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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-SLG3-2E4 add-on card.

About this Add-on Card

The AOC-SLG3-2E4 is an advanced dual port NVMe SSD add-on card. This low profile Gen 3.0 PCI-E X8 card features the PLX PE8718 chip and is supported on the Windows and Linux operating systems. This card supports two drives and can deliver data transfer rates of up to 6.4 GB/s. It delivers maximum performance and reliability with NVMe and SAS SSD drives. This is the ideal add-on card for high-performance storage connectivity.

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-SLG3-2E4 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.

During the warranty period, contact your distributor first for any product problems.
Conventions Used in the User's Guide

Pay special attention to the following symbols for proper system installation and for safety instructions to prevent damage to the system or injury to yourself:

⚠️ **Warning**: Important information given to ensure proper system installation or to prevent damage to the components or injury to yourself.

📝 **Note**: Additional information given for proper system setup.
Preface

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Chapter 1

Overview

1-1 Overview

Congratulations on purchasing your add-on 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 refer to our website at http://www.supermicro.com/products/accessories/index.cfm?Type=20

1-2 Technical Specifications

General

• Low Profile STD Gen 3.0 PCI-E X8

• Two mini SAS SFF8643 Internal Connectors

• PLX PE8718

• 6.4 GB/s Transfer rate

• Supports 70C

• Supports two PCI-E Gen 3.0 NVMe SSDs
OS Support

- Microsoft Windows® 2012 R2
- Linux RedHat 7.0 and 7.1
- Linux CentOS 7
- Linux Ubuntu 14.4
- Linux SUSE 12

Power Consumption

- 6 Watts

Physical Dimensions

- Card PCB dimensions: 2.7” x 4.7” (H x L)
Chapter 2

Hardware Components

2-1 Add-On Card Layout and Components

AOC-SLG3-2E4 Image

AOC-SLG3-2E4 Layout

2-2 Major Components

The following major components are on the AOC-SLG3-2E4:

<table>
<thead>
<tr>
<th>1. miniSAS HD Connector 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. miniSAS HD Connector 2</td>
</tr>
<tr>
<td>3. Fatal Error LED</td>
</tr>
</tbody>
</table>
2-3 Connectors and LEDs

miniSAS HD Connectors

There are two miniSAS HD connectors on the add-on card. These connectors provide a transfer rate speed up to 6.4 GB/s.
Fatal Error LED

The D2 LED lights up if there is an error with any of the connected NVMe or SAS drives. See the table below for LED information.

<table>
<thead>
<tr>
<th>Color</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Fatal Error</td>
</tr>
</tbody>
</table>

A. Fatal Error LED
NVMe Backplane Blinking Pattern

Please see the table below for a comprehensive listing of LED information for the NVMe backplane.

<table>
<thead>
<tr>
<th>LED Color</th>
<th>Blinking Pattern</th>
<th>Behavior for Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity LED 8 HDD's Green color</td>
<td>SAS Power On stay On, Blinking during I/O time</td>
<td>SAS</td>
</tr>
<tr>
<td>12 HDD's Blue Color</td>
<td>SATA Power On stay off, Blinking during I/O time</td>
<td>SATA</td>
</tr>
<tr>
<td>8P supports NVMe change to Blue</td>
<td>NVMe Power On stay On, Blinking during I/O time</td>
<td>NVMe</td>
</tr>
<tr>
<td>Status LED RED</td>
<td>A. Fail Drive RED LED solid On.</td>
<td>SAS / SATA / NVMe with RSTe supports.</td>
</tr>
<tr>
<td>RED</td>
<td>B. Rebuild drive RED LED blinking at 1Hz.</td>
<td>SAS / SATA / NVMe with RSTe supports.</td>
</tr>
<tr>
<td>RED</td>
<td>C. Hot Spare drive RED LED blinking with 2 blink and 1 stop at 1Hz</td>
<td>SAS / SATA / NVMe with RSTe supports.</td>
</tr>
<tr>
<td>RED</td>
<td>D. Power on Status LED stay on for 5 second then turn off.</td>
<td>SAS / SATA / NVMe with RSTe supports.</td>
</tr>
<tr>
<td>RED</td>
<td>E. Identify drive RED LED blinking at 4Hz.</td>
<td>SAS / SATA / NVMe with RSTe supports.</td>
</tr>
<tr>
<td>Green</td>
<td>F. Solid Green LED safe to remove NVMe device.</td>
<td>NVMe</td>
</tr>
<tr>
<td>Amber (Two tone combined RED and Green)</td>
<td>G. Blinking at 1Hz for attention state not to remove NVMe device</td>
<td>NVMe</td>
</tr>
</tbody>
</table>
3-1  Static-Sensitive Devices

Electrostatic Discharge (ESD) can damage electronic components. To avoid damaging your add-on 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 add-on card from the antistatic bag.

• Handle the add-on card by its edges only; do not touch its components or peripheral chips.

• Put the add-on 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 add-on card.

Unpacking

The add-on 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 add-on card properly, follow the steps below.

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 Add-on Card

The following items are needed to complete the installation:

- Add-on card: AOC-SLG3-2E4
- Riser card: RSC-R1UW-2E16
- Backplane connector: BPN-SAS3-116A-N2 Rev. 1.10

Follow the steps below to install the add-on card:

1. Remove the system cover.

2. Insert the RSC-R1UW-2E16 riser card into an open PCI-E 3.0 X8 slot on the motherboard.

Note: Your card and motherboard may or may not look exactly the same as the graphics shown.
3. Insert the AOC-SLG3-2E4 add-on card into the slot on the riser card.

4. After you have inserted the add-on card into the riser card, you can connect the cables. Since the add-on card is installed with the components facing down, make sure the latch on the cable is also facing down. You will hear a click if the cable is connected properly.
5. With one end of the cable connected to CH1 of the add-on card, connect the other end to NVMe#0 (JSM3) of the BPN-SAS3-116A-N2 backplane. With one end of the cable connected to CH2 of the add-on card, connect the other end to NVMe#1 (JSM4) of the BPN-SAS3-116A-N2 backplane. You will hear a click if the cable is connected properly.

6. Connect the two NVMe SSD drives to the backplane.

7. Replace the system cover, plug in the power cord and power up the system.
3-4 Installing the Drivers in Windows

Follow the steps below to install the drivers for Windows. Download the latest drivers from the Supermicro project board at ftp://ftp.supermicro.com/driver/NVMe/.

1. Download the file: AOCSLG32E4_NVMeLEDControl_07232015.rar.

2. Extract the file, select the win2012 folder and then the SETUP folder to install the PLX and SMC Drivers.

3. Click on the setup icon and follow the prompts to complete the installation.
3-4-1 Testing the NVMe "Eject"

Follow the steps below to install and test the NVMe Eject drive feature. The test displays an LED pattern to provide the status of the NVMe drive.

1. Run AOCSLG32E4_NVMeLEDControl_07232015\win2012\SETUP\Setup.exe to install the NVMe Eject feature.

2. Click on "Eject NVMe drive" to trigger the corresponding NVMe LED pattern, which will display in the following sequence: Red, Amber, and Green. This sequence shows that the drive is functioning properly.

3. Unplug and hotplug the ejected NVMe drive to trigger the corresponding NVMe LED pattern, which will display in the following sequence: Red, Amber, Green, and Black. This sequence shows that the drive is functioning properly.

3-4-2 Testing the Enclosure GUI

Follow the steps below to select an LED pattern to test.

1. Launch the Enclosure GUI feature to run the test.

2. Select the LED pattern from the drop-down list and click the "Blink" button to run the test. The test is successful if the LED pattern corresponds with the function.
3-5 Installing the Service in Linux

Follow the steps below to install the service for the AOC-SLG3-2E4 add-on card in Linux. Download the latest drivers from [ftp://ftp.supermicro.com/driver/NVMe/](ftp://ftp.supermicro.com/driver/NVMe/).

1. Download the file: `AOCSLG32E4_NVMeLEDControl_07232015.rar`.

2. Extract the file and follow the `readme.txt` file to install the service.

3. Run the following command to install the PLX and SMC Drivers:
   ```bash
   ./SetupService.sh
   ```
3-5-1  Testing the NVMe "Eject"

Follow the steps below to install and test the NVMe Eject drive feature. The test displays an LED pattern to provide the status of the NVMe drive.

1. Run the Enclosure GUI feature to install the NVMe Eject feature.

2. Click on "Eject NVMe button" to trigger the corresponding NVMe LED pattern, which will display in the following sequence: Red, Amber, and Green. This sequence shows that the drive is functioning properly.

3. Unplug and hotplug the ejected NVMe drive to trigger the corresponding NVMe LED pattern, which will display in the following sequence: Red, Amber, Green, and Black. This sequence shows that the drive is functioning properly.

3-5-2  Buffer IO Error

In Linux, a buffer IO error may occur when mounting an NVMe volume(s) after NVMe Hot-remove and Hot-add operations. If this error occurs, please use the following workaround:

1. Edit grub file and add "pci=pcie_bus_safe" as a kernel parameter.

2. Reboot.

3-6  Uninstalling the Drivers

To uninstall the drivers in Windows:

1. Select the win2012 folder and then the SETUP folder to uninstall the PLX and SMC Drivers.

To uninstall the drivers in Linux:

1. Run the following command to uninstall the PLX and SMC drivers:

   ./RemoveService.sh
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