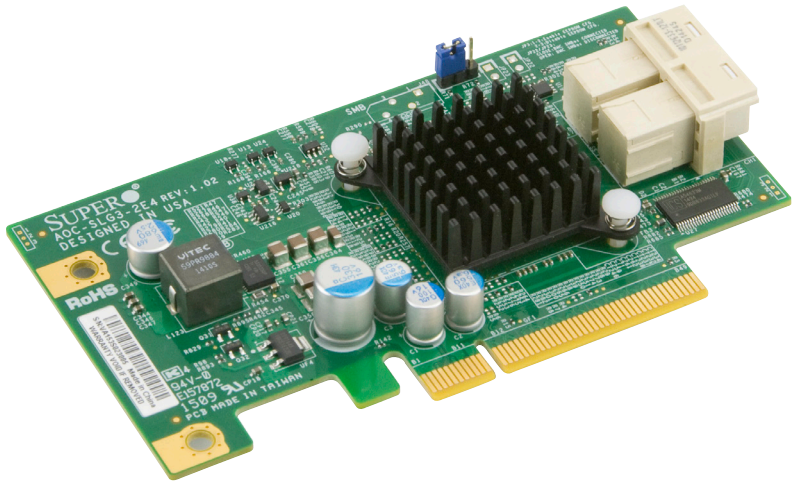
AOC-SLG3-2E4



User's Guide

Revision 1.0c

The information in this User's Guide has been carefully reviewed and is believed to be accurate. The vendor assumes no responsibility for any inaccuracies that may be contained in this document, and makes no commitment to update or to keep current the information in this user's guide, or to notify any person or organization of the updates. **Please Note: For the most up-to-date version of this user's guide, please see our Website at www.supermicro.com.**

Super Micro Computer, Inc. ("Supermicro") reserves the right to make changes to the product described in this user's guide at any time and without notice. This product, including software and documentation, is the property of Supermicro and/or its licensors, and is supplied only under a license. Any use or reproduction of this product is not allowed, except as expressly permitted by the terms of said license.

IN NO EVENT WILL SUPER MICRO COMPUTER, INC. BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, SPECULATIVE OR CONSEQUENTIAL DAMAGES ARISING FROM THE USE OR INABILITY TO USE THIS PRODUCT OR DOCUMENTATION, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN PARTICULAR, SUPER MICRO COMPUTER, INC. SHALL NOT HAVE LIABILITY FOR ANY HARDWARE, SOFTWARE, OR DATA STORED OR USED WITH THE PRODUCT, INCLUDING THE COSTS OF REPAIRING, REPLACING, INTEGRATING, INSTALLING OR RECOVERING SUCH HARDWARE, SOFTWARE, OR DATA.

Any disputes arising between the manufacturer and the customer shall be governed by the laws of Santa Clara County in the State of California, USA. The State of California, County of Santa Clara shall be the exclusive venue for the resolution of any such disputes. Supermicro's total liability for all claims will not exceed the price paid for the hardware product.

FCC Statement: This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause harmful interference with radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

California Best Management Practices Regulations for Perchlorate Materials: This Perchlorate warning applies only to products containing CR (Manganese Dioxide) Lithium coin cells. "Perchlorate Material-special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate".

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.

User's Guide Revision 1.0c

Release Date: May 24, 2016

Printed in the United States of America

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.

Contacting Supermicro

Headquarters

Address:	Super Micro Computer, Inc. 980 Rock Ave. San Jose, CA 95131 U.S.A.
Tel:	+1 (408) 503-8000
Fax:	+1 (408) 503-8008
Email:	marketing@supermicro.com (General Information) support@supermicro.com (Technical Support)
Website:	www.supermicro.com

Europe

Address:	Super Micro Computer B.V. Het Sterrenbeeld 28, 5215 ML 's-Hertogenbosch, The Netherlands
Tel:	+31 (0) 73-6400390
Fax:	+31 (0) 73-6416525
Email:	sales@supermicro.nl (General Information) support@supermicro.nl (Technical Support) rma@supermicro.nl (Customer Support)
Website:	www.supermicro.nl

Asia-Pacific

Address:	Super Micro Computer, Inc. 3F, No. 150, Jian 1st Rd. Zhonghe Dist., New Taipei City 235 Taiwan (R.O.C)
Tel:	+886-(2) 8226-3990
Fax:	+886-(2) 8226-3992
Email:	support@supermicro.com.tw
Website:	www.supermicro.com.tw

Table of Contents

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

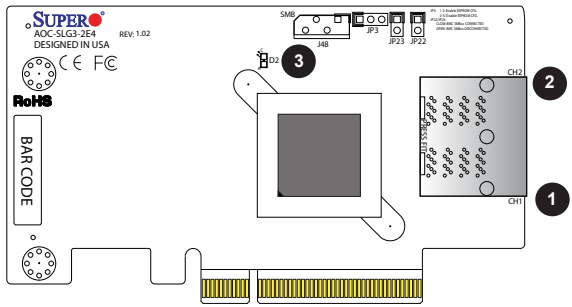
- Card PCB dimensions: 2.7" x 4.7" (H x L)

Chapter 2

Hardware Components

2-1 Add-On Card Layout and Components

AOC-SLG3-2E4 Image



AOC-SLG3-2E4 Layout

2-2 Major Components

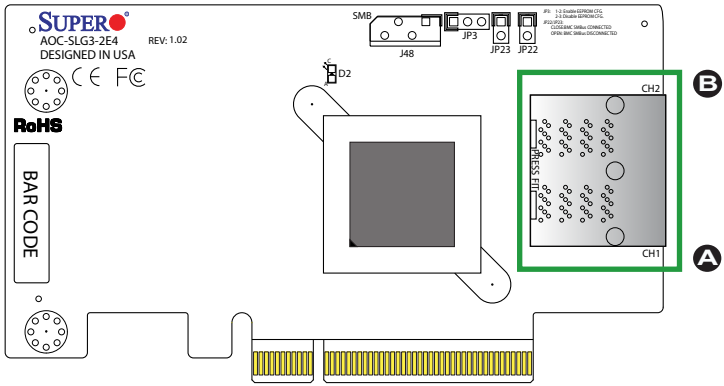
The following major components are on the AOC-SLG3-2E4:

1. miniSAS HD Connector 1
2. miniSAS HD Connector 2
3. Fatal Error LED

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.



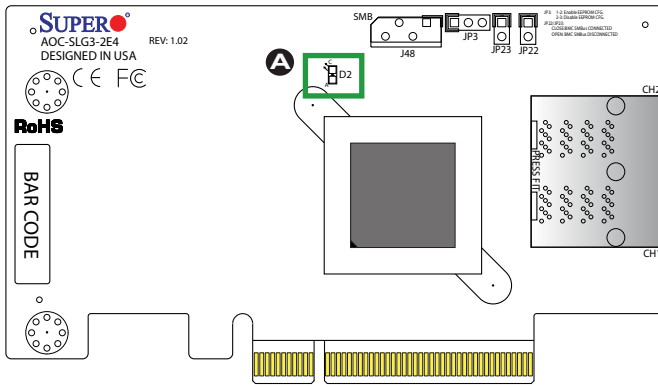
A. miniSAS Connector 1

B. miniSAS Connector 2

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.

Fatal Error LED Status	
Color	Status
Red	Fatal Error



A. Fatal Error LED

NVMe Backplane Blinking Pattern

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

NVMe Backplane Blinking Pattern definition

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

Chapter 3

Installation

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

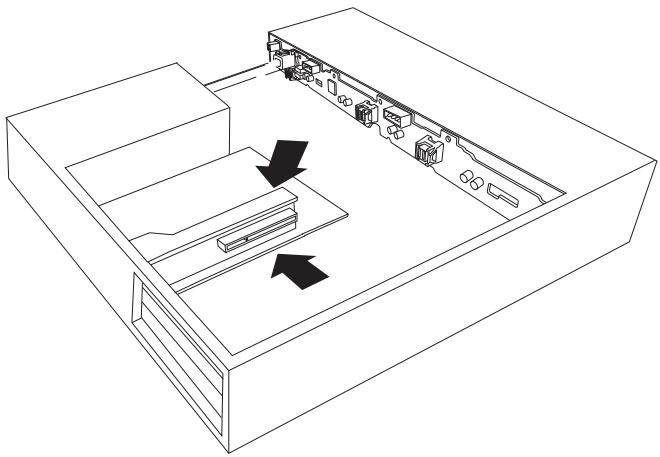
The following items are needed to complete the installation:

- 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:

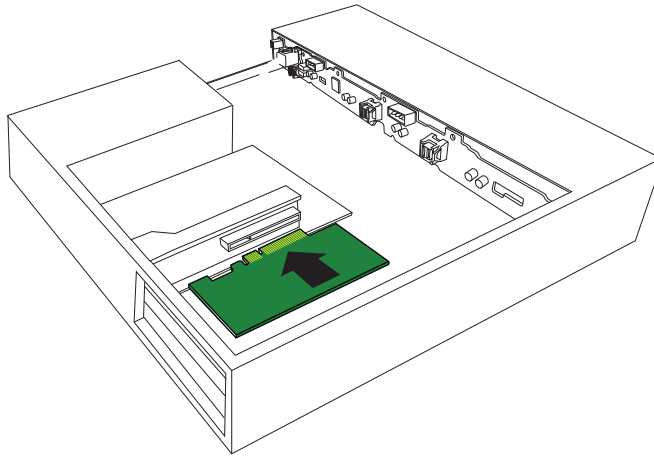
1. Remove the system cover.

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

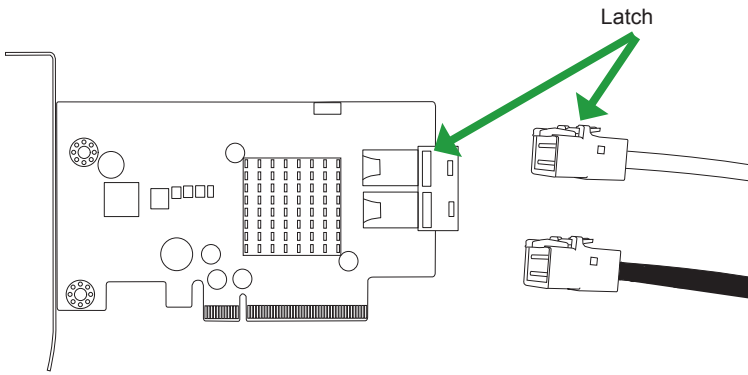


Note: Your card and motherboard may or may not look exactly the same as the graphics shown.

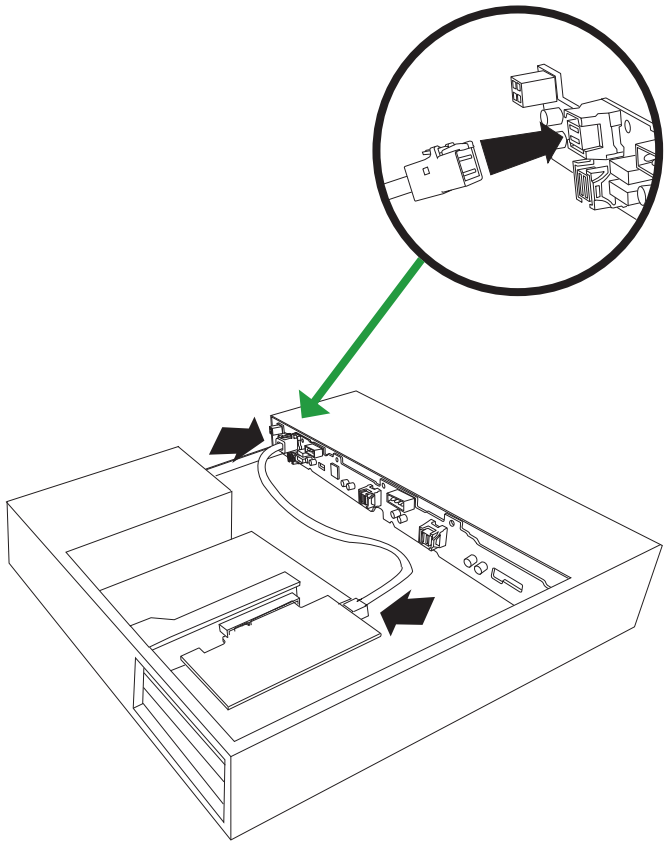
3. Insert the AOC-SLG3-2E4 add-on card into the slot on the riser card.



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.

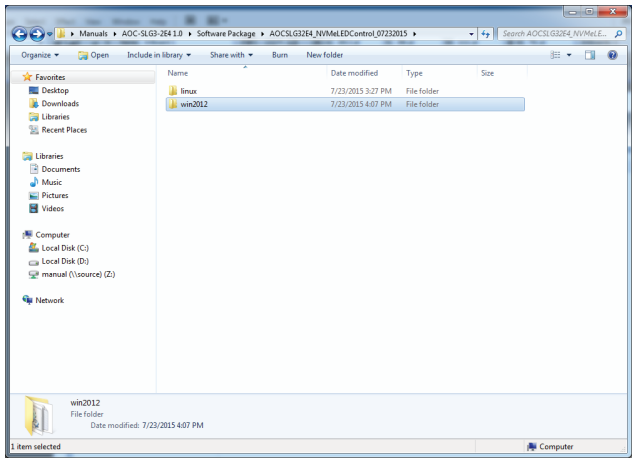
7. Replace the system cover, plug in the power cord and power up the system.

3-4 Installing the Drivers in Windows

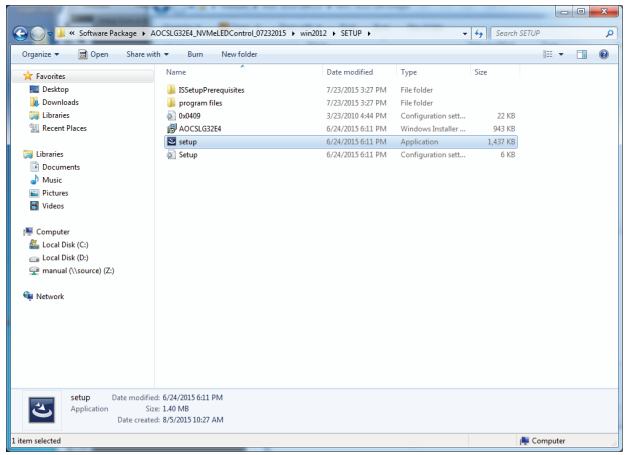
Follow the steps below to install the drivers for Windows. Download the latest drivers from the Supermicro project board at ftp://ftp.supermicro.com/driver/NVMe/.

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.

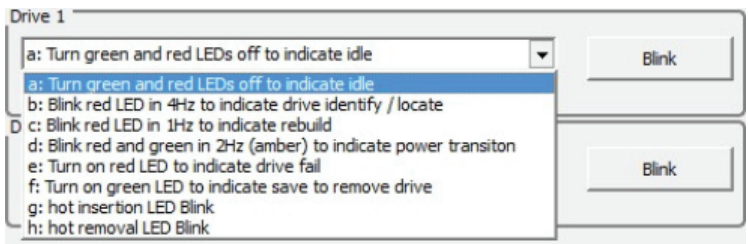
3. Unplug and hotplug the ejected NVMe drive to trigger the corresponding NVMe LED pattern, which will display in the following sequence: Red, Amber, Green, and Black. This sequence shows that the drive is functioning properly.

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.

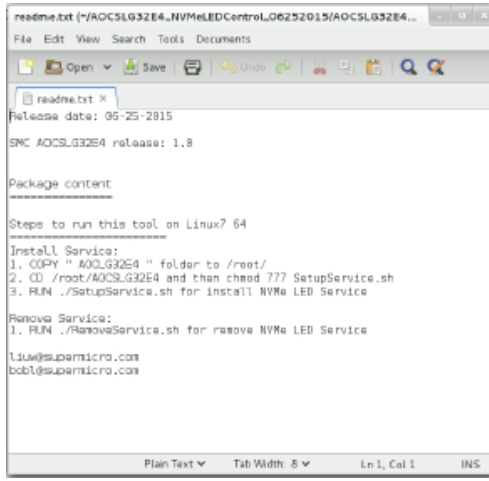


3-5 Installing the Service in Linux

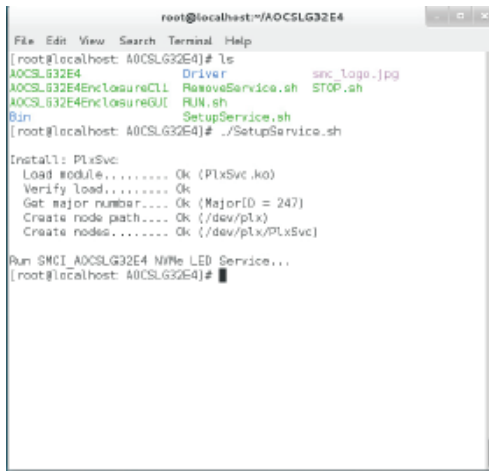
Follow the steps below to install the service fo the AOC-SLG3-2E4 add-on card in Linux. Download the latest drivers from ftp://ftp.supermicro.com/driver/NVMe/.

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:
   `./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 unistall the drviers in Linux:

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

```
./RemoveService.sh
```

(Disclaimer Continued)

The products sold by Supermicro are not intended for and will not be used in life support systems, medical equipment, nuclear facilities or systems, aircraft, aircraft devices, aircraft/emergency communication devices or other critical systems whose failure to perform be reasonably expected to result in significant injury or loss of life or catastrophic property damage. Accordingly, Supermicro disclaims any and all liability, and should buyer use or sell such products for use in such ultra-hazardous applications, it does so entirely at its own risk. Furthermore, buyer agrees to fully indemnify, defend and hold Supermicro harmless for and against any and all claims, demands, actions, litigation, and proceedings of any kind arising out of or related to such ultra-hazardous use or sale.