



AOM-CTG-i2SM-12



User's Guide

Revision 1.0a

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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 AOM-CTG-i2SM-12 package.

About this Adapter Card

The AOM-CTG-i2SM-12 10 Gigabit Ethernet Adapter is the most compact and scalable 10G Ethernet adapter for today's demanding data center environments. Based on the Intel® 10GbE network controller 82599ES, it addresses the demanding needs of the next-generation data center by providing features for virtualization, flexibility for LAN and SAN networking, and proven reliable performance. With NC-SI built-in, this adapter provides connection for both data and remote management to simplify cabling need in a data center. The AOM-CTG-i2SM-12 is designed in a proprietary and small MicroLP form factor to fit Supermicro MicroCloud 12-node system.



Note: AOM-CTG-i2SM-12 consists of the AOM-CTG-i2SM adapter card, the AOM-RSC-E8R riser card, and Drive Kit MCP-240-93913-0N.

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 motherboard 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

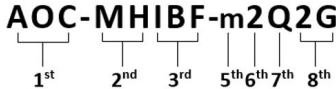
Pay special attention to the following symbols for proper system installation and to prevent damage to the system or injury to yourself:



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



Note: Additional information given to differentiate between various models or provides information for correct system setup.



Character	Representation	Options
1st	Product Family	AOC: Add On Card
2nd	Form Factor	S: Standard, P: Proprietary, C: MicroLP, M: Super IO Module (SIOM), MH: SIOM Hybrid
3rd	Product Type/Speed	G: GbE (1Gb/s), TG: 10GbE (10Gb/s), 25G: 25GbE (25Gb/s), 40G: 40GbE (40Gb/s), 50G: 50GbE (50Gb/s), 100G: 100GbE (100Gb/s), IBE: EDR IB (100Gb/s), IBF: FDR IB (56Gb/s), IBQ: QDR IB (40Gb/s), HFI: Host Fabric Interface
4th	Chipset Model (Optional)	N: Niantec (82599), P: Powerville (i350), S: Sageville (X550), F: Fortville (XL710/X710), L: Lewisburg (PCH), 6: ConnectX-6
5th	Chipset Manufacturer	i: Intel, m: Mellanox, b: Broadcom
6th	Number of Ports	1: 1 port, 2: 2 ports, 4: 4 ports
7th	Connector Type (Optional)	S: SFP+/SFP28, T: 10GBase-T, Q: QSFP+, C: QSFP28
8th	2 nd Controller/Connector Type (Optional)	G: 1x GbE RJ45, 2G: GbE 2x RJ45, S: 1x 10G SFP+, T: 10GBase-T, 2T: 2x 10GBase-T

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Chapter 1


Overview

1-1 Overview

Congratulations on purchasing your adapter 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/info/networking.cfm#adapter>.

1-2 Key Features

The key features of this adapter card include the following:

- Dual 10GbE SFP+ connectors
- MicroLP form factor
- Intel® QuickData Technology
- VMDq and PC-SIG SR-IOV for virtualized environments
- Supports both Direct Attach Copper (DAC) and fiber cables
- RoHS compliant 6/6 
- NC-SI for remote management

1-3 Specifications

General

- Intel® 82599ES 10GbE controller
- MicroLP form factor
- Dual SFP+ ports

- Load balancing on multiple CPUs
- Intel® PROSet Utility for Windows® Device Manager

I/O Features

- Direct Cache Access (DCA) to avoid cache misses
- MSI-X support to minimize the overhead of interrupts, allowing load-balancing between multiple cores/CPU's
- Tx/Rx IP, SCTP, TCP and UDP checksum offloading capabilities (IPv4, IPv6)
- Receiving and transmission of side scaling for Windows environments and scalable I/O for Linux environments

Virtualization Features

- Virtualization support such as VMDq, Next-Generation VMDq (64 queues per port)
- PC-SIG SR-IOV implementation (64 virtual functions per port)
- Advanced packet filtering
- VLAN support to allow creation of multiple VLAN segments
- VXLAN through software

Manageability Features

- Preboot eXecution Environment (PXE) support
- Simple Network Management Protocol (SNMP) and Remote Network Monitoring (RMON) statistics counters
- iSCSI remote boot
- NC-SI for remote management
- Asset Management support on Supermicro® platforms

- Controller asset tags such as part number, revision, serial number and MAC addresses

Advanced Software Features

- Teaming support
- IEEE 802.3ad (link aggregation control protocol)
- IEEE 802.1Q VLANs
- IEEE 802.3 2005 flow control support

OS Support

- Windows Server
- Windows
- RedHat Linux
- SUSE Linux
- FreeBSD
- UEFI
- VMware

Cables Support

- SFP+ Direct Attach Copper cables
- Fiber-optic cables (with required optional SFP+ transceivers)

Power Consumption

- Maximum power consumption: 7W

Operating Conditions

- Storage temperature: -40°C to 70°C (-40°F to 158°F)
- Storage humidity: 90% non-condensing relative humidity at 35°C

Physical Dimensions

- Card PCB dimensions: 113mm (4.45in) x 49mm (1.93in) (L x W)

Supported Platforms

- 5039MC-H12TRF (X11SCE-F)
- 5039MS-H12TRF (X11SSE-F)

1-4 Parts List

Adapter Card	Part Number	Description
Adapter Card	AOM-CTG-i2SM	MicroLP 2-Port 10GbE SFP+ adapter
Riser Card	AOM-RSC-E8R	MicroLP Riser Card for MicroCloud 12-node
Bracket	MCP-240-93913-0N	MicroLP bracket for MicroCloud 12-node

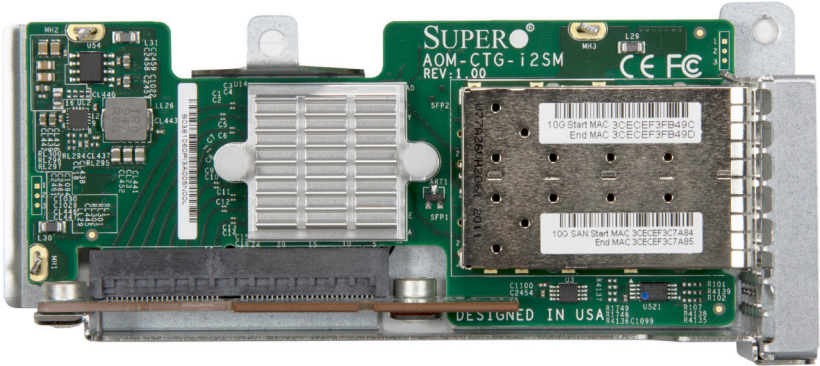


Note: This product is sold only as part of an integrated solution with Supermicro server systems.

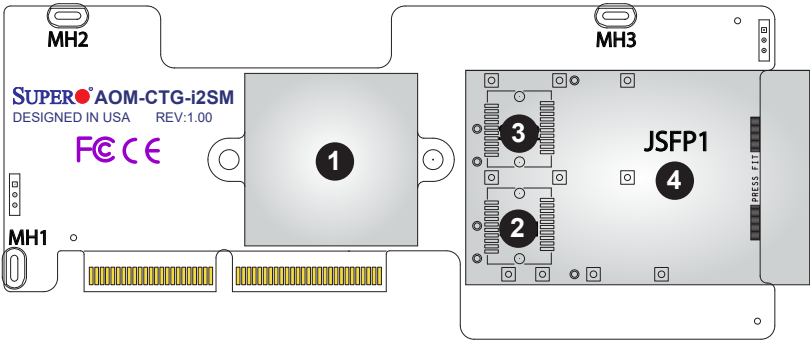
Chapter 2

Hardware Components

2-1 Adapter Card Image and Layout



AOM-CTG-i2SM-12 Image



AOM-CTG-i2SM-12 Layout

2-2 Major Components

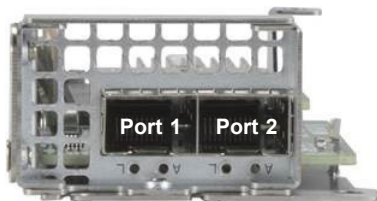
The following major components are installed on the AOM-CTG-i2SM-12.

AOM-CTG-i2SM-12 Major Components		
No	Component Name	Definition
1	Intel® 82599ES	Ethernet 10GbE controller
2	JSFP1	Connector Cage
3	SFP1	Connector Port 1
4	SFP2	Connector Port 2

2-3 Connectors

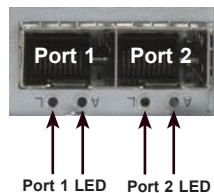
SFP+ Ports

The two SFP+ 10GbE adapter ports are located on the adapter card. Connect a Direct Attach Copper cable or an LC Fiber-Optic cable to the ports to provide Gigabit Ethernet communication. Refer to the adapter card layout on Page 2-2 for the location of the SFP+ ports.



SFP+ Port LEDs

There are four LEDs located below the dual SFP ports to indicate the link speed and activity of each. The LED marked with "L" represents the link speed LED, while the LED marked with "A" represents the activity LED. A 10GbE connection is indicated by a solid or blinking green LED. A 1GbE connection is indicated by a solid or blinking yellow LED. See the table at right for more information.



SFP+ Port LEDs		
LED	Color	Definition
Activity	Blinking Green	10GbE
Link	Solid Green	10GbE Speed
	Solid Yellow	1GbE Speed

Chapter 3

Installation

3-1 Static-Sensitive Devices

Electrostatic Discharge (ESD) can damage electronic components. To avoid damaging your adapter 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 adapter card from the antistatic bag.
- Handle the adapter card by its edges only; do not touch its components or peripheral chips.
- Put the adapter 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 adapter card.

Unpacking

The adapter card is shipped in antistatic packaging to avoid static damage. When unpacking your component or your system, make sure that 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 adapter card properly, be sure to follow the instructions below.

1. Power down the system.
2. Remove the power cord from the wall socket.
3. Use industry-standard anti-static equipment (such as gloves or wrist strap) and follow the instructions listed on Page 3-1 to avoid damage caused by ESD.
4. Familiarize yourself with the server, motherboard, and/or chassis documentation.
5. Confirm that your operating system includes the latest updates and hotfixes.

3-3 Installing the Adapter Card

Follow the steps below to install the adapter card into your system.

1. Remove the server cover and, if necessary, set aside any screws for later use.
2. Remove the adapter card slot cover. If the case requires a screw, place the screw aside for later use.
3. Position the adapter card in the slot directly over the connector, and gently push down on both sides of the card until it slides into the PCI connector.
4. Secure the adapter card to the chassis. If required, use the screw that you previously removed.
5. Attach any necessary external cables to the adapter card.
6. Replace the chassis cover.
7. Plug the power cord into the wall socket.
8. Power up the system.

3-4 Installing Drivers on Windows

Follow the steps below to install the drivers for Windows. Download the drivers from the Supermicro FTP site at ftp://ftp.supermicro.com/Networking_Drivers/.

1. Run the CDR-NIC.
2. When the SUPERMICRO window appears, click on the computer icon next to the product model.



Note: If the *FOUND NEW HARDWARE WIZARD* screen displays on your system, click CANCEL.

3. Click on **INSTALL DRIVERS AND SOFTWARE**.
4. Follow the prompts to complete the installation.

3-5 Installing Drivers on Linux

Follow the steps below to install the driver to a Linux system.

1. Download the driver from the Supermicro CDR-NIC LAN driver CD, the Intel Support website that contains the latest driver, or go to the Supermicro site at:

ftp://ftp.supermicro.com/Networking_Drivers/CDR-NIC_1.62_for_Adapter_NIC_Cards/Intel/. Go to the following directory LAN/PROXGB/LINUX

2. Choose the desired Intel driver package file from LAN/PROXGB/LINUX.
3. Copy the driver to the directory of your choice. For example:

```
/home/username/ixgbe
```

or

```
/usr/local/src/ixgbe
```

4. Untar/unzip archive, where <x.x.x> is the version number for the driver tar file:

```
tar xzf ixgbe-x.x.x.tar.gz
```

5. Change to the driver src directory, where <x.x.x> is the version number for the driver tar:

```
cd ixgbe-x.x.x/src/  
make install
```

This is the process to install the Linux driver to your system. For more driver installation information, please refer to the Intel Support website.

(Disclaimer Continued)

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