

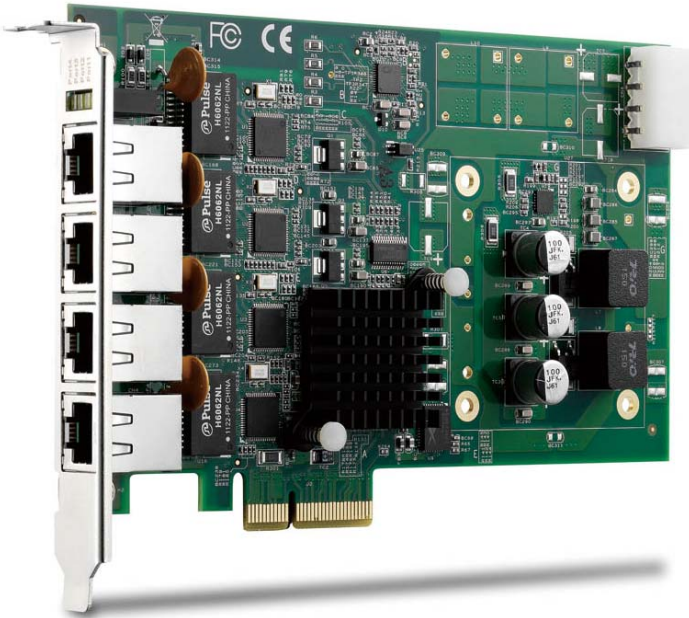


**ADLINK**  
TECHNOLOGY INC.

# GIE64+

4-CH PoE GigE Vision Interface Card

## User's Manual



**Manual Rev.:** 2.00  
**Revision Date:** Feb. 24, 2012  
**Part No.:** 50-11245-1000



Recycled Paper

**Advance Technologies; Automate the World.**

# Revision History

Revision	Release Date	Description of Change(s)
2.00	Feb. 24, 2012	Initial release

# Preface

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The information in this document is subject to change without prior notice in order to improve reliability, design, and function and does not represent a commitment on the part of the manufacturer.

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## **Environmental Responsibility**

ADLINK is committed to fulfill its social responsibility to global environmental preservation through compliance with the European Union's Restriction of Hazardous Substances (RoHS) directive and Waste Electrical and Electronic Equipment (WEEE) directive. Environmental protection is a top priority for ADLINK. We have enforced measures to ensure that our products, manufacturing processes, components, and raw materials have as little impact on the environment as possible. When products are at their end of life, our customers are encouraged to dispose of them in accordance with the product disposal and/or recovery programs prescribed by their nation or company.

## **Trademarks**

Product names mentioned herein are used for identification purposes only and may be trademarks and/or registered trademarks of their respective companies.

## Conventions

Take note of the following conventions used throughout this manual to make sure that users perform certain tasks and instructions properly.



NOTE:

Additional information, aids, and tips that help users perform tasks.

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Information to prevent **minor** physical injury, component damage, data loss, and/or program corruption when trying to complete a task.

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Information to prevent **serious** physical injury, component damage, data loss, and/or program corruption when trying to complete a specific task.

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# 1 Introduction

## 1.1 Overview

ADLINK's GIE64+ is a PCI Express® x4 lane, PoE (Power over Ethernet) frame grabber with support for four independent Gigabit Ethernet ports. Multiple Gigabit Ethernet Vision device connections are supported for standard Gigabit Ethernet Vision data transfer rates of up to 1000 Mb/s.

The GIE64+ features not only PoE, combining power supply and signal into a single cable, but also IEEE 1588 (precise time protocol), enabling synchronization with multi-camera acquisition.

The ADLINK GIE64+ also supports the Link aggregation control protocol, offering inexpensive setup of a double-speed backbone network for data transfers significantly exceeding those of a single Gigabit Ethernet port or device.

## 1.2 Features

- ▶ IEEE802.3af (48 V, 15.4 W per channel) compliant, supporting classes 0, 1, 2, 3, 4
- ▶ Powered Device (PD) auto-detection and classification
- ▶ Support for four independent GbE ports
- ▶ Support for Link aggregation
- ▶ Support for jumbo frames (9.5 kBytes)
- ▶ IEEE 1588 compliant, supporting multi-camera synchronization
- ▶ Inrush current, current limit, and short-circuit protection
- ▶ PCI Express x4 compliant

## 1.3 Applications

The GIE64+ is ideally suited to frame grab functions in a wide variety of applications, including:

- ▶ Machine Vision Inspection systems
- ▶ Scientific research instrumentation
- ▶ Medical research instrumentation

## **1.4 Specifications**

### **1.4.1 Power over Ethernet Port**

The GIE64+ Power over Ethernet specification supports

- ▶ Four fully-integrated Gigabit Ethernet Media Access Control (MAC) and physical layer (PHY) ports
- ▶ Full controller compliance with IEEE 802.3.af standard for maximum 15.4 watts, with power up to 48 V over existing CAT-5 Ethernet infrastructure, with no modifications required
- ▶ Standard IEEE 802.3 Ethernet interface provided for 1000BASE-T, 100BASE-TX, and 10BASE-T applications (802.3, 802.3u, and 802.3ab)
- ▶ 9 kB jumbo frame support

## 1.4.2 General Specifications

Function	Description
Power Requirements	<ul style="list-style-type: none"> <li>▶ Input voltage: 12 VDC, (w/ PC system power)</li> <li>▶ Input current: Max. 6 A @ 12 VDC (supporting up to 4 ports at 15.4 W per PoE port)</li> </ul>
<b>PCI Express</b>	
PCIe X4 ports	1 port PCIe X4, for GigE Vision
Differential Output Peak to Peak Voltage	+0.8 V to +1.2 V
Differential Input Peak to Peak Voltage	+0.175 V to +1.2 V
Input voltage for PERST#, WAKE#, and SMBus	-0.75 V to +4.05 V
<b>Gigabit Ethernet</b>	
LAN chip	Intel® 82574L, PCIe v1.1 (2.5GT/s)
Gigabit Ethernet Ports	4
<b>PoE Signal</b>	
Max Output Power	15.4 W per channel, IEEE 802.3af compliant
VPORT_POSx	44 to 55 V, PoE port positive voltage feed
<b>Isolation +12V to +48V DC/DC Converter (Optional)</b>	
Output Current	Max 1.6 A (full load)
Power Supply	Max 75 W
Isolation Voltage	Min 2250 VDC (input to output)
<b>Physical</b>	
Dimensions	168 W x 111.15 L mm (6.61 X 4.38 in.)
Operating Temperature	0° C to 55° C
Storage Temperature	-40° C to 85° C
Safety Compliance	CE/FCC Class A; RoHS



- ▶ Always disconnect the power cord from the chassis when working on the device, and do not reconnect while the power switch is on, since sudden power input can damage sensitive electronic components
- ▶ Only authorized and experienced electronics personnel should open the chassis
- ▶ Always ground yourself to remove any static electric charge before touching EOS, the device is very sensitive to static electric charges; use a grounding wrist strap at all times, and place all electronic components on a static-dissipative surface or in a static-shielded bag

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## 1.5 Unpacking Checklist

Before unpacking, check the shipping carton for any damage. If the shipping carton and/or contents are damaged, inform your dealer immediately. Retain the shipping carton and packing materials for inspection. Obtain authorization from your dealer before returning any product to ADLINK. Ensure that the following items are included in the package.

- ▶ GIE64+ unit
- ▶ User's manual



NOTE:

OEM versions with non-standard configuration, functionality, or packaging may vary according to individual requirements.

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## 2 Getting Started



NOTE:

All dimensions shown are in mm

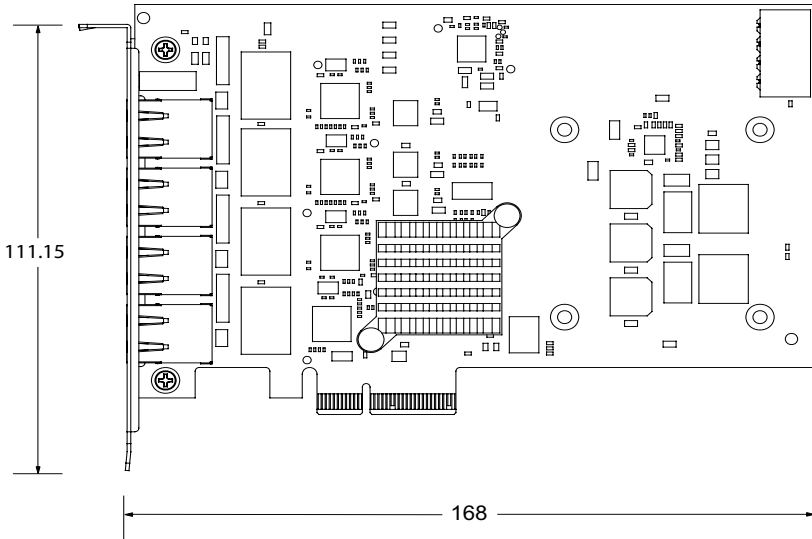
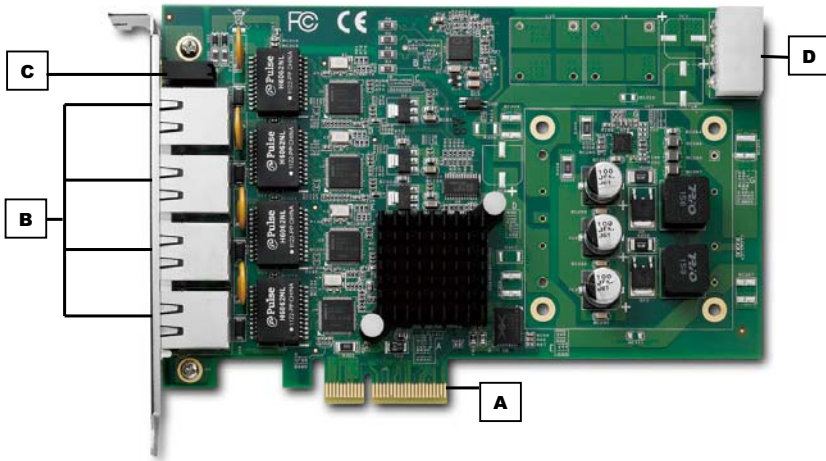


Figure 2-1: GIE64+ Schematic Diagram

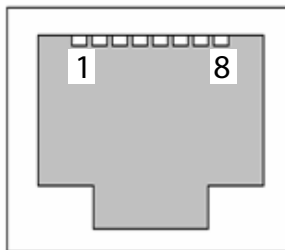


**Figure 2-2: GIE64+ Board Layout**

A	PCIe lane
B	RJ-45 Ethernet Ports
C	Status LED
D	Power Connector

**Table 2-1: Board Layout Legend**

## 2.0.1 RJ-45 Ethernet Port



**Figure 2-3: RJ-45 Ethernet Connector**



Pin	Signal
1	MDI0+ (PoE_DC48V)
2	MDI0- (PoE_DC48V)
3	MDI1+ (PoE_DC0V)
4	MDI2+ (PoE_DC48V)
5	MDI2- (PoE_DC48V)
6	MDI1- (PoE_DC0V)
7	MDI3+ (PoE_DC0V)
8	MDI3- (PoE_DC0V)

**Table 2-2: RJ-45 Ethernet Port Connector Signals**

## 2.0.2 Status LEDs



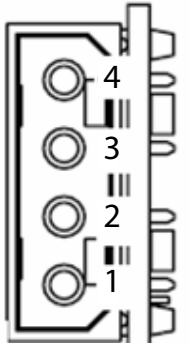
**Figure 2-4: Status LEDs**

The GIE64+ provides four yellow LEDs to indicate operating conditions of the four PoE ports, as shown, with corresponding status as follows.

LED	Status
1	ON: Port 1 PoE On OFF: Port 1 PoE Off
2	ON: Port 2 PoE On OFF: Port 2 PoE Off
3	ON: Port 3 PoE On OFF: Port 3 PoE Off
4	ON: Port 4 PoE On OFF: Port 4 PoE Off

**Table 2-3: Status LED Legend**

### 2.0.3 Power Connector



**Figure 2-5: Power Connector**

Pin	Signal
1	+12V
2	GND
3	GND
4	NC

**Table 2-4: Power Connector Pin Assignments**

### 3 Hardware Installation

The following describes installation of the GIE64+ module on the PCI express bus.

1. Remove the computer cover according to the computer manual..



NOTE:

A vacant PCI express slot is required for installation of the GIE64+ module; if none is available, remove a PCI express board and note the slot number.

- 
2. Remove the slot cover (if any), retaining the fixing screw.
  3. Carefully position the GIE64+ in the selected PCI express slot. If installing in a tower computer, align the board with the board slots.
  4. Press the board firmly but carefully into the connector.
  5. Anchor the board with the screw.
  6. Plug the cable into the PoE power connector.
  7. Connect the device via a Gigabit Ethernet connector.
  8. Power up the computer.



NOTE:

The GIE64+ can be installed in a PCI Express x4, x8, or x16 slot

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# Important Safety Instructions

For user safety, please read and follow all **instructions**, **WARNINGS**, **CAUTIONS**, and **NOTES** marked in this manual and on the associated equipment before handling/operating the equipment.

- ▶ Read these safety instructions carefully.
- ▶ Keep this user's manual for future reference.
- ▶ Read the specifications section of this manual for detailed information on the operating environment of this equipment.
- ▶ When installing/mounting or uninstalling/removing equipment:
  - ▷ Turn off power and unplug any power cords/cables.
- ▶ To avoid electrical shock and/or damage to equipment:
  - ▷ Keep equipment away from water or liquid sources;
  - ▷ Keep equipment away from high heat or high humidity;
  - ▷ Keep equipment properly ventilated (do not block or cover ventilation openings);
  - ▷ Make sure to use recommended voltage and power source settings;
  - ▷ Always install and operate equipment near an easily accessible electrical socket-outlet;
  - ▷ Secure the power cord (do not place any object on/over the power cord);
  - ▷ Only install/attach and operate equipment on stable surfaces and/or recommended mountings; and,
  - ▷ If the equipment will not be used for long periods of time, turn off and unplug the equipment from its power source.

- ▶ Never attempt to fix the equipment. Equipment should only be serviced by qualified personnel.

A Lithium-type battery may be provided for uninterrupted, backup or emergency power.

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Risk of explosion if battery is replaced with one of an incorrect type. Dispose of used batteries appropriately.

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- ▶ Equipment must be serviced by authorized technicians when:
  - ▷ The power cord or plug is damaged;
  - ▷ Liquid has penetrated the equipment;
  - ▷ It has been exposed to high humidity/moisture;
  - ▷ It is not functioning or does not function according to the user's manual;
  - ▷ It has been dropped and/or damaged; and/or,
  - ▷ It has an obvious sign of breakage.

# Getting Service

Contact us should you require any service or assistance.

## **ADLINK Technology, Inc.**

Address: 9F, No.166 Jian Yi Road, Zhonghe District  
New Taipei City 235, Taiwan  
新北市中和區建一路 166 號 9 樓

Tel: +886-2-8226-5877  
Fax: +886-2-8226-5717  
Email: [service@adlinktech.com](mailto:service@adlinktech.com)

## **Ampro ADLINK Technology, Inc.**

Address: 5215 Hellyer Avenue, #110, San Jose, CA 95138, USA  
Tel: +1-408-360-0200  
Toll Free: +1-800-966-5200 (USA only)  
Fax: +1-408-360-0222  
Email: [info@adlinktech.com](mailto:info@adlinktech.com)

## **ADLINK Technology (China) Co., Ltd.**

Address: 上海市浦东新区张江高科技园区芳春路 300 号 (201203)  
300 Fang Chun Rd., Zhangjiang Hi-Tech Park,  
Pudong New Area, Shanghai, 201203 China

Tel: +86-21-5132-8988  
Fax: +86-21-5132-3588  
Email: [market@adlinktech.com](mailto:market@adlinktech.com)

## **ADLINK Technology Beijing**

Address: 北京市海淀区上地东路 1 号盈创动力大厦 E 座 801 室(100085)  
Rm. 801, Power Creative E, No. 1, B/D  
Shang Di East Rd., Beijing, 100085 China

Tel: +86-10-5885-8666  
Fax: +86-10-5885-8625  
Email: [market@adlinktech.com](mailto:market@adlinktech.com)

## **ADLINK Technology Shenzhen**

Address: 深圳市南山区科技园南区高新南七道 数字技术园  
A1 栋 2 楼 C 区 (518057)  
2F, C Block, Bldg. A1, Cyber-Tech Zone, Gao Xin Ave. Sec. 7,  
High-Tech Industrial Park S., Shenzhen, 518054 China

Tel: +86-755-2643-4858  
Fax: +86-755-2664-6353  
Email: [market@adlinktech.com](mailto:market@adlinktech.com)

**ADLINK Technology, Inc. (French Liaison Office)**

Address: 15 rue Emile Baudot, 91300 Massy CEDEX, France  
Tel: +33 (0) 1 60 12 35 66  
Fax: +33 (0) 1 60 12 35 66  
Email: france@adlinktech.com

**ADLINK Technology Japan Corporation**

Address: 〒101-0045 東京都千代田区神田鍛冶町 3-7-4  
神田 374 ビル 4F  
KANDA374 Bldg. 4F, 3-7-4 Kanda Kajicho,  
Chiyoda-ku, Tokyo 101-0045, Japan  
Tel: +81-3-4455-3722  
Fax: +81-3-5209-6013  
Email: japan@adlinktech.com

**ADLINK Technology, Inc. (Korean Liaison Office)**

Address: 서울시 서초구 서초동 1675-12 모인터빌딩 8층  
8F Mointer B/D, 1675-12, Seocho-Dong, Seocho-Gu,  
Seoul 137-070, Korea  
Tel: +82-2-2057-0565  
Fax: +82-2-2057-0563  
Email: korea@adlinktech.com

**ADLINK Technology Singapore Pte. Ltd.**

Address: 84 Genting Lane #07-02A, Cityneon Design Centre,  
Singapore 349584  
Tel: +65-6844-2261  
Fax: +65-6844-2263  
Email: singapore@adlinktech.com

**ADLINK Technology Singapore Pte. Ltd. (Indian Liaison Office)**

Address: 1st Floor, #50-56 (Between 16th/17th Cross) Margosa Plaza,  
Margosa Main Road, Malleswaram, Bangalore-560055, India  
Tel: +91-80-65605817, +91-80-42246107  
Fax: +91-80-23464606  
Email: india@adlinktech.com

**ADLINK Technology, Inc. (Israeli Liaison Office)**

Address: 6 Hasadna St., Kfar Saba 44424, Israel  
Tel: +972-9-7446541  
Fax: +972-9-7446542  
Email: israel@adlinktech.com