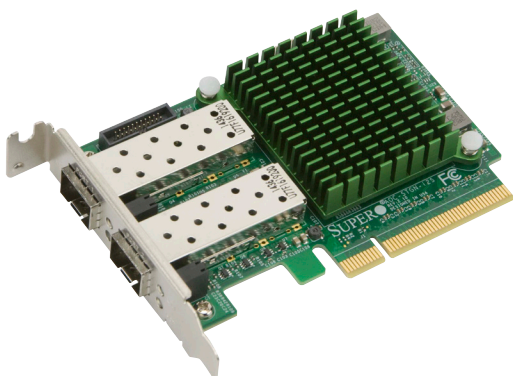




AOC-STGN-i1S



AOC-STGN-i2S



User's Guide

Revision 1.1

---

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](http://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](http://www.dtsc.ca.gov/hazardouswaste/perchlorate)".

---



**WARNING:** This product can expose you to chemicals including lead, known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

User's Guide Revision 1.1

Release Date: November 8, 2019

Unless you request and receive written permission from Super Micro Computer, Inc., you may not copy any part of this document.

Information in this document is subject to change without notice. Other products and companies referred to herein are trademarks or registered trademarks of their respective companies or mark holders.

Copyright © 2019 by Super Micro Computer, Inc.

All rights reserved.

**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-STGN-i1S/-i2S add-on module.

### About this Add-on Module

The AOC-STGN-i1S/-i2S 10-Gigabit Ethernet Adapter is the most flexible and scalable Ethernet adapter for today's demanding data center environments. Based on the Intel® 10GbE network controller 82599, the AOC-STGN-i1S/-i2S meets the demanding needs of the next-generation data center by providing features for virtualization, flexibility for LAN and SAN networking, and proven reliable performance.

### 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/>).


The manufacturer 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.

## Naming Convention for Standard Network Adaptors

**AOC-STGN-i2S**

1   -2   3   4 - 5 6 7

Character	Representation	Options
1st	Product Family	AOC: Add On Card
2nd	Form Factor	S: Standard, P: Proprietary, C: MicroLP, U: UIO
3rd	Product Type/Speed	G: GbE (1Gb/s), TG: 10GbE (10Gb/s), 40G: 40GbE (40Gb/s), IBF: FDR IB (56Gb/s), IBQ: QDR IB (40Gb/s)
4th	Chipset Model (Optional)	N: Niantec (82599), P: Powerville (i350), S: Sageville (X550)
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+, T: 10GBase-T, Q: QSFP+

## Networking Adapter List

Model	Type	Form Factor	Controller	Connection	Dimension (w/o Brackets) (L x H)	Power (W)
AOC-MGP-i2	GbE	SIOM	Intel® i350 AM2	2 RJ45 (1Gb/port)	3.622" (92mm) x 3.428" (87.08mm)	3.7
AOC-MGP-i4	GbE	SIOM	Intel® i350 AM4	4 RJ45 (1Gb/port)	3.622" (92mm) x 3.428" (87.08mm)	4.4
AOC-MTGN-i2S	10GbE	SIOM	Intel® 82599ES	2 SFP+ (10Gb/port)	3.622" (92mm) x 3.428" (87.08mm)	7.2
AOC-MTG-i4S	10GbE	SIOM	Intel® XL710-BM1	4 SFP+ (10Gb/port)	3.622" (92mm) x 3.428" (87.08mm)	7
AOC-MTG-b2T	10GbE	SIOM	Broadcom® BCM57416	2 RJ45 (10GBase-T)	3.622" (92mm) x 3.428" (87.08mm)	11
AOC-MTG-i2T	10GbE	SIOM	Intel® X550-A12	2 RJ45 (10GBase-T)	3.622" (92mm) x 3.428" (87.08mm)	13
AOC-MTG-i4T	10GbE	SIOM	2x Intel® X550-A12	4 RJ45 (10GBase-T)	3.622" (92mm) x 3.428" (87.08mm)	26
AOC-MHIBF-m1Q2G	FDR IB GbE	SIOM	Mellanox® ConnectX-3 Pro Intel® i350	1 QSFP (56Gb/port) 2 RJ45 (1Gb/port)	3.622" (92mm) x 3.428" (87.08mm)	9
AOC-MHIBF-m2Q2G	FDR IB GbE	SIOM	Mellanox® ConnectX-3 Pro Intel® i350	2 QSFP (56Gb/port) 2 RJ45 (1Gb/port)	3.622" (92mm) x 3.428" (87.08mm)	11
AOC-MHIBE-m1CG	EDR IB GbE	SIOM	Mellanox® ConnectX-4 VPI Intel® i210	1 QSFP28 (100Gb/port) 1 RJ45 (1Gb/port)	3.622" (92mm) x 3.428" (87.08mm)	19
AOC-MH25G-b2S2G	25GbE	SIOM	Broadcom® BCM57414 Intel® i350	2 SFP28 (25Gb/port) 2 RJ45 (1Gb/port)	3.622" (92mm) x 3.428" (87.08mm)	9
AOC-MH25G-m2S2T	25GbE	SIOM	Mellanox® ConnectX-4 Lx EN Intel® X550-A12	2 SFP28 (25Gb/port) 2 RJ45 (10GBase-T)	3.622" (92mm) x 3.428" (87.08mm)	26
AOC-M25G-m4S	25GbE	SIOM	Mellanox® ConnectX-4 Lx EN	4 SFP28 (25Gb/port)	3.622" (92mm) x 3.428" (87.08mm)	20
AOC-M25G-i2S	25GbE	SIOM	Intel® XXV710	2 SFP28 (25Gb/port)	3.622" (92mm) x 3.428" (87.08mm)	11.8
AOC-MHFI-i1C	Omni- Path	SIOM	Intel® OP HFI A SiC (Wolf River WFR-B)	1 QSFP28 (100Gb/port)	3.622" (92mm) x 3.428" (87.08mm)	16

Model	Type	Form Factor	Interface	Controller	Connection	Dimension (w/o Brackets) (L x H)	Power (W)
AOC-SGP-i2	GbE	Standard LP	PCI-E x4	Intel® i350 AM2	2 RJ45 (1Gb/port)	3.9" (99mm) x 2.73" (69mm)	3.5
AOC-SGP-i4	GbE	Standard LP	PCI-E x4	Intel® i350 AM4	4 RJ45 (1Gb/port)	3.9" (99mm) x 2.73" (69mm)	5
AOC-STG-i2T	10GbE	Standard LP	PCI-E x8	Intel® X540-AT2	2 RJ45 (10GBase-T)	5.9" (150mm) x 2.73" (69mm)	13
AOC-STG-S-i1T	10GbE	Standard LP	PCI-E x4	Intel® X550-AT	1 RJ45 (10GBase-T)	5.9" (150mm) x 2.73" (69mm)	9
AOC-STG-S-i2T	10GbE	Standard LP	PCI-E x4	Intel® X550-AT2	2 RJ45 (10GBase-T)	5.9" (150mm) x 2.73" (69mm)	11
AOC-STG-b2T	10GbE	Standard LP	PCI-E x8	Broadcom® BCM57416	2 RJ45 (10GBase-T)	5.6" (142mm) x 2.73" (69mm)	13.1
AOC-STG-i4T	10GbE	Standard LP	PCI-E x8	Intel® XL710-BM1	4 RJ45 (10GBase-T)	5.9" (149mm) x 2.73" (69mm)	15.5
AOC-STG-i1S	10GbE	Standard LP	PCI-E x8	Intel® 82599EN	1 SFP+ (10Gb/port)	4.0" (102mm) x 2.73" (69mm)	10
AOC-STG-i2S	10GbE	Standard LP	PCI-E x8	Intel® 82599ES	2 SFP+ (10Gb/port)	4.0" (102mm) x 2.73" (69mm)	11.2
AOC-STGF-i2S	10GbE	Standard LP	PCI-E x8	Intel® X710-BM2	2 SFP+ (10Gb/port)	5.19" (132mm) x 2.73" (69mm)	5.6
AOC-STG-b4S	10GbE	Standard LP	PCI-E x8	Broadcom® BCM57840S	4 SFP+ (10Gb/port)	5.4" (137mm) x 2.73" (69mm)	14
AOC-STG-i4S	10GbE	Standard LP	PCI-E x8	Intel® XL710-BM1	4 SFP+ (10Gb/port)	5.9" (150mm) x 2.73" (69mm)	8
AOC-S25G-m2S	25GbE	Standard LP	PCI-E x8	Mellanox® CX-4 LX	2 SFP28 (25Gb/port)	5.6" (142mm) x 2.713" (69mm)	8.7
AOC-S25G-b2S	25GbE	Standard LP	PCI-E x8	Broadcom® BCM57414	2 SFP28 (25Gb/port)	5.6" (142mm) x 2.713" (69mm)	5.2
AOC-S25G-i2S	25GbE	Standard LP	PCI-E x8	Intel® XXV710	2 SFP28 (25Gb/port)	6.1" (155mm) x 2.713" (69mm)	7.2
AOC-S40G-i1Q	40GbE	Standard LP	PCI-E x8	Intel® XL710-BM1	1 QSFP+ (40Gb/port)	5.9" (150mm) x 2.73" (69mm)	6.5
AOC-S40G-i2Q	40GbE	Standard LP	PCI-E x8	Intel® XL710-BM2	2 QSFP+ (40Gb/port)	5.9" (150mm) x 2.73" (69mm)	7
AOC-S100G-m2C	100GbE	Standard LP	PCI-E x16	Mellanox® CX-4 EN	2 QSFP28 (100Gb/port)	6.6" (168mm) x 2.73" (69mm)	16.3
AOC-S100G-b1C	100GbE	Standard LP	PCI-E x16	Broadcom® BCM57454	2 QSFP28 (100Gb/port)	6.6" (168mm) x 2.73" (69mm)	17.8
AOC-CGP-i2	GbE	MicroLP	PCI-E x4	Intel® i350 AM2	2 RJ45 (1Gb/port)	4.45" (113mm) x 1.54" (39mm)	4
AOC-CTG-i1S	10GbE	MicroLP	PCI-E x8	Intel® 82599EN	1 SFP+ (10Gb/port)	4.85" (123mm) x 1.54" (39mm)	10
AOC-CTG-i2S	10GbE	MicroLP	PCI-E x8	Intel® 82599ES	2 SFP+ (10Gb/port)	4.85" (123mm) x 1.54" (39mm)	11
AOC-CTG-i2T	10GbE	MicroLP	PCI-E x8	Intel® X540-AT2	2 RJ45 (10GBase-T)	4.8" (123mm) x 2.75" (77mm)	13
AOC-CTG-S-i2T	10GbE	MicroLP	PCI-E x4	Intel® X550-AT2	2 RJ45 (10GBase-T)	4.45" (113mm) x 1.54" (39mm)	12
AOC-C25G-m1S	25GbE	MicroLP	PCI-E x8	Mellanox® CX-4 Lx EN	1 SFP28 (28Gb/port)	4.45" (113mm) x 1.54" (39mm)	8.5

## 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](mailto:marketing@supermicro.com) (General Information)  
[support@supermicro.com](mailto:support@supermicro.com) (Technical Support)

Website: [www.supermicro.com](http://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](mailto:sales@supermicro.nl) (General Information)  
[support@supermicro.nl](mailto:support@supermicro.nl) (Technical Support)  
[rma@supermicro.nl](mailto:rma@supermicro.nl) (Customer Support)

Website: [www.supermicro.nl](http://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](mailto:support@supermicro.com.tw)

Website: [www.supermicro.com.tw](http://www.supermicro.com.tw)

# Table of Contents

## ***Preface***

### ***Chapter 1 Overview***

1-1	Overview .....	1-1
1-2	Product Highlights .....	1-1
1-3	Technical Specifications .....	1-2
	General .....	1-2
	I/O Features .....	1-2
	Virtualization Features .....	1-2
	Manageability Features .....	1-3
	OS Support .....	1-3
	Cable Support .....	1-4
	Operation Conditions .....	1-4
	Physical Dimensions .....	1-4
	Optional Accessories .....	1-4
	Compliance/Environmental .....	1-5
1-4	SMC Platform Support .....	1-5

### ***Chapter 2 Hardware Components***

2-1	Add-On Card Image and Layout .....	2-1
2-2	Major Components .....	2-3
2-3	Connectors and LAN LED Indicators .....	2-4
	LAN Ports .....	2-4
	LAN LED .....	2-4
	NC-SI Connector .....	2-5

### ***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 Add-on Card .....	3-2
3-4	Installing Drivers on Windows .....	3-3
3-5	Installing Drivers on Linux .....	3-3
	Build a Binary RPM Package .....	3-3
3-6	Installing Drivers on FreeBSD .....	3-5

# 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/nfo/networking.cfm#adapter>.

### 1-2 Product Highlights

The product highlights of this add-on card include the following:

- Single/Dual SFP+ Connector
- Standard Low-profile
- PCI Express 2.0 (up to 5GT/s)
- Intel® QuickData Technology
- VMDq, Next-Generation VMDq, and PC-SIG SR-IOV for Virtualized Environments
- Load Balancing on Multiple CPUs
- iSCSI Remote Boot Support
- Fibre Channel over Ethernet (FCoE) Support
- Support for most Network Operating Systems (NOSs)
- Support both DAC Twin Axial and LC Fiber-Optic Cables
- Network Controller Sideband Interface (NC-SI) (Rev. 2.10 or newer)
- RoHS compliant 6/6 



## 1-3 Technical Specifications

### General

- Intel® 82599EN 10GbE controller (AOC-STGN-i1S) / Intel 82599ES 10GbE controller (AOC-STGN-i2S)
- Standard low-profile form factor
- Single SFP+ port (AOC-STGN-i1S)
- Dual SFP+ ports (AOC-STGN-i2S)
- PCI-E 2.0 x8 (5GT/s)
- Load balancing on multiple CPUs
- iSCSI remote boot support
- Fibre Channel over Ethernet (FCoE) Support
- Intel® PROSet Utility for Windows® Device Manager

### I/O Features

- Intel® QuickData Technology: DMA engine that enhances data acceleration and lowers CPU usage
- 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)
- Receive and Transmit Side Scaling for Windows environments and Scalable I/O for Linux environments

### Virtualization Features

- Supports virtualization features such as VMDq, Next-generation VMDq (64 queues per port) and PC-SIG SR-IOV implementation

- IPv6 Offloading
- 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 (Only supported with Supermicro motherboards with corresponding NC-SI connectors)

## **OS Support**

- Windows® Server 2012 (x64 edition)
- Windows® 8 (x64 edition and 32-bit)
- Windows® Server 2008 R2 (x64 edition and 64-bit)
- Windows® Server 2008 (x64 edition, 64-bit, and 32-bit)
- Windows® 7 (x64 edition and 32-bit)
- Windows® Vista (x64 edition and 32-bit)
- Windows® Server 2003 (x64 edition, 64-bit, and 32-bit)
- VMWare
- RedHat EL, SuSe SLES
- FreeBSD

## **Cable Support**

- SFP+ direct attached twin axial cables, up to 7 meters
- LC-LC fiber-optic cables (optional SFP+ transceiver is required)
- NC-SI cable (included with the motherboard)

## **Operation Conditions**

- Operating temperature: 0°C to 55°C

## **Physical Dimensions**


- Card PCB dimensions (without end brackets): 10.16cm (4.00in) x 6.90cm (2.73in) (LxW)
- Height of end brackets: standard - 12cm (4.725in), low-profile - 7.94cm (3.13in)

## **Optional Accessories**

- CBL-0347L: 1m 10GbE SFP+ to SFP+, Passive 30AWG, Pull Type
- CBL-NTWK-0347: 1m 10GbE SFP+ to SFP+, Passive 30AWG, Push Type
- CBL-NTWK-0456: 2m 10GbE SFP+ to SFP+, Passive 30AWG, Push Type
- CBL-0348L: 3m 10GbE SFP+ to SFP+, Passive 24AWG, Pull Release
- CBL-0349L: 5m 10GbE SFP+ to SFP+, Passive 24AWG, Pull Release
- CBL-SFP+AOC-1M: 1m 10GbE SFP+ to SFP+, Fiber Active Optical Cable (AOC)
- CBL-SFP+AOC-3M: 3m 10GbE SFP+ to SFP+, Fiber Active Optical Cable (AOC)
- CBL-SFP+AOC-5M: 5m 10GbE SFP+ to SFP+, Fiber Active Optical Cable (AOC)
- AOC-E10GSFPSR: SFP+ transceiver module for short range fiber cables (up to 300M), 10G/1G, 850nm, MMF, LC
- AOC-E10GSFPLR: SFP+ transceiver module for long range fiber cables (up to 10km), 10G/1G, 1310nm, MMF, LC

- AOC-TSR-FS: SFP+ transceiver module for short range fiber cables (up to 300m), 10G/1G, 850nm, MMF, LC
- AOM-TSFP-709DMZ-AVG: SFP+ transceiver module for short range fiber cables, 10G/1G, 850nm, MMF, LC

## Compliance/Environmental

- • RoHS Compliant 6/6, Pb Free 

## 1-4 SMC Platform Support

The following platforms are supported by the AOC-STGN-i1S and AOC-STGN-i2S add-on cards:

- Supermicro motherboards with minimum PCI-E x8 slot
- Supermicro servers with full-height or low-profile PCI-E x8 expansion slot
- NC-SI feature is only supported by Supermicro motherboards with corresponding NC-SI connectors



**Note:** This product is intended to be used with Supermicro server systems or motherboards as an integrated solution package.

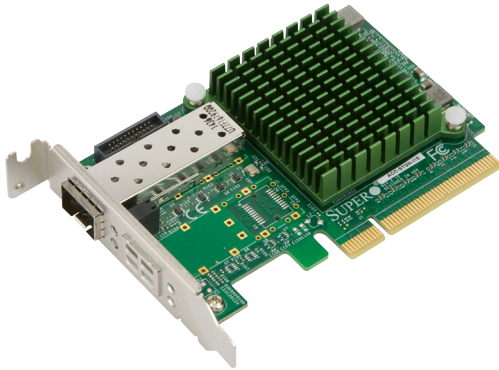
For the most current product information, visit: [www.supermicro.com](http://www.supermicro.com)

**Notes**

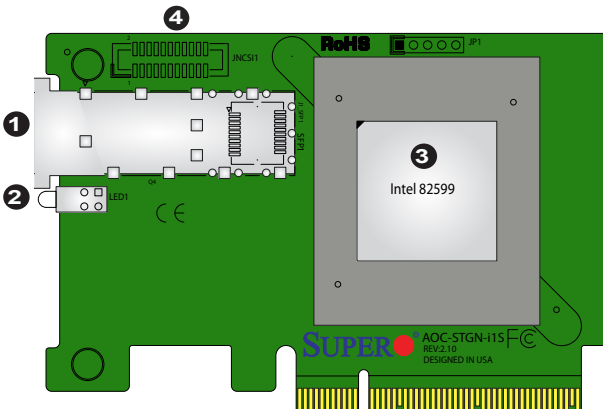
## Chapter 2

### Hardware Components

#### 2-1 Add-On Card Image and Layout

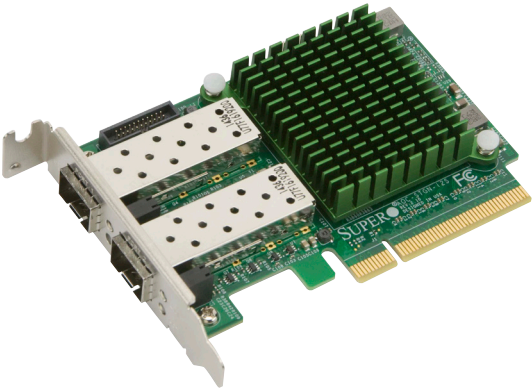


The AOC-STGN-i1S Image

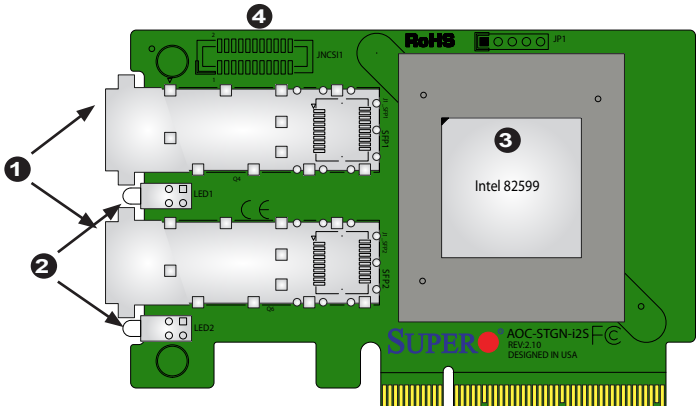


The AOC-STGN-i1S Layout

Components	
Number	Description
1	SFP+ Port
2	LED1
3	Intel 82599 Network Controller
4	NC-SI Connector



The AOC-STGN-i2S Image



The AOC-STGN-i2S Layout

Components	
Number	Description
1	SFP+ Port1 and Port2
2	LED1 and LED2
3	Intel 82599 Network Controller
4	NC-SI Connector

## 2-2 Major Components

The following major components are on the AOC-STGN-i1S and AOC-STGN-i2S:


1. Single SFP+ port (AOC-STGN-i1S), Dual SFP+ ports (AOC-STGN-i2S)
2. LED1 (AOC-STGN-i1S), LED1 and LED2 (AOC-STGN-i2S)
3. Intel® 82599 LAN Controller
4. NC-SI Connector




## 2-3 Connectors and LAN LED Indicators

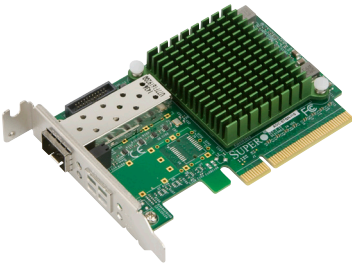
### LAN Ports

The AOC-STGN-i1S has one network LAN (SFP+) port, and the AOC-STGN-i2S has two. These LAN ports support connection speeds of 10Gbps and 1Gbps. Plug the Direct Attached Copper (DAC) cable into the SFP+ port for network connections.

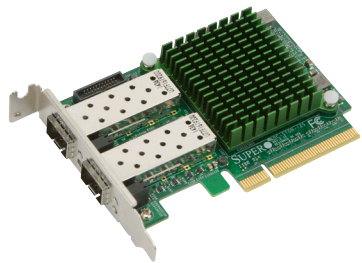
 **Note 1:** To make sure that LAN port functions properly, be sure to use the following cable specified by the manufacturer:

- Direct-attached twin-axial copper cable, or
- Short Range or Long Range fiber optic cable used in conjunction with optional optical transceiver.

 **Note 2:** For detailed information on the cable and transceiver recommended by the manufacturer, please refer to "Optional Accessories" on Page 1-4 or SMC product information posted online.

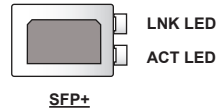


The AOC-STGN-i1S



The AOC-STGN-i2S

LED	Color	Definition
LNK	Green	10Gb Link Speed
	Yellow	1Gb Link Speed
ACT	Blinking Green	Activity



### LAN LED

Each SFP+ connector has two LEDs. The LED on the top indicates link speeds, and the LED on the bottom indicates the status of activity of the connector. See the table above for more information.

## NC-SI Connector

Use the NC-SI connector at JNCSI for remote management. It is only supported with Supermicro motherboards with a corresponding NC-SI connector. The NC-SI cable is included with the motherboard. Refer to the table below for the pin definition. See the layouts on pages 2-1 and 2-2 for the location of the connector.



**Note:** The NC-SI connector is only available on AOC-STGN-i1S and AOC-STGN-i2S rev. 2.10.

NC-SI Connector Pin Definitions			
Pin#	Definition	Pin#	Definition
1	NCSI_CLK_IN	2	GND
3	NCSI_CRS_DV	4	GND
5	NCSI_RXD_0	6	GND
7	NCSI_RXD_1	8	GND
9	NCSI_TXD_0	10	GND
11	NCSI_TXD_1	12	GND
13	NCSI_TX_EN	14	PRESET_N
15	NCSI_ARB_IN	16	NCSI_ARB_OUT
17	P5V_AUX	18	P5V_AUX
19	P5V_AUX	20	P5V_AUX
21	GND	22	TP3

## Notes

## 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 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 add-on 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 precautions 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 Add-on Card

Follow the steps below to install the add-on card into your system.

1. Remove the server cover and, if necessary, set aside any screws for later use.
2. Remove the add-on card slot cover. If the case requires a screw, place the screw aside for later use.
3. Position the add-on 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 add-on card to the chassis. If required, use the screw that you previously removed.
5. Attach any necessary external cables to the add-on card.
6. Replace the chassis cover.
7. Plug the power cord into the wall socket, and power up the system.
8. Replace the chassis cover.

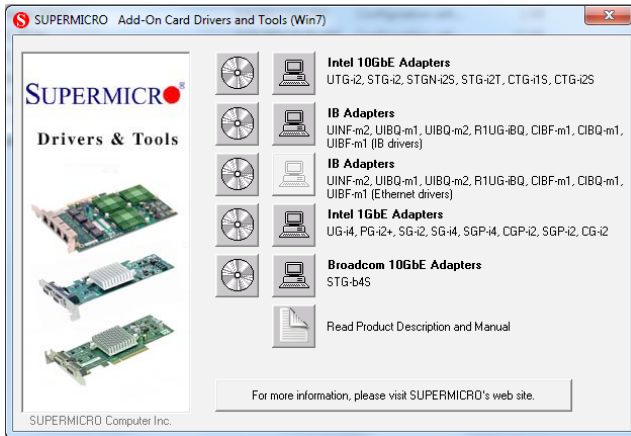


**Note:** This add-on card is designed to support the standard low-profile PCI-Express form factor; however, it may not fit in your chassis due to the physical dimensions of the card.

### 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/](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 for Linux.

#### Build a Binary RPM Package

1. Run `'rpmbuild -tb <filename.tar.gz>'`
2. Replace `<filename.tar.gz>` with the specific filename of the driver.

 **Note:** For the build to work properly, the current running kernel **MUST** match the version and configuration of the installed kernel sources. If you have just recompiled the kernel, reboot the system at this time.

Follow the instructions below to build the driver manually.

1. Move the base driver tar file to the directory of your choice. For example

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

or

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

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

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

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

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

4. Compile the driver module:

```
make install
```

The binary will be installed as:

```
/lib/modules/[KERNEL_VERSION]/kernel/drivers/net/ixgbe/ixgbe.[k]o
```

The install locations listed above are the default locations. They might not be correct for certain Linux distributions. For more information, see the `ldistrib.txt` file included in the driver tar.



**Note:** IXGBE\_NO\_LRO is a compile time flag. The user can enable it at compile time to remove support for LRO from the driver. The flag is used by adding `CFLAGS_EXTRA="-DIXGBE_NO_LRO"` to the make file when it's being compiled.

```
make CFLAGS_EXTRA="-DIXGBE_NO_LRO" install
```

5. Load the module:

For kernel 2.6.x, use the `modprobe` command:

```
modprobe ixgbe <parameter>=<value>
```

For 2.6 kernels, the `insmod` command can be used if the full path to the driver module is specified. For example:

```
insmod /lib/modules/<KERNEL VERSION>/kernel/drivers/net/  
ixgbe/ixgbe.ko
```

In addition, when using 2.6-based kernels, make sure that older ixgbe drivers are removed from the kernel before loading the new module. To do this, use:

```
rmmod ixgbe; modprobe ixgbe
```

6. Assign an IP address to the interface by entering the following, where x is the interface number:

```
ifconfig ethx <IP_address> netmask <netmask>
```

7. Verify that the interface works. Enter the following, where <IP\_address> is the IP address for another machine on the same subnet as the interface that is being tested:

```
ping <IP_address>
```

## 3-6 Installing Drivers on FreeBSD

Follow the instructions below to install the drivers in FreeBSD kernel 4.8 or later. In the instructions below, x.x.x is the driver version as indicated in the name of the drive tar file.



**Note:** You must have kernel sources installed in order to compile the driver module.

1. Move the base driver tar file to the directory of your choice. For example, use `/home/username/ixgb` or `/usr/local/src/ixgb`.
2. Untar/unzip the archive:

```
tar xzf ixgb-x.x.x directory
```

3. To install man page:

```
cd ixgb-x.x.x
```

```
gzip -c ixgb.4 > /usr/share/man/man4/ixgb.4.gz
```

4. To load the driver onto a running system, perform the following steps:

```
cd ixgb-x.x.x
```

```
make
```

or

```
cd ixgb-x.x.x/src
```

```
make load
```



5. To assign an IP address to the interface, enter the following:

```
ifconfig ixgb<interface_num> <IP_address>
```

6. Verify that the interface works. Enter the following, where <IP\_address> is the IP address for another machine on the same subnet as the interface that is being tested:

```
ping <IP_address>
```

7. If you want the driver to load automatically when the system is booted:

```
cd ixgb-x.x.x/src
make load
cp if_ixgb.ko /modules
```

Edit /boot/loader.conf, and add the following line:

```
if_ixgb_load="YES"
```

or

compile the driver into the kernel (see item 8). Edit /etc/rc.conf, and create the appropriate ifconfig\_ixgb<interface\_num> entry:

```
ifconfig_ixgb<interface_num>="<ifconfig_settings>"
```

Example usage:

```
ifconfig_ixgb0="inet 192.168.10.1 netmask 255.255.255.0"
```

8. If you want to compile the driver into the kernel, enter:

```
cd ixgb-x.x.x/src
mkdir /usr/src/sys/dev/ixgb
cp if_ixgb* /usr/src/sys/dev/ixgb
cp ixgb* /usr/src/sys/dev/ixgb
cp Makefile.kernel /usr/src/sys/modules/ixgb/Makefile
```

Edit the /usr/src/sys/conf/files.i386 file, and add the following line:

```
dev/ixgb/ixgb_hw.c optional ixgb
```

```
dev/ixgb/ixgb_ee.c optional ixgb
```

```
dev/ixgb/if_ixgb.c optional ixgb
```

Remove the following lines from the `/usr/src/sys/conf/files.i386` file, if they exist:

```
/dev/ixgb/if_ixgb_fx_hw.c optional ixgb
```

```
/dev/ixgb/if_ixgb_phy.c optional ixgb
```

Edit the kernel configuration file (i.e., `GENERIC` or `MYKERNEL`) in `/usr/src/sys/i386/conf`, and ensure the following line is present:

```
device ixgb
```

Compile and install the kernel. Reboot the system for the kernel updates to take affect.

**Notes**

(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.