A bare node without accessories and outer rails weighs 33 pounds (15.0 kilograms). For ease of installation it is recommended to use two people to lift and install the node into the rack. When lifting a node, handle it in such a way that the weight is evenly distributed and stabilized. Be sure to comply with any personal lifting limits that may be in effect for your locale.

To install the node in the rack:

1. Make sure that the rails are correctly installed and secure in the rack slots.
2. Align the rails attached to the side of the node chassis with the rails at the front of the rack.
3. Slide the node into the outer rails, maintaining equal pressure on both sides.
4. As the node slides into the rack, you should hear a click when the safety latches engage. There is one latch on each side.
  - (a) Verify that the safety latches operate properly by pulling the node forward and making sure that it stops in its fully extended position.
  - (b) Verify that the rack and rail installation can safely hold the node's weight in the extended position.
5. Slide the node into its final position in the rack.
6. To secure the node from sliding out of the rack, tighten the captive screws at the front of each rail.

## 4.3 Removing an FXT 5000 Series Node from a Rack



The inner rails on the FXT 5000 Series node chassis do not extend completely to the back of the chassis. After disengaging the side locks, it is possible to completely pull the node out of the rack and off the rails.

To avoid possible injury and equipment damage, always support the node completely after disengaging the safety locks.

The FXT 5000 Series comes with locking rails that allow the node to be pulled forward, partially out of the rack, in preparation for removal.

To slide the node out to its extended position:

1. Loosen the captive screws at the front of each rail.
2. Slide the node forward until the latches on each side engage, stopping the chassis from moving forward.

To remove the node from the rack completely:

1. Follow steps 1 and 2 above to put the node into the locked extended position.
2. Locate the black plastic latches on the sides of the inner rails, and disengage them.

**CAUTION:** There is only one set of locks on the rack slides. After these locks are disengaged, the node can slide off the outer rail and be unsupported. Always fully support the node from the front and back when locks are disengaged.

Disengage the locks by pushing the long lever up or down, depending on the orientation of the lock. If standing in front of the rack, the latch on the left side releases by pushing the lever up, and the latch on the right side releases by pushing the lever down.

3. Make sure that the node is fully supported by two people.
4. Carefully slide the node farther out until the inner rails slide out of the rack. The inner rails extend only 19 inches (48 centimeters), which is about two thirds of the depth of the chassis, so be alert for the rails to disengage.

## 4.4 Installing and Removing the Front Bezel

This section provides instructions for installing or removing the FXT 5000 Series' front bezel (faceplate). Installing the bezel is optional.

The front bezel hides some indicator lights, including the power status indicator, and it prevents access to the node's power button. If you do not plan to power on the node immediately after installation, consider waiting to install the bezel until after the node is up and running.

To install the front bezel:

1. Position the bezel with the decorative face outward and the latch to the left.
2. Hold the left side of the bezel away from the chassis and insert the two pins on the right side of the bezel into the holes located on the node's right side rack mount flange.
3. Press the bezel's latch to the right to retract the two locking pins on the bezel's left side.
4. Move the left side of the bezel into position so that the entire faceplate is flush with the node's front panel.
5. Release the latch so that the two locking pins on the latch engage with the holes in the left side rack mount flange. If the pins do not engage fully, adjust the bezel's position. Make sure that it is pressed against the face of the node chassis.
6. Pull on the bezel to test that it is correctly attached.
7. To ensure the bezel remains securely attached under all conditions, locking the bezel is recommended. Use the key provided in the accessory kit.

To remove the front bezel:

1. If necessary, unlock the front bezel with the key provided in the accessory kit.
2. Press the latch tabs on the left side of the bezel to the right and gently pull the bezel, left to right, from the node.





## MAKING NETWORK CONNECTIONS TO THE FXT 5000 SERIES NODE

This section describes the network connections required for an FXT 5000 Series Edge Filer node. For information on configuring the cluster to use the network infrastructure described in this section, see the [FXT Cluster Creation Guide](http://library.averesystems.com/#fxt_cluster) ([http://library.averesystems.com/#fxt\\_cluster](http://library.averesystems.com/#fxt_cluster)) and the [Configuration Guide](http://library.averesystems.com/#operations) (<http://library.averesystems.com/#operations>).

### NOTICE

The USB, VGA, and serial ports are designated and compliance-tested only for locally attached devices. To maintain compliance, use shielded cables with maximum cable lengths of 3m (9.8 feet) when connecting to these ports.

## 5.1 IP Address Requirements and Cluster Configuration

Each node will require at least one IP address in order to participate in an Avere cluster. However, setting up and configuring IP addresses is done through the Avere Control Panel after the nodes have been installed. Refer to the prerequisites section of the [FXT Cluster Creation Guide](http://library.averesystems.com/#fxt_cluster) ([http://library.averesystems.com/#fxt\\_cluster](http://library.averesystems.com/#fxt_cluster)) for more information about networking requirements.

## 5.2 Physical Connections

Each FXT 5000 Series node includes the following network ports:

- Four high-speed optical data ports, provided by two dual-port Ethernet adapters:
  - The FXT 5850 has four 25GbE ports, which are dual-rate ports that also are compatible with 10GbE traffic.
  - The FXT 5200, FXT 5400, and FXT 5600 models each have four 10GbE ports.
- Four 1GbE ports, provided by the network adapter on the motherboard riser

The high-speed data ports are equipped with SFP+ or SFP28 connectors and optical modules. (The optical module must be removed if you want to use copper cable in these ports, as described below in *Removing SFP+ or SFP28 Optical Modules* (page 22).)

### 5.2.1 Removing SFP+ or SFP28 Optical Modules

Each of the 10GbE and 25GbE ports on all FXT 5000 Series nodes comes with an SFP+ or SFP28 optical module pre-installed. (10GbE ports come with SFP+ modules, and the 25GbE ports on the FXT 5850 come with SFP28 modules.)

If you are using copper twinaxial cable with these ports instead of optical cables, you must remove the optical module.

To remove the optical module from a 10GbE or 25GbE port:

1. Locate the metal latching handle at the bottom of the connector.
2. Use your fingers or a nonconductive tool to gently pull the handle upward and out.
3. Use the handle to pull the module out of the chassis.
4. If the module does not slide out easily, try pushing the module in to loosen it. Pulling with excessive force can break the handle, and using hand tools on the module can damage the module and the boards.

If a module becomes stuck in the chassis, refer to the instructions for extracting stuck modules in the [FXT 5000 Series Field Service Guide](http://library.averesystems.com/#service) (<http://library.averesystems.com/#service>). If necessary, contact Avere Global Services for assistance.

## 5.3 Connecting Network Cables

Connect the FXT 5000 Series node to your network by using the appropriate cables and interfaces for your hardware model and network type, described in the tables below.

Note that the FXT 5850 has different cabling requirements because it uses 25GbE/10GbE dual rate ports instead of the standard 10GbE ports used in the other FXT 5000 Series models.

### 5.3.1 Network Cable Types - FXT 5850

Port (quantity)	Cable and Connector Type	Notes
25GbE/10GbE Dual Rate (4)	<p><b>Connecting to a 25GbE network:</b> Use one of the following for each port:</p> <ul style="list-style-type: none"> <li>• Optical cable with duplex LC connectors Read <i>Guidelines for 25GbE Optical Cables</i> (page 25).</li> <li>• 25GbE SFP28 direct-attach copper twinaxial cable Read <i>Guidelines for 25GbE Copper Cables</i> (page 25).</li> </ul> <p><b>Connecting to a 10GbE network:</b> Use one of the following for each port:</p> <ul style="list-style-type: none"> <li>• Optical cable with duplex LC connectors Read <i>Guidelines for 10GbE Optical Cables</i> (page 25).</li> <li>• 25GbE SFP28 or 10GbE SFP+ direct-attach copper twinaxial cable. Read <i>Guidelines for 25GbE Copper Cables</i> (page 25) or <i>Guidelines for 10GbE Copper Cables</i> (page 26) for details.</li> </ul> <p><b>Connecting to a 10/100/1000- Base-T network:</b> These ports are not used.</p>	<p>If using copper cable, remove the optical modules (instructions <i>above</i> (page 22))</p> <p>Cabling notes for dual-rate ports:</p> <ul style="list-style-type: none"> <li>• 25GbE SFP28 direct-attach copper twinaxial cables are backward compatible with 10GbE SFP+ direct-attach copper twinaxial cables. 25GbE SFP28 direct-attach cables can run at both 25GbE and 10GbE port speeds.</li> <li>• 10GbE SFP+ direct-attach copper twinaxial cables are <b>not</b> forward compatible with 25GbE SFP28 direct-attach copper twinaxial cables. If you use 10GbE SFP+ cables with the dual-rate 25GbE/10GbE ports, the port speed will be limited to 10GbE.</li> <li>• For full 25GbE port speed, 25GbE SFP28 direct-attach cables must be used.</li> </ul>
1GbE (4)	<p><b>Connecting to a 10GbE network:</b> These ports are not used.</p> <p><b>Connecting to a 10/100/1000- Base-T network:</b> Use Cat3 or Cat5 cable consistent with <i>Guidelines for 1GbE Copper Cables</i> (page 26).</p>	

### 5.3.2 Network Cable Types - FXT 5200, FXT 5400, FXT 5600

Port (quantity)	Cable and Connector Type	Notes
10GbE (4)	<p><b>Connecting to a 10GbE network:</b> Use one of the following for each port:</p> <ul style="list-style-type: none"> <li>• Optical cable with duplex LC connectors Read <i>Guidelines for 10GbE Optical Cables</i> (page 25).</li> <li>• SFP+ direct-attach copper twinaxial cable Read <i>Guidelines for 10GbE Copper Cables</i> (page 26).</li> </ul> <p><b>Connecting to a 10/100/1000- Base-T network:</b> These ports are not used.</p>	If using copper cable, remove the optical modules (instructions <i>above</i> (page 22))
1GbE (4)	<p><b>Connecting to a 10GbE network:</b> These ports are not used.</p> <p><b>Connecting to a 10/100/1000- Base-T network:</b> Use Cat3 or Cat5 cable consistent with <i>Guidelines for 1GbE Copper Cables</i> (page 26), below.</p>	

## 5.4 Cable Guidelines

This section shows the recommended standards for optical or copper cables used with the various ports in an FXT 5000 Series node.

Click the links to jump to specific sections:

- Optical Cables:
  - *Guidelines for 25GbE Optical Cables* (page 25)
  - *Guidelines for 10GbE Optical Cables* (page 25)
- Copper Cables:
  - *Guidelines for 25GbE Copper Cables* (page 25)
  - *Guidelines for 10GbE Copper Cables* (page 26)
  - *Guidelines for 1GbE Copper Cables* (page 26)

### 5.4.1 Guidelines for 25GbE Optical Cables

This table shows the specifications and operating range for optical cables used with the FXT 5850 at the 25 Gigabit Ethernet data rate.

Fiber Type	Overfilled Launch (OFL) Bandwidth at 850 nm (MHz*km)	Effective Modal Bandwidth (EMB) at 850 nm (MHz*km)	Operating Range (meters)
50/125 $\mu\text{m}$ OM3/M5E MMF	1500	2000	2 to 70
50/125 $\mu\text{m}$ OM4/M5F MMF	3500	4700	2 to 100

### 5.4.2 Guidelines for 10GbE Optical Cables

This table shows the specifications and operating range for optical cables used with the FXT 5200, FXT 5400, FXT 5600, and FXT 5850 at the 10 Gigabit Ethernet data rate.

#### 10GbE Optical Cable Guidelines

Fiber Type	Overfilled Launch (OFL) Bandwidth at 850 nm (MHz*km)	Effective Modal Bandwidth (EMB) at 850 nm (MHz*km)	Operating Range (meters)
62.5/125 $\mu\text{m}$ MMF	160	N/A	2 to 26
62.5/125 $\mu\text{m}$ OM1/M6 MMF	200	N/A	2 to 33
50/125 $\mu\text{m}$ MMF	400	N/A	2 to 66
50/125 $\mu\text{m}$ OM2/M5 MMF	500	N/A	2 to 82
50/125 $\mu\text{m}$ OM3/M5E MMF	1500	2000	2 to 300

### 5.4.3 Guidelines for 25GbE Copper Cables

When using 25GbE copper twinaxial cables with the FXT 5850 25GbE ports, the cables must meet these requirements to provide full 25GbE port speed:

- Use SFP28 direct-attach cables.
- Only passive type cables are supported. Active twinax and active optical cables (AOC) are not supported.
- For passive cables, the maximum length is 5 meters (16.4 feet).
- Cables must comply with SFF-8431 v4.1 and SFF-8472 v10.4 specifications.
- The cable's SFF-8472 physical device identifier value must be 03h (SFP or SFP+). The value can be verified with the cable manufacturer.

**Note:** 10GbE SFP+ direct-attach copper twinaxial cables are not forward-compatible with 25GbE SFP28 direct-attach copper twinaxial cables. 10GbE SFP+ cables can be used with the dual rate 25GbE/10GbE ports in the FXT 5850, but the port speed will be limited to 10GbE. To obtain full 25GbE port speed, you must use 25GbE SFP28 direct-attach cables.

### 5.4.4 Guidelines for 10GbE Copper Cables

When using 10GbE copper twinaxial cables with FXT 5000 Series 10GbE ports (either the 10GbE ports in the FXT 5200/5400/5600 models or the dual rate 25GbE/10GbE ports in the FXT 5850), make sure that the cables meet these requirements:

- Use SFP+ direct-attach cables.
- Only passive type cables are supported. Active twinax and active optical cables (AOCs) are not supported.
- The maximum length for passive cables is 7 meters (23 feet).
- Cables must comply with SFF-8431 v4.1 and SFF-8472 v10.4 specifications.
- The cable's SFF-8472 physical device identifier value must be 03h (SFP or SFP+). The value can be verified with the cable manufacturer.

---

**Note:** 25GbE SFP28 direct-attach copper twinaxial cables are backwards compatible with 10GbE SFP+ direct-attach copper twinaxial cables. 25GbE SFP28 direct-attach cables can run at both 25GbE and 10GbE port speeds.

---

### 5.4.5 Guidelines for 1GbE Copper Cables

This table shows requirements for copper twisted pair cabling used with the FXT 5000 Series 1GbE ports.

#### 1GbE Ethernet Cable Guidelines

Port Mode	Cable Specification
10BASE-T	Cat3 or higher, 100 m maximum length
100BASE-TX	Cat5 or higher, 100 m maximum length
1000BASE-T	Cat5 or higher, 100 m maximum length

## 5.5 Network Connections to the IPMI Port

Each model in the FXT 5000 Series has a 1Gb Intelligent Platform Management Interface (IPMI) port for emergency node management.

Because IPMI is able to bypass the operating system and interact directly with platform hardware, Avere Systems recommends using the following security strategies when connecting and configuring the IPMI port:

- Connect IPMI ports to a network that is physically separated from the data network used to access the cluster.
- Change the default IPMI administrator password on each node at installation time. Use a web browser to navigate to the node's IPMI port IP address and use the provided interface to modify the user configuration.
- The default IPMI port configuration uses DHCP for IP address assignment. Ensure that the DHCP environment is well protected and that connectivity is restricted between DHCP clients and the DHCP server. (You can change the nodes' IPMI address configuration method from the Avere Control Panel after creating the cluster.)

The IPMI port does not require a high-speed network; a 100 Mbps or 1GbE connection is sufficient for troubleshooting and emergency node administration.

## 5.6 Connecting to the Serial Port (if necessary)

For diagnostic purposes, Avere Global Services might instruct you to connect a terminal to a node's serial port to access the console locally.

To attach the console:

1. Locate the serial (COM1) port on the rear of the appropriate FXT 5000 Series node. (For a diagram of the ports, consult the *rear view illustration* (page 7) in *Product Specifications and Requirements* (page 3).)
2. Use a null modem cable to connect the COM1 serial port to a terminal configured for **ANSI-115200-8N1**.
3. Log in to the console and perform additional steps as directed by Avere Global Services.





## POWER CONNECTIONS FOR THE FXT 5000 SERIES EDGE FILER

This section describes the power connections required for an FXT 5000 Series Edge Filer node.



Review the cautions and warnings in *Precautions for Product Use* (page 9) and verify that proper steps have been taken before connecting the FXT 5000 Series node to a power source.

### 6.1 Connecting Power Cables

To connect power cables to an FXT 5000 Series node:

1. Locate the AC power cords in the accessory kit that came in the node's carton. If you received the incorrect type of power cords, contact Avere Global Services.
2. Make that both power supply units (PSUs) are fully seated in the node.
3. Attach an AC power cord to each PSU AC inlet on the node.
4. Attach the plug of each AC power cord to a power receptacle of the appropriate voltage and capacity.

---

**Tip:** To take full advantage of PSU redundancy, attach the AC power cords to different power branch circuits.

---

### 6.2 Powering On an FXT 5000 Series Node

To turn on the node:

1. If required, unlock the node's front bezel by using the key provided in the accessory kit.
2. Remove the bezel by pressing the latch on the left-hand side of the bezel to the right and gently pulling the bezel, left to right, from the node.
3. Press the power button. The "Power" LED is illuminated green when power is being supplied normally to the node.
4. Optionally, replace and lock the front bezel.

## 6.3 Powering Off an FXT 5000 Series Edge Filer Node

To avoid potential data corruption, always use the Avere Control Panel software to shut down an FXT 5000 Series filer.



In an electrical emergency, disconnect all power from the node by removing all power cords or by operating the emergency power disconnect mechanism installed for the node.

### 6.3.1 Normal Shutdown

To power off an FXT 5000 Series node:

1. Log in to the Avere Control Panel.
2. Click the **Settings** tab, then click **FXT Nodes** in the **Cluster** section to load the **FXT Nodes** page.
3. Locate the node that you want to power off from the listing of nodes and click its **Power down** button on the page.
4. Wait a few moments for the node to shut down.



Except when instructed by Avere Global Services, do not use the physical **Power** button on the front of the FXT 5000 Series node to power off the node. Using the physical power control button can potentially result in lost or corrupted data.

## MONITORING THE FXT 5000 SERIES EDGE FILER

This section explains how to monitor an FXT 5000 Series node and describes the meanings of the node's status lights.

### 7.1 Monitoring System Health

For general system monitoring, view the Avere Control Panel's **Dashboard** tab, as described in the *Avere Control Panel Dashboard Guide* (<http://library.averesystems.com/#operations>).

### 7.2 Status LEDs

This section describes the meanings of the LEDs on the FXT 5000 Series nodes. See *FXT 5000 Series Front and Rear Illustrations* (page 6) for LED locations.

#### 7.2.1 Front Panel: SAS Drive LEDs

LED Name	State	Meaning	Action (if applicable)
Activity LED	Unlit	Drive is not installed <i>or</i> The unit is not powered on	Check for proper drive installation or power on the unit
	Solid blue	Drive is installed	N/A
	Blinking blue	Drive is active	N/A
Locate/Fail LED	Unlit	Normal state	N/A
	Solid red	Drive has failed	Check the management interface for a failed drive alert. Use the information provided in the alert and follow instructions in the <i>FXT 5000 Series Field Service Guide</i> ( <a href="http://library.averesystems.com/#service">http://library.averesystems.com/#service</a> ) to replace the failed drive.
	Blinking red four times per second (4 Hz)	Drive locate function has been activated <i>or</i> Drive has failed	Turn off the LED by deactivating the drive locate function <i>or</i> Check the management interface for a failed drive alert. Use the information provided in the alert and follow instructions in the <i>FXT 5000 Series Field Service Guide</i> ( <a href="http://library.averesystems.com/#service">http://library.averesystems.com/#service</a> ) to replace the failed drive.

## 7.2.2 Front Panel: Control Panel LEDs

LED Name	State	Meaning	Action (if applicable)
Information LED	Unlit	Normal state (no information to report)	N/A
	Solid red	The node is overheated	Check the ambient room temperature and improve cooling if needed. If the room temperature is within normal operating range, contact Avere Global Services.
	Blinking red once per second (1Hz)	Fan failure	Check the management interface for a failed fan alert message. Use the information in the alert and follow instructions in the <a href="http://library.averesystems.com/#service">FXT 5000 Series Field Service Guide</a> ( <a href="http://library.averesystems.com/#service">http://library.averesystems.com/#service</a> ) to replace the failed fan.
	Blinking red once every four seconds (0.25Hz)	Power failure	Check that all power supplies are fully seated and that power cords are correctly installed. Ensure that AC power is being applied to the power supply. Reseat, install cords, and/or apply power as required. Check the power supply LEDs and the management interface for a failed power supply alert. Use the information in the alert and follow instructions in the <a href="http://library.averesystems.com/#service">FXT 5000 Series Field Service Guide</a> ( <a href="http://library.averesystems.com/#service">http://library.averesystems.com/#service</a> ) to replace the failed power supply.
1GbE port activity/link LEDs (e0a, e0b)	Unlit	The port is not linked	Check networking cables and associated Ethernet switch ports. Replace or reconnect cable as required and/or enable the switch port.
	Blinking green	The port is linked and there is network activity	N/A
	Solid green	The port is linked but there is no network activity	N/A
SATA drive activity LED	<i>Not used - there are no SATA connected drives in the FXT 5000 Series</i>		
Power LED	Unlit	Neither power supply is receiving AC power, <i>or</i> At least one power supply is receiving power but the unit is powered off	Check that at least one power supply has AC power Power the unit on by pressing the front panel power switch or by using the management interface
	Solid green	Unit is powered on and power is being supplied to at least one of the node's power supply units	N/A

### 7.2.3 Front Panel: Unit Identifier LED

LED Name	State	Meaning	Action (if applicable)
Unit Identification (UID) LED (within the UID button)	Unlit	Normal state (unit identification has not been activated)	N/A
	Solid blue	Local UID has been activated by pressing the UID button on the front panel	Push the UID button again to turn off the light
	Blinking blue	Remote UID has been activated from the IPMI remote web interface	Turn off the LED by deactivating remote UID in the IPMI web interface

### 7.2.4 Rear Panel: Power Supply LEDs

LED Name	State	Meaning	Action (if applicable)
Power Supply LEDs (PS1, PS2)	Unlit	Neither power supply is receiving AC power	Check that each power supply is fully seated, has a power cord installed, and is connected to AC power. Reseat each power supply, install cords, and/or apply power as required.
	Solid green	Power is being supplied and the unit is powered on	N/A
	Blinking green	Power is being supplied but the unit is powered off	To power on the system, press the power button on the front of the node.
	Solid yellow	This power supply is not receiving AC power, but the other power supply is receiving power	Check that the power supply is fully seated, has a power cord installed, and that AC power is being applied. Reseat the power supply, install a cord, and/or apply power as required.
	Blinking yellow	Overheat warning: The power supply internal temperature has reached at least 63° C (145.4° F). If the power supply temperature reaches 70° C (158° F), the system will automatically power down. It will restart when the power supply temperature falls below 60° C (140° F).	Check the ambient room temperature and improve cooling if needed.

### 7.2.5 Rear Panel: 1GbE Port LEDs (e0a, e0b, e0c, e0d)

LED Name	State	Meaning	Action (if applicable)
Activity/ Link LED	Unlit	Port is not linked	Check networking cables and associated Ethernet switch ports. Replace or reconnect cable as required and/or enable the switch port.
	Solid yellow	Port is linked to the LAN and there is no network activity	N/A
	Blinking yellow	Port is linked and there is activity on the port	N/A
Link Speed LED	Unlit	Port is linked at the 10Base-T (10 Mbps) rate	If this port link speed is incorrect, check that the port on the associated Ethernet switch is set to the desired speed. Change the switch port speed setting if necessary.
	Solid green	Port is linked at the 100Base-TX (100 Mbps) rate	
	Solid yellow	Port is linked at the 1000Base-T (1000 Mbps) rate	

### 7.2.6 Rear Panel: IPMI Remote Management Port LEDs

LED Name	State	Meaning	Action (if applicable)
Activity/Link LED	Unlit	Port is not linked	Check networking cables and associated Ethernet switch ports. Replace or reconnect cable as required and/or enable the switch port.
	Solid yellow	Port is linked to the LAN and there is no network activity	N/A
	Blinking yellow	Port is linked and there is activity on the port	N/A
Link Speed LED	Unlit	Port is linked at the 10Base-T (10 Mbps) rate	If this port link speed is incorrect, check that the port on the associated Ethernet switch is set to the desired speed. Change the switch port speed setting if necessary.
	Solid green	Port is linked at the 100Base-TX (100 Mbps) rate	
	Solid yellow	Port is linked at the 1000Base-T (1000 Mbps) rate	

### 7.2.7 Rear Panel: Unit Identifier LED

LED Name	State	Meaning	Action (if applicable)
UID LED	Unlit	Normal state (Local or remote UID has not been activated)	N/A
	Solid blue	Local UID has been activated by pressing the front UID switch	Push the UID button again to turn off the light
	Blinking blue	Remote UID has been activated from the IPMI web interface	Deactivate remote UID from the IPMI web interface to turn off the light

### 7.2.8 Rear Panel: Data Port LEDs ( e2a, e2b, e3a, e3b)

This table shows status information for the dual rate 25GbE/10GbE ports on the FXT 5850 and for the 10GbE ports on the other FXT 5000 Series models. Note that the link speed LED shows solid yellow for a low-speed connection and solid green for the maximum speed, but that the actual speed varies depending on the model.

LED Name	State	Meaning	Action (if applicable)
Activity/Link LED	Unlit	Port is not linked	Check networking cables and associated Ethernet switch ports. Replace or reconnect cable as required and/or enable the switch port.
	Blinking green	Activity on port	N/A
	Solid green	Adapter is linked to the LAN	N/A
Link Speed LED	Unlit	Port is not linked	Check networking cables and associated Ethernet switch ports. Replace or reconnect cable as required and/or enable the switch port.
	Solid yellow	<b>FXT 5850:</b> <ul style="list-style-type: none"> <li>Port is linked at the 10Gbps rate</li> </ul> <b>Other FXT models:</b> <ul style="list-style-type: none"> <li>Port is linked at the 1Gbps rate</li> </ul>	If this port link speed is incorrect, check that the port on the associated Ethernet switch is set to the desired speed. Change the switch port speed setting if necessary.
	Solid green	<b>FXT 5850:</b> <ul style="list-style-type: none"> <li>Port is linked at the 25Gbps rate</li> </ul> <b>Other FXT models:</b> <ul style="list-style-type: none"> <li>Port is linked at the 10Gbps rate</li> </ul>	





## REGULATORY INFORMATION FOR FXT 5000 SERIES NODES

This section provides regulatory information for Avere FXT 5000 Series Edge Filer nodes.

### 8.1 Electrical Safety

Country/Locale	Directive/Test Standard(s)	Regulatory Marks
USA	ANSI/UL 60950-1, Second Edition, Issued 3/27/2007 + Amd1 12/19/2011 + Amd2 10/14/2014	cCSAus
Canada	CAN/CSA C22.2 No. 60950-1, Second Edition, Issued 3/27/2007 + Amd1 12/19/2011+ Amd2 10/14/2014	cCSAus
European Community	2014/35/EU Low Voltage Directive (LVD) EN 60950-1:2006 +A11:2009 +A1:2010 +A12:2011 + A2:2013	CE Marking
International	IEC 60950-1:2005 +A1:2009 + A2:2013, CB Scheme with all Group and National Differences	N/A

### 8.2 Electromagnetic Compatibility

Country/Locale	Directive/Test Standard(s)	Regulatory Marks/Notices
<i>Emissions:</i>		
USA	FCC 47CFR Part 2 and Part 15 Subpart B Class A, 2014 ANSI C63.4-2014	FCC Class A Notice
Canada	ICES-003, Issue 5, August 2012 CAN/CSA-CEI/IEC CISPR 22:02, Class A	ICES Class A Notice
European Community	2014/30/EU Electromagnetic Compatibility (EMC) Directive EN 55022:2010 +AC:2011 EN 61000-3-2:2014 EN 61000-3-3:2013	CE Marking
Japan	Voluntary Control Council for Interference by Information Technology Equipment (VCCI) V-3/2015.04 V-4/2012.04	VCCI Class A Notice
<i>Immunity:</i>		
European Community	2014/30/EU Electromagnetic Compatibility (EMC) Directive EN 55024:2010	CE Marking

## 8.3 Environmental Compliance

Country/Locale	Directive/Regulation/Test Standard(s)	Regulatory Marks
European Community	2012/19/EU, Waste Electrical and Electronic Equipment (Recast WEEE Directive)	Crossed-out wheeled bin with bar
European Community	2011/65/EU, Restriction of the use of certain hazardous substances in electrical and electronic equipment (Recast RoHS Directive)	CE Marking
European Community	EC 1907/2006, Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH Regulation)	None required
European Community	2006/66/EC, Batteries and accumulators and waste batteries and accumulators (Battery Directive)	None required
European Community	94/62/EC, Packaging and packaging waste (Packaging Directive)	None required

For further information on any of these directives and regulations, please contact Avere Systems at [www.averesystems.com/about-us/contact-us](http://www.averesystems.com/about-us/contact-us)

## EU DECLARATION OF CONFORMITY

### EU Declaration of Conformity

#### Product Information

Model Number(s): FXT 5200, FXT 5400, FXT 5600, FXT 5850  
Description: NAS Appliance  
Options: All

#### Manufacturer

Avere Systems, Inc.  
910 River Ave.  
Pittsburgh PA, 15212  
USA

The Manufacturer hereby declares under our sole responsibility that the products specified herein are in conformance with the relevant union harmonization legislation as described in the following directives:

#### Directives:

2014/35/EU Low Voltage Directive  
2014/30/EU Electromagnetic Compatibility Directive  
2011/65/EU RoHS Directive

and further declares that the products were assessed and determined to be in conformance with the following relevant harmonized standards:

#### Harmonized Standards:

EN 60950-1:2006 +A11:2009 +A1:2010 +A12:2011 +A2:2013 Information Technology Equipment—Safety—Part 1: General Requirements  
EN 55022:2010 +AC:2011 Class A Information Technology Equipment—Radio Disturbance Characteristics—Limits and Methods of Measurement  
EN 61000-3-2:2014 Information Technology Equipment – Harmonics Characteristics  
EN 61000-3-3:2013 Information Technology Equipment – Flicker Characteristics  
EN 55024:2010 Information Technology Equipment – Immunity Characteristics – Limits and Methods of Measurement  
EN 50581:2012 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.

#### Signed for and on behalf of:

Company: Avere Systems, Inc.  
Place of Issue: Pittsburgh, PA, USA

Signature:



Date of Issue: 2 February 2016  
Revised: 5 April 2018

Name: David Stephenson  
Function: Vice President of Engineering

#### Document Part Number

0402-005-0291, Rev D



## PREPARING A NODE FOR RETURN TO AVERE SYSTEMS

In some circumstances – for example, at the end of an evaluation, or because of hardware failure – it can be necessary to return an FXT 5000 Series node to Avere Systems. To ship an FXT 5000 Series node safely, all of its power sources must be completely powered down.

In most cases you can safely power down a node by using the Avere Control Panel software. If the node is unavailable over the network, use the instructions below to power the node down completely from the serial console. (Pressing the power button on the FXT 5000 Series node chassis is not a recommended way to completely power down the node.)

---

**Note:** Use these procedures only at the direction of Avere Global Services.

---

To shut down a node that cannot be reached by the Avere Control Panel:

1. Attach a serial console to the node's serial port as described in the last section of Making Network Connections to the FXT 5000 Series Node (*Connecting to the Serial Port* (page 27)).
2. Log in to the node with the username `maintenance` and the cluster's administrative password.

---

**Note:** If the node was unjoined from its cluster, the administrative password was reset to the default password `tiered2010`.

---

3. The console displays the maintenance menu:

```
You have logged into the AvereOS maintenance menu.  If you are configuring a
cluster for the first time, use menu item 1 to configure a network port, and
then access https://ip/fxt to complete the cluster configuration.
```

```
Node [name] running [AvereOS_version]
```

```
Maintenance Menu
```

- ```
1.  Configure network parameters before cluster join
2.  Modify cluster management network parameters
3.  Configure a new cluster
4.  Reboot node
5.  Power down node
6.  Disable NVRAM batteries
7.  Install new software packages
8.  Configure node IPMI networking
9.  Reformat node
```

```
Enter menu item number or type "exit" to log out:
```

4. Enter 5.
5. The menu prompts you for verification; enter `y` to confirm:

```
Enter menu item number or type "exit" to log out:  
5  
THIS OPERATION TURNS THE POWER OFF ON THE NODE; THE NODE CAN ONLY BE  
POWERED ON AGAIN VIA IPMI OR THE FRONT PANEL POWER SWITCH  
Are you sure? [yn]: y  
Node powerdown
```

The node powers down. The power-down process can take from 60 to 120 seconds to complete.

6. Disconnect all power and network connections from the node, and remove it from its rack.
7. Return the node to Avere Systems as directed by your Avere Systems representative.

## COPYRIGHT AND TRADEMARK INFORMATION

### 11.1 Copyright Information

Copyright © 2009-2018 Avere Systems, Inc. All rights reserved. Specifications subject to change without notice.

No part of this document covered by copyright may be reproduced in any form or by any means – graphic, electronic, or mechanical, including photocopying, recording, taping, or storage in an electronic retrieval system – without prior written permission of the copyright owner.

The product described in this manual may be protected by one or more U.S. patents, foreign patents, or pending applications.

### 11.2 Trademark Information

Avere, FlashCloud™, FlashMove®, and FlashMirror® are registered trademarks or trademarks of Avere Systems, Inc. in the United States and/or other jurisdictions.

For licensing information on the third-party software used by this Avere product, contact your Avere Systems representative.

### 11.3 Document Numbers

Part number 0456-004-0171, rev E (electronic version)

Part number 0456-004-0191, rev E (printed version)