

ESPL-2401

PCIe to four 2.5GbE LAN module

Customer:

Customer

Part Number:

Innodisk

Part Number:

Innodisk

Model Name:

Date:

Innodisk Approver	Customer Approver

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CONTACT US	錯誤! 尚未定義書籤。

REVISION HISTORY

Revision	Description	Date
1.0	First Released	Oct, 2025

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1. Product Introduction

1.1. Overview

Innodisk ESPL-2401 is designed with Standard PCIe form factor, ESPL-2401 supports PCIe Gen 2.1 with a single lane to four GbE LAN ports, optimized for higher performance and lower power, which brings you a flexible expansion solution for embedded systems.

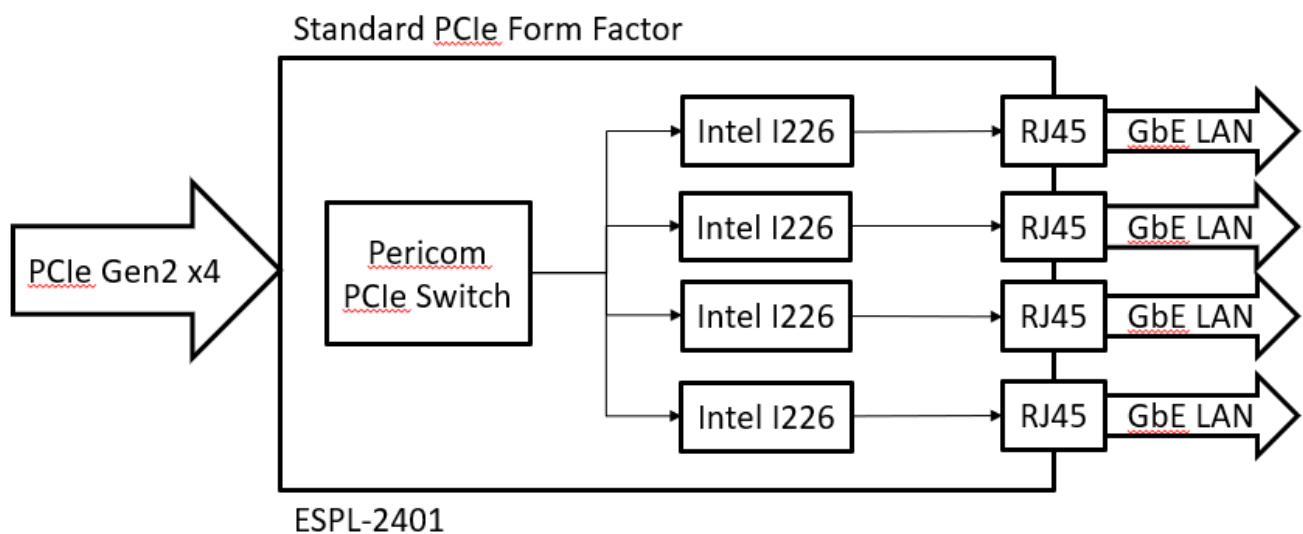


Figure 1: Block Diagram

1.2. Features

- Supports four GbE LAN ports
- Complies with EN61000-4-5 2kV Surge protection
- Optional Industrial Temperature (-40°C to +85°C) support
- 30μ" golden finger, 3-year warranty
- Industrial design, manufactured in innodisk Taiwan



Figure 2: PCIe Board Picture

2. Product Specifications

2.1. Device Parameters

Table 1: Device Parameters

Form Factor	Standard PCIe
Input I/F	PCI Express 2.1 x 4
Output I/F	GbE LAN x 4
Output Connector	RJ45 x 4
Dimension (WxLxH)	169.55 x 111.15 x 19.6 mm

2.2. Electrical Specifications

2.2.1. Power Requirement

Table 2: Power Requirement

Item	Connector	Rating
Input voltage	PCIex4 Golden Finger	+3.3/12V DC +-5%

2.2.2. Power Consumption

Table 3: Power Consumption

Max (W)	Voltage(V)	Max (mA)
7.46	3.3	636
	12	447

2.3. Environmental Specifications

2.3.1. Temperature Ranges

Table 4: Temperature Ranges

Temperature	Range
Operating	Standard Grade: 0°C to +70°C Industrial Grade: -40°C to +85°
Storage	-55°C to +95°

2.3.2. Humidity

Relative Humidity: 10-95%, non-condensing

2.3.3. Shock and Vibration

Table 5: Shock and Vibration

Reliability	Test Conditions	Reference Standards
Vibration	7 Hz to 2K Hz, 20G, 3 axes	IEC 68-2-6
Mechanical Shock	Duration: 0.5ms, 1500 G, 3 axes	IEC 68-2-27

2.3.4. Mean Time between Failure (MTBF)

Reliability prediction methodology provides the basis for reliability evaluation and analysis. The purpose of the prediction is to predict the life time of the product in units of failure rate and MTBF.

Table 6: Mean Time between Failure (MTBF)

Product	Condition	MTBF (Hours)
ESPL-2401-C1/W1	The analysis is at 25°C ambient temperature by Telcordia SR-332, Issues 4, Method I, Case 3 under Ground Benign, Controlled environment, 50% operation stress	5,985,699

2.4. CE and FCC Compatibility

ESPL-2401 conforms to CE and FCC requirements.

2.5. RoHS Compliance

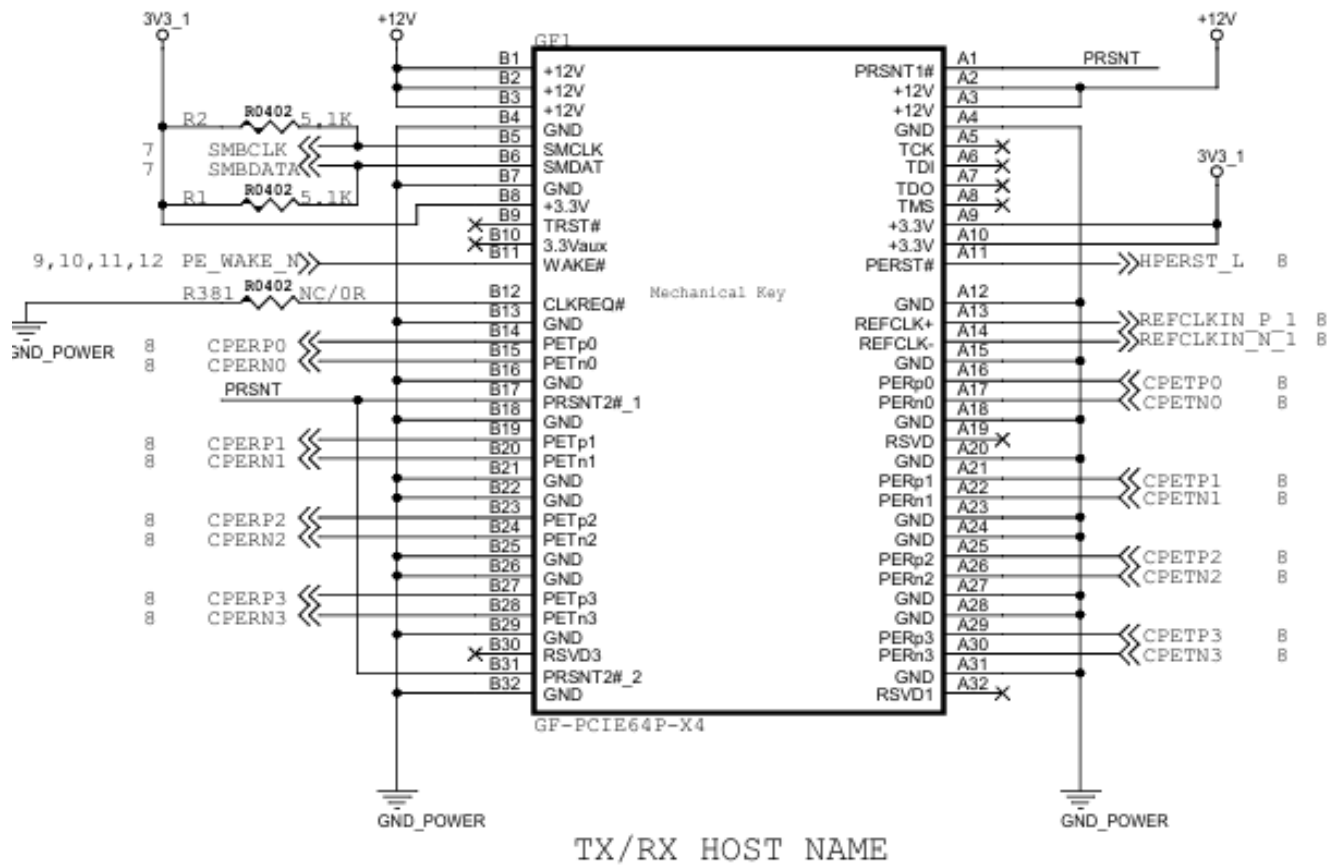
ESPL-2401 is fully compliant with RoHS directive.

2.6. Hardware

2.6.1. Layout



2.6.2. Pin Define



2.6.3. ESPL-2401 Mechanical Drawing

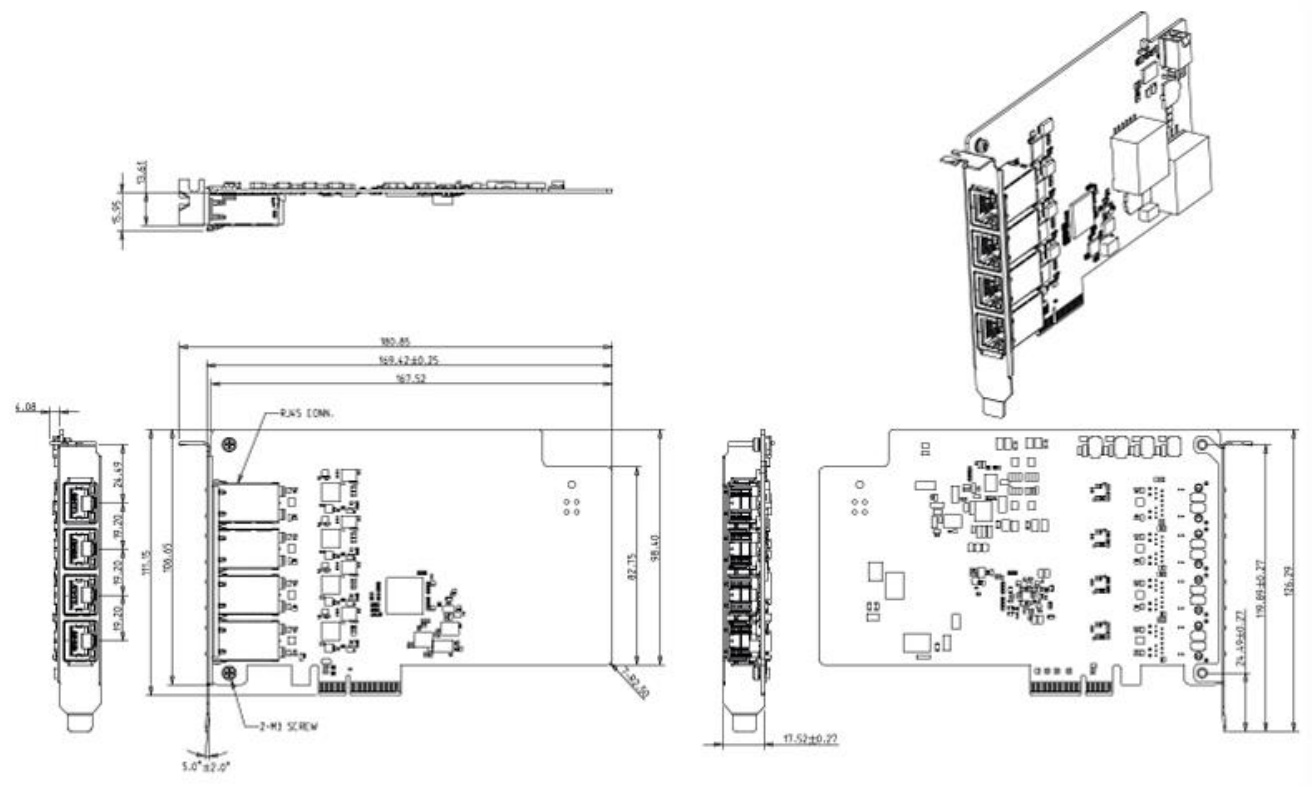


Figure 3: ESPL-2401 PCIe Board Drawing

2.6.4. Packing List

- ESPL-2401 PCIe Board x 1

2.7. Software Support

- Windows: 10(64bit)
- Linux (igc): kernel 5.x version

3. Installation Guide

Please download driver from Intel official website.

Or you can download Intel i22 chip driver from Intel official web site directly.

4. Appedix

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宜鼎國際股份有限公司 Innodisk Corporation REACH Declaration

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Innodisk Corporation pursues its social responsibility for global environmental preservation by committing to be compliant with REACH regulation (REGULATION (EC) No 1907/2006). We hereby confirm that the product(s),

Scope: Flash Memory, DRAM Module and Embedded Peripherals Products.

- The standard products of **not listed in the Appendix2** meet the requirements of REACH SVHC regulations (SVHCs < 0.1% in Article), as described in the candidate list table currently including 240 substances (release date: 23-JAN-2024) and shown on the ECHA website, <https://echa.europa.eu/candidate-list-table>
- The standard products listed in the **Appendix2** contain(s) one or more hazardous substances or constituents exceeding 0.1 % by weight in article if not otherwise specified in candidate list table.
Where the threshold value is exceeded, the substances in question are to be declared in accompanying, (SVHCs > 0.1% in Article).
- Comply with REACH Annex XVII.



Guarantor

Company name 公司名稱: Innodisk Corporation 宜鼎國際股份有限公司

Company Representative 公司代表人:  Yichuan Chen 陳怡全

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Date 日期: 2024 / 02 / 19

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RoHS 自我宣告書 (RoHS Declaration of Conformity)

Manufacturer Products: All Innodisk EM FLASH, DRAM and EP products

- 一、宜鼎國際股份有限公司（以下稱本公司）特此保證售予貴公司之所有產品，皆符合歐盟 2011/65/EU 及 (EU) 2015/863 關於 RoHS 之規範要求。
Innodisk Corporation declares that all products sold to the company, are complied with European Union RoHS Directive (2011/65/EU) and (EU) 2015/863 requirement.
- 二、本公司同意因本保證書或與本保證書相關事宜有所爭議時，雙方宜友好協商，達成協議。
Innodisk Corporation agrees that both parties shall settle any dispute arising from or in connection with this Declaration of Conformity by friendly negotiations.
- 三、本公司聲明我們的產品符合 RoHS 指令的附件中 7(a)、7(c)-I、6(c) 允許豁免。
We declare, our products permitted by the following exemptions specified in the Annex of the RoHS directive.
- ※ 7(a) Lead in high melting temperature type solders (i.e. lead-based alloys containing 85% by weight or more lead).
- ※ 7(c)-I Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectric devices, or in a glass or ceramic matrix compound.
- ※ 6(c) Copper alloy containing up to 4% lead by weight. (This exemption applies to products that use antennas)

Name of hazardous substance	Limited of RoHS ppm (mg/kg)
鉛 (Pb)	< 1000 ppm
汞 (Hg)	< 1000 ppm
鎘 (Cd)	< 100 ppm
六價鉻 (Cr 6+)	< 1000 ppm
多溴聯苯 (PBBs)	< 1000 ppm
多溴二苯醚 (PBDEs)	< 1000 ppm
鄰苯二甲酸二(2-乙基己基)酯 (DEHP)	< 1000 ppm
鄰苯二甲酸丁酯苯甲酯 (BBP)	< 1000 ppm
鄰苯二甲酸二丁酯 (DBP)	< 1000 ppm
鄰苯二甲酸二異丁酯 (DIBP)	< 1000 ppm

宜鼎國際股份有限公司
Innodisk Corporation

立保證書人 (Guarantor)

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Date 日期: 2023 / 06 / 14