



AOC-S3216L-L16iT



USER'S GUIDE

Revision 1.0

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**WARNING:** Handling of lead solder materials used in this product may expose you to lead, a chemical known to the State of California to cause birth defects and other reproductive harm.

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## Preface

### About this User's Guide

This user's guide is written for system integrators, IT technicians and knowledgeable end users. It provides information for the installation and use of the AOC-S3216L-L16iT controller card.

### About this Controller Card

The Supermicro SAS AOC-S3216L-L16iT internal controller card features sixteen internal SAS3 ports with four internal mini SAS HD connectors. It utilizes a Broadcom SAS3216 SAS3 controller chip and features a 1.2 GHz processor. The AOC-S3216L-L16iT can provide support for JBOD systems of up to 1024 devices. The AOC-S3216L-L16iT is streamlined to meet the growing demand for increased data throughput and scalability requirements across the enterprise-class server platforms. It is a low power and cost-effective near-line storage solution that delivers maximum performance and reliability.

### An Important Note to the User

All images and layouts shown in this user's guide are based upon the latest PCB revision available at the time of publishing. The card you have received may or may not look exactly the same as the graphics shown in this user's guide.

## Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. When returning the AOC-S3216L-L16iT card to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and the shipping package is mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete. For faster service, you can also request a RMA authorization online <http://www.supermicro.com/RmaForm/>.

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alternation, misuse, abuse or improper maintenance of products.

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# Table of Contents

## **Preface**

### **Chapter 1 Overview**

1-1	Overview .....	1-1
1-2	Technical Specifications .....	1-1
	General.....	1-1
	OS Support .....	1-1
	Physical Dimensions.....	1-1

### **Chapter 2 Hardware Components**

2-1	Controller Card Layout and Components .....	2-1
2-2	Major Components.....	2-2
2-3	Connectors and LEDs.....	2-3
	SAS Connectors.....	2-3
2-4	Front Header Locations .....	2-4

### **Chapter 3 Installation**

3-1	Static-Sensitive Devices.....	3-1
	Precautions .....	3-1
	Unpacking .....	3-1
3-2	Before Installation .....	3-2
3-3	Installing the Controller Card.....	3-2
3-4	Static Sensitive Devices.....	3-4
	Precautions .....	3-4
	Unpacking .....	3-4
3-5	Installing the Drivers in Windows.....	3-5
3-6	Uninstalling the Drivers.....	3-5

# Chapter 1

## Overview

### 1-1 Overview

Congratulations on purchasing your controller card from an acknowledged leader in the industry. Supermicro products are designed with the utmost attention to detail to provide you with the highest standards in quality and performance. For product support and updates, please visit our website at <http://www.supermicro.com/>

### 1-2 Technical Specifications

#### General

Broadcom SAS3216 SAS3 controller

Sixteen internal SAS3 ports

1.2 GHz processor

HBA supports 1024 devices

Enlarged venting hole for improved airflow

Plugs into PCIe x8 slot to support Gen 3 up to 8Gb/s.

Supports 12 GB/s, 6 GB/s and 3 GB/s SAS data transfer rates.

Supports 6 GB/s and 3 GB/s SATA data transfer rates

#### OS Support

Windows 2012 and 2008. RedHat Enterprise and SUSE Linux.

#### Power Consumption

15.1 Watts

#### Physical Dimensions

Card PCB dimensions: 6.1" x 2.7" (L x H)

## Notes

## Chapter 2

### Hardware Components

#### 2-1 Controller Card Layout and Components



**Figure 2-1. AOC-S3216L-L16iT**

The AOC-S3216L-L16iT is a low-profile PCIe x8 Gen 3 controller card with sixteen internal SAS3 ports packed in four mini SAS HD connectors. The following pages describe the components and settings for the AOC-S3216L-L16iT.

## 2-2 Major Components

The following are the major components that make up the AOC-S3216L-L16iT controller card:

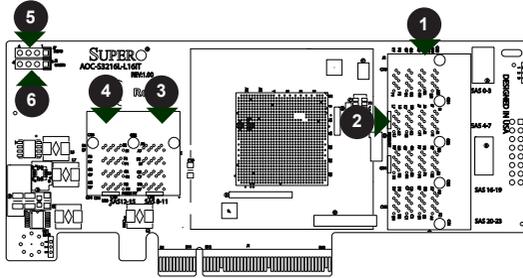


Figure 2-2. AOC-S3216L-L16iT Layout

AOC-S3216L-L16iT	
Component	Description
1	SAS Connectors SAS 0 - 3
2	SAS Connectors SAS 4 - 7
3	SAS Connectors SAS 8 - 11
4	SAS Connectors SAS 12 - 15
5	MDIO Header, designated MDIO, J7
6	UART Header, designated UART0 Serial Debug Port, J5

## 2-3 Connectors and LED

### SAS Connectors

There are four mini SAS HD connectors on the controller card, providing 16 ports that support a transfer rate on each port of up to 12 Gb/s with SAS devices and 6Gb/s with SATA devices.

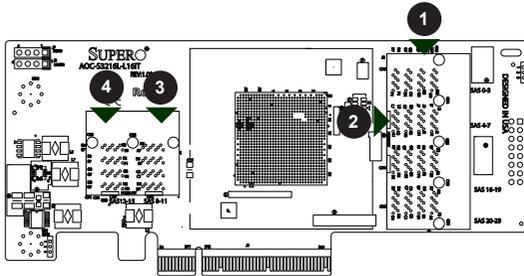
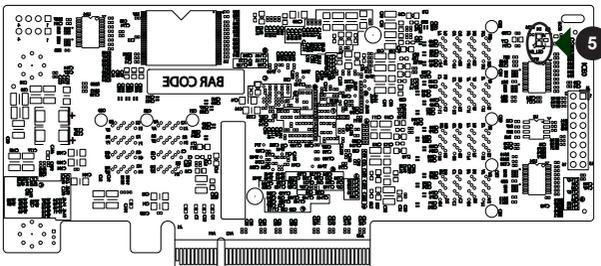


Figure 2-3. SAS3 Connectors

AOC-S3216L-L16iT	
Component	Description
1	SAS Connectors SAS 0-3
2	SAS Connectors SAS 4-7
3	SAS Connectors SAS 8-11
4	SAS Connectors SAS 12-15
5	Heartbeat LED

### Heartbeat LED

A blinking green LED indicates the firmware is running on the controller chip.



## 2-4 Front Header Locations

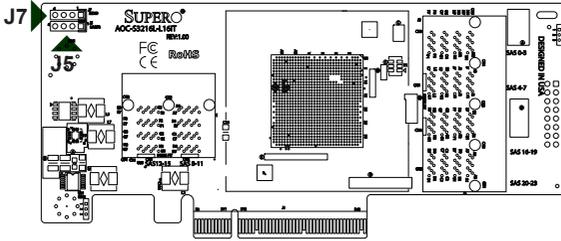


Figure 2-4. Headers for Engineering Tests

AOC-S3216L-L16iT	
Description	Purpose
UART Header, designated UART0 Serial Debug Port J5	For Engineering Debug
MDIO Header, designated MDIO J7	For Engineering Test

## Chapter 3

# Installation

### 3-1 Static-Sensitive Devices

Electrostatic Discharge (ESD) can damage electronic components. To avoid damaging your controller card, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

#### Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing the controller card from the antistatic bag.
- Handle the expansion card by its edges only; do not touch its components or peripheral chips.
- Put the controller card back into the antistatic bags when not in use.
- For grounding purposes, make sure that your system chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the controller card.

#### Unpacking

The controller card is shipped in antistatic packaging to avoid static damage. When unpacking your component, make sure you are static protected.

**Note:** To avoid damaging your components and to ensure proper installation, be sure to always connect the power cord last, and always remove it before adding, removing or changing any hardware components.

## 3-2 Before Installation

To install the controller card properly, follow the steps below.

### ***Prior to Installation***

1. Power down the system and unplug the power cord.
2. Use industry-standard anti-static equipment (such as gloves or wrist strap) and follow the precautions on page 3-1 to avoid damage caused by ESD.

## 3-3 Installing the Controller Card

Depending upon which system configuration is used, a riser card may or may not be required to install the AOC-S3216L-L16iT.

### ***Installing the Controller Card***

1. Power down the system, remove the power cords from the rear of the power supply and remove the system cover.
2. Verify that your controller card is equipped with the correct length of PCIe slot mounting bracket for your system. The AOC-S3216L-L16iT controller card includes a low-profile PCIe mounting bracket. However, if your system features full-height PCIe slots, replace the low-profile bracket with a full-height bracket.
3. Insert the controller card into a x8 PCI-E slot.
4. Connect the mini SAS HD cables from the controller card to either the direct attached storage target devices or the cable sockets on the backplanes.
5. The cable latch will click into the locked position when connected properly.
6. Replace the system cover, plug in the power cord and power up the system.

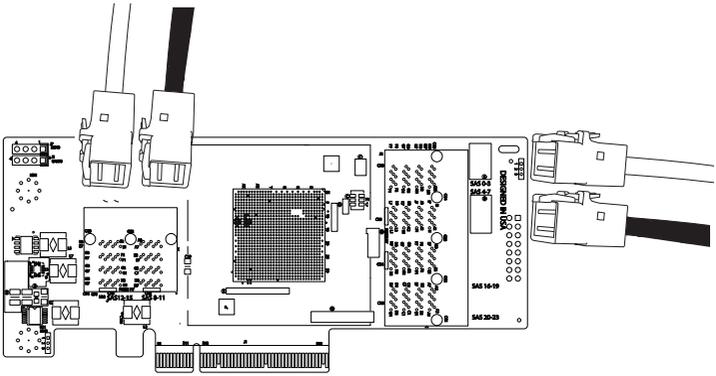


Figure 3-1. Connecting the Cables

## 3-4 Static Sensitive Devices

Electrostatic Discharge (ESD) can damage electronic components. To avoid damaging your controller card, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

### Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing the controller card from the antistatic bag.
- Handle the controller card by its edges only; do not touch its components or peripheral chips.
- Put the controller card back into the antistatic bags when not in use.
- For grounding purposes, make sure that your system chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the controller card.

### Unpacking

The controller card is shipped in antistatic packaging to avoid static damage. When unpacking your component, make sure you are static protected.

**Note:** To avoid damaging your components and to ensure proper installation, be sure to always connect the power cord last, and always remove it before adding, removing or changing any hardware components

### 3-5 Installing the Drivers in Windows

Refer to the instructions that came with your controller card and follow the manufacturer's recommended steps for installing the operating system driver. Download the latest drivers from the Supermicro project board at <ftp://ftp.supermicro.com/driver/SAS/LSI/3216>.

### 3-6 Uninstalling the Drivers

*To Uninstall the Drivers in Windows:*

Follow the system driver uninstall procedure in the operating system.

(Disclaimer Continued)

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