innodisk

Total Solution For
Embedded Peripherals

EGPS-32R1

M.2 2242/2280 to dual SATA III RAID Module

Customer: _____

Customer Part Number: _____

Innodisk Part Number: _____

Innodisk Model Name: _____

Date: _____

Innodisk Approver	Customer Approver

Table of Contents

REVISION HISTORY

Revision	Description	Date
1.0	First Released	SEP, 2024

List of Tables

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1. Product Introduction

1.1. Overview

Innodisk EGPS-32R1 is designed with M.2 2242/2280 form factor, EGPS-32R1 is compatible with SATAIII(6.0Gb/s) specification, EGPS-32R1 can be configured as 2 ports SATAIII Hardware striping & mirror & port multiplier functions, optimized for higher performance and ensure data integrity, which brings you a flexible expansion solution for embedded systems.

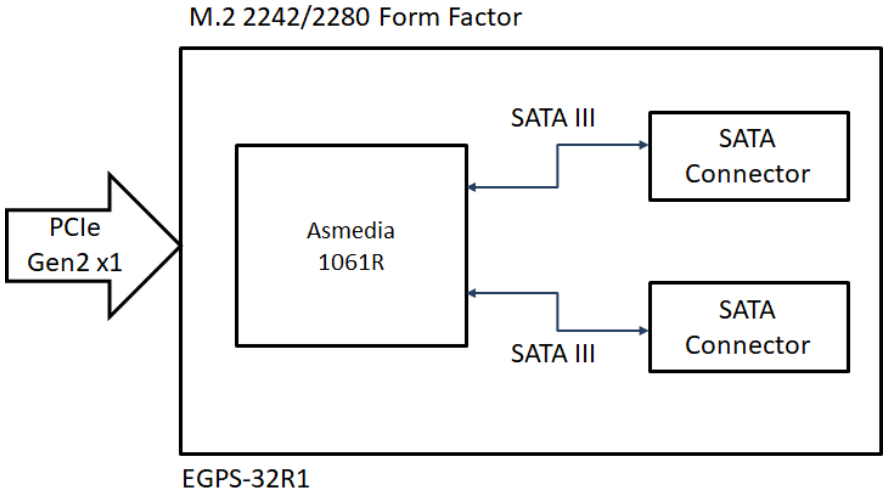


Figure 1: Block Diagram

1.2. Features

- Support AHCI, Port-Multiplier, Hot-Swap.
- Support Native Command Queuing
- Support SSD TRIM Command
- Support Hardware RAID 0, RAID1
- 30μ golden finger, 3 years warranty
- Industrial design, manufactured in innodisk Taiwan

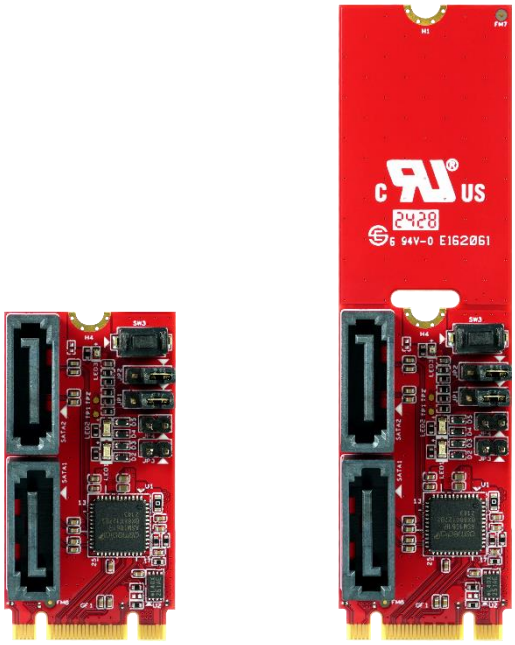


Figure 2: EMPS-32R1 Picture

2. Product Specifications

2.1. Device parameters

Table 1: Device parameters

Form Factor	M.2 2242/2280
Input I/F	PCIe 2.0
Output I/F	SATA III
Output Connector	SATA 7pin x 2
Dimension (WxLxH)	22 x 42(80) x 10.85mm

2.2. Electrical Specifications

2.2.1. Power Requirement

Table 2: Power Requirement

Item	Connector	Rating
Input voltage	M.2 Golden Finger	+3.3 VDC +-5%

2.2.2. Power Consumption

Table 3: Power Consumption

Full Load (mA)	Voltage (V)
382	3.3

2.3. Environmental Specifications

2.3.1. Temperature Ranges

Table 4: Temperature Ranges

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

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)
EGPS-32R1	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	16,454,058

2.4. CE and FCC Compatibility

EGPS-32R1 conforms to CE and FCC requirements.

2.5. RoHS Compliance

EGPS-32R1 is fully compliant with RoHS directive.

2.6. Hardware

2.6.1. Layout

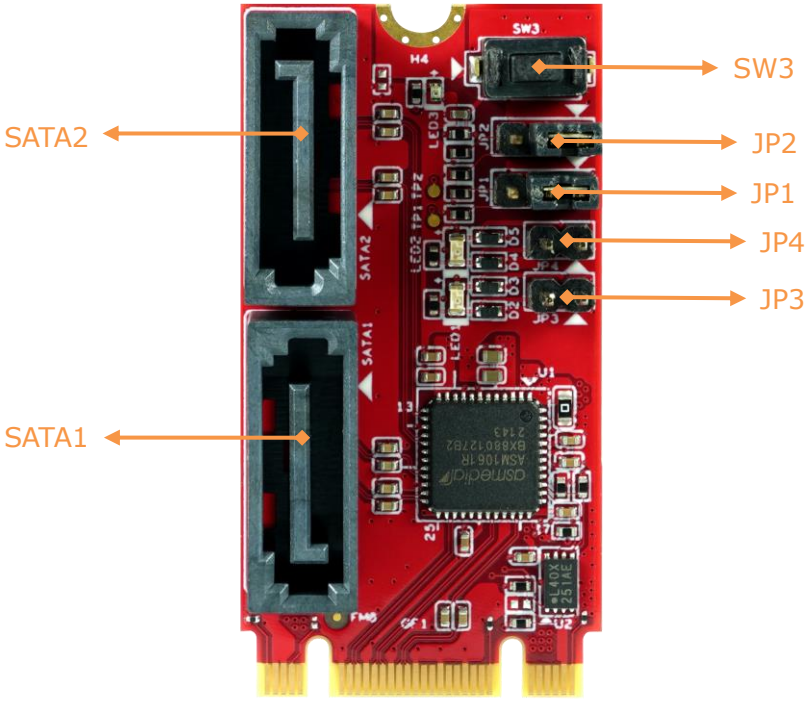


Table 7: PCB Layout Legend

Label	Connector Type	Function
JP1, JP2	(無鹵)DIP 1*3P 180° P:2.0mm	RAID Mode Setting
JP3, JP4	DIP 1*2P 180° P:2.0mm	External LED Signal
SW3	Tact switch SMD(6.0x3.5mm) 2P 180° H:4.3mm	RAID Mode Reset

2.6.2. Pin Define

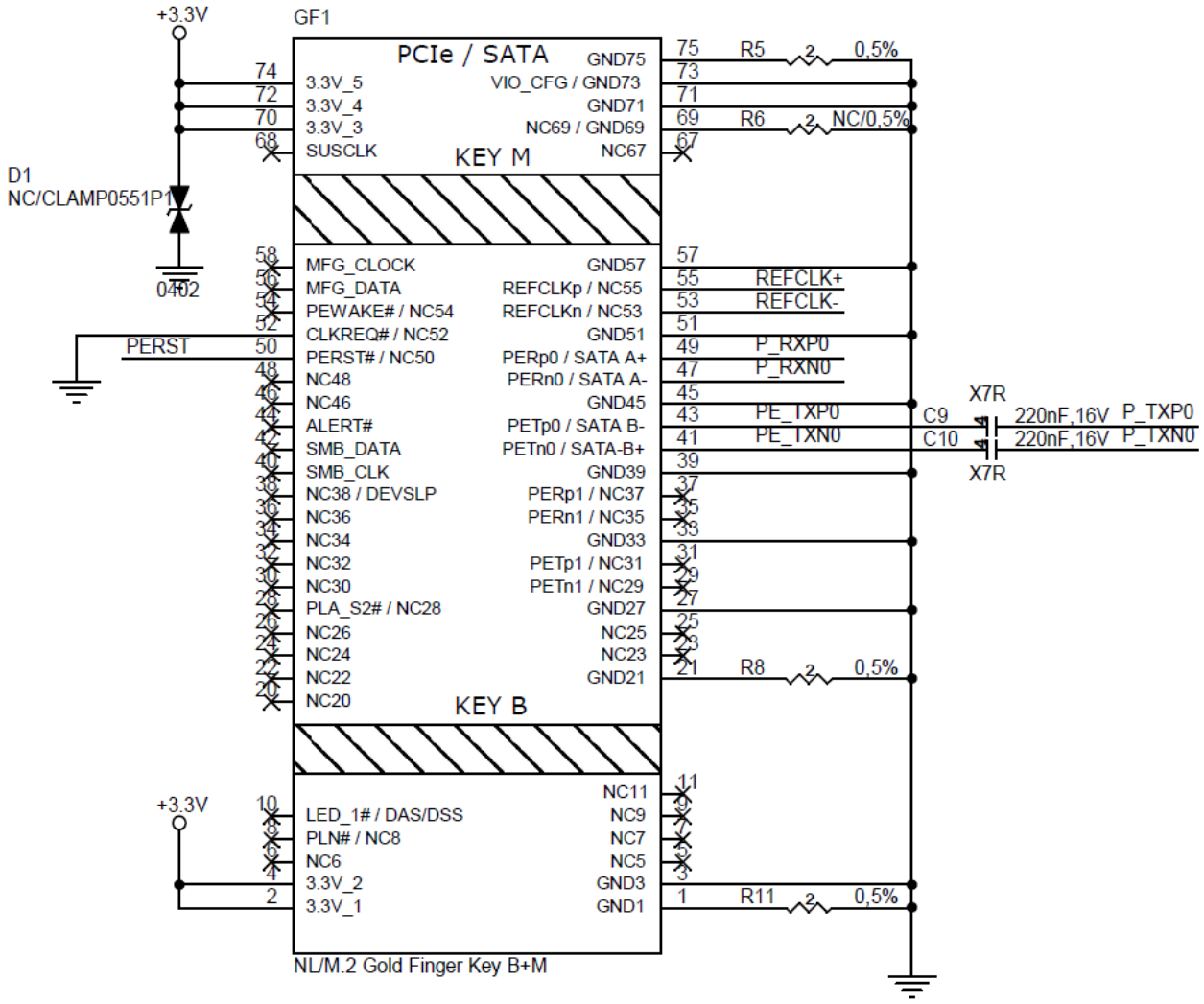


Figure 3: M.2 Pin Define

2.6.3. I/O Connector Mechanical Drawing

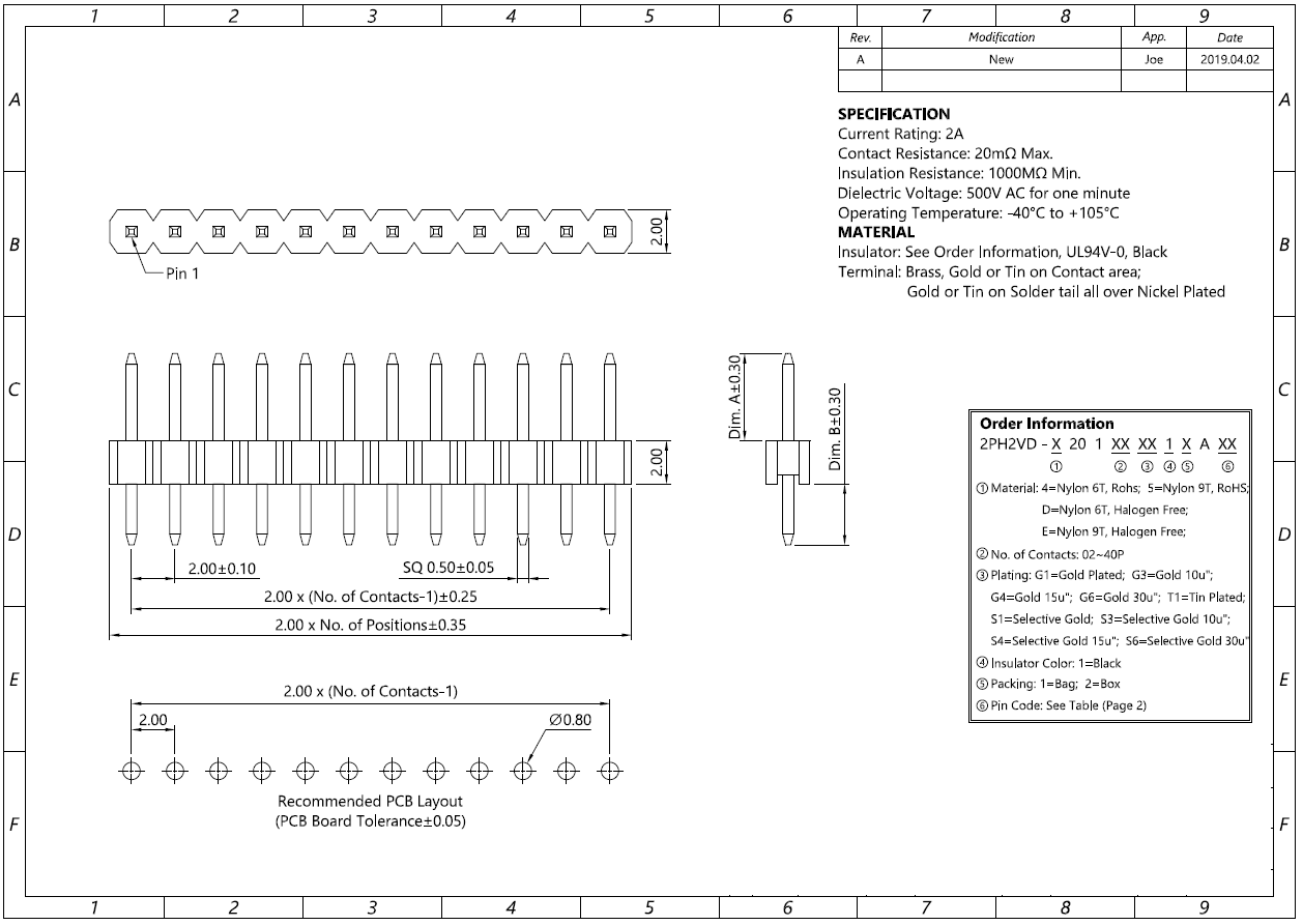
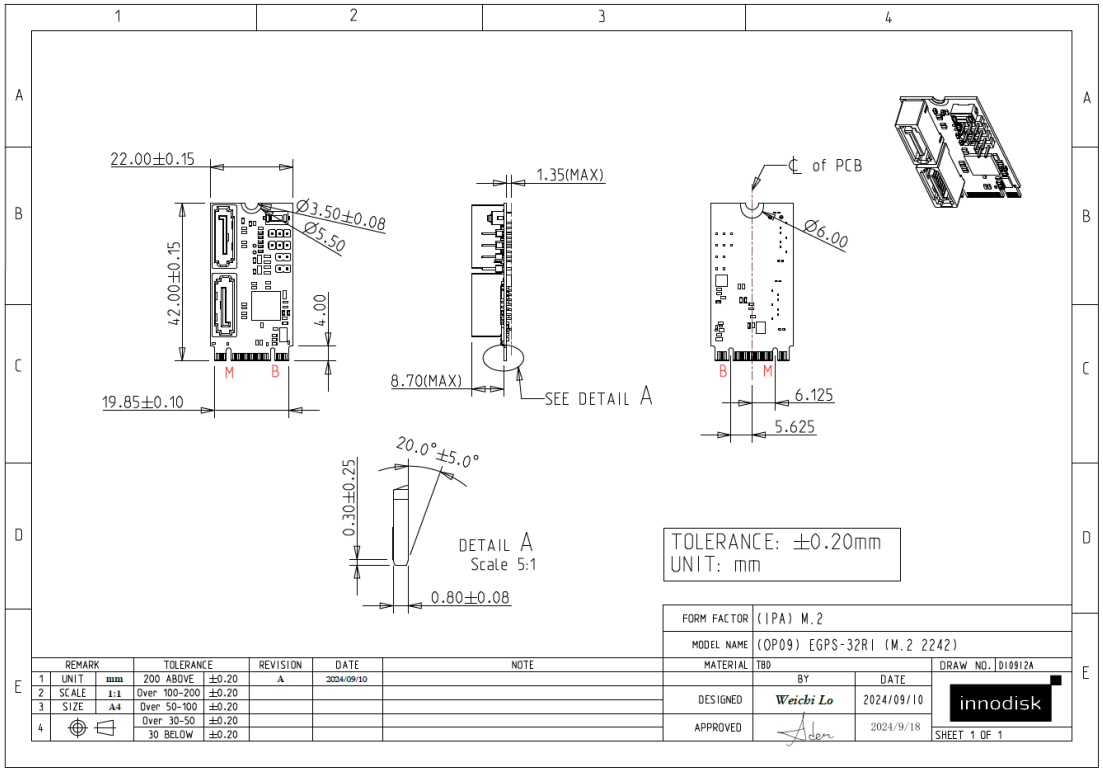


Figure 4: PIN HEADER (JP1/JP2/JP3/JP4)

2.6.4. EGPS-32R1 Mechanical drawing



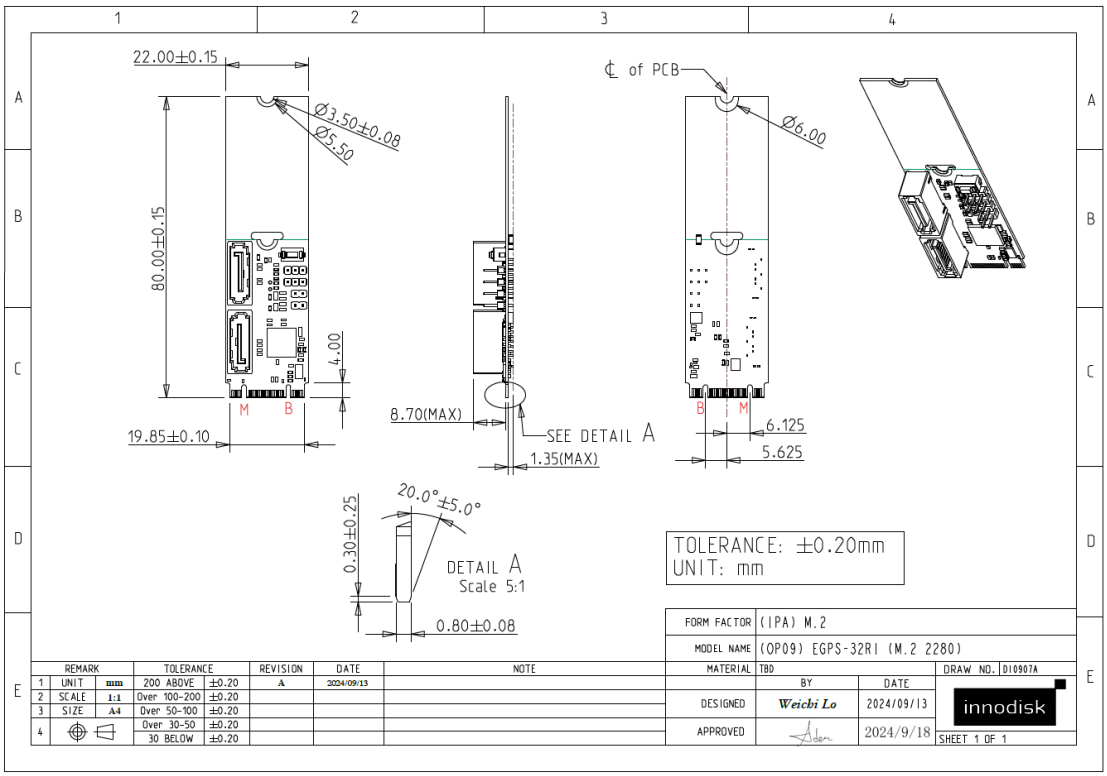


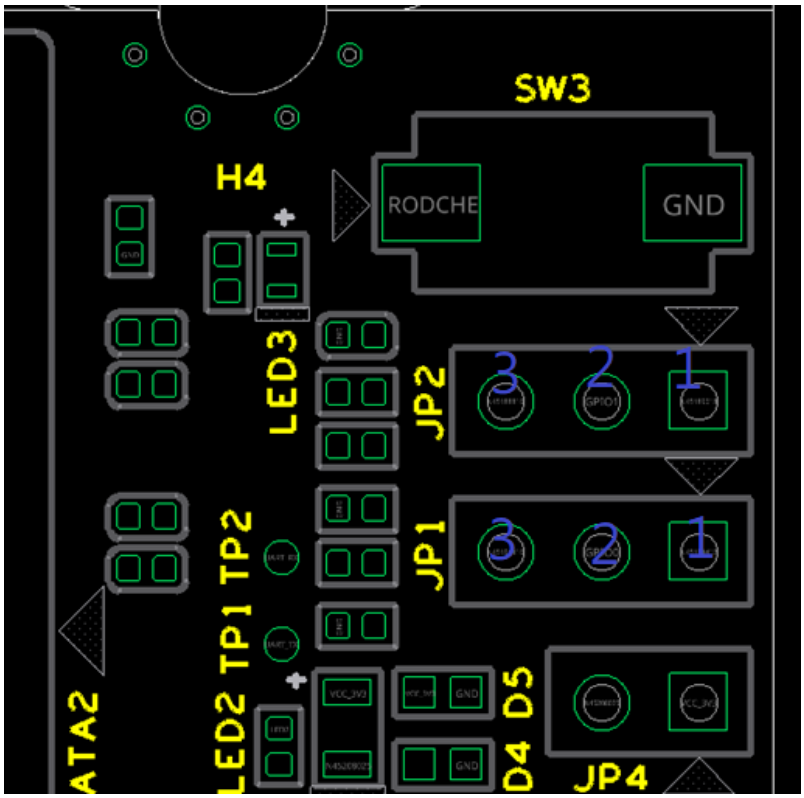
Figure 5: EGPS-32R1 drawing

2.6.5. RAID Mode Setting

Refer to the following table to set the Jumper on JP1 and JP2 for RAID mode configuration.

Table 8: RAID Mode Setting

	JP1	JP2
RAID 0	2-3	1-2
RAID 1	1-2	2-3
Port multiplier	1-2	1-2



2.6.6. LED Assignment and Pin Define

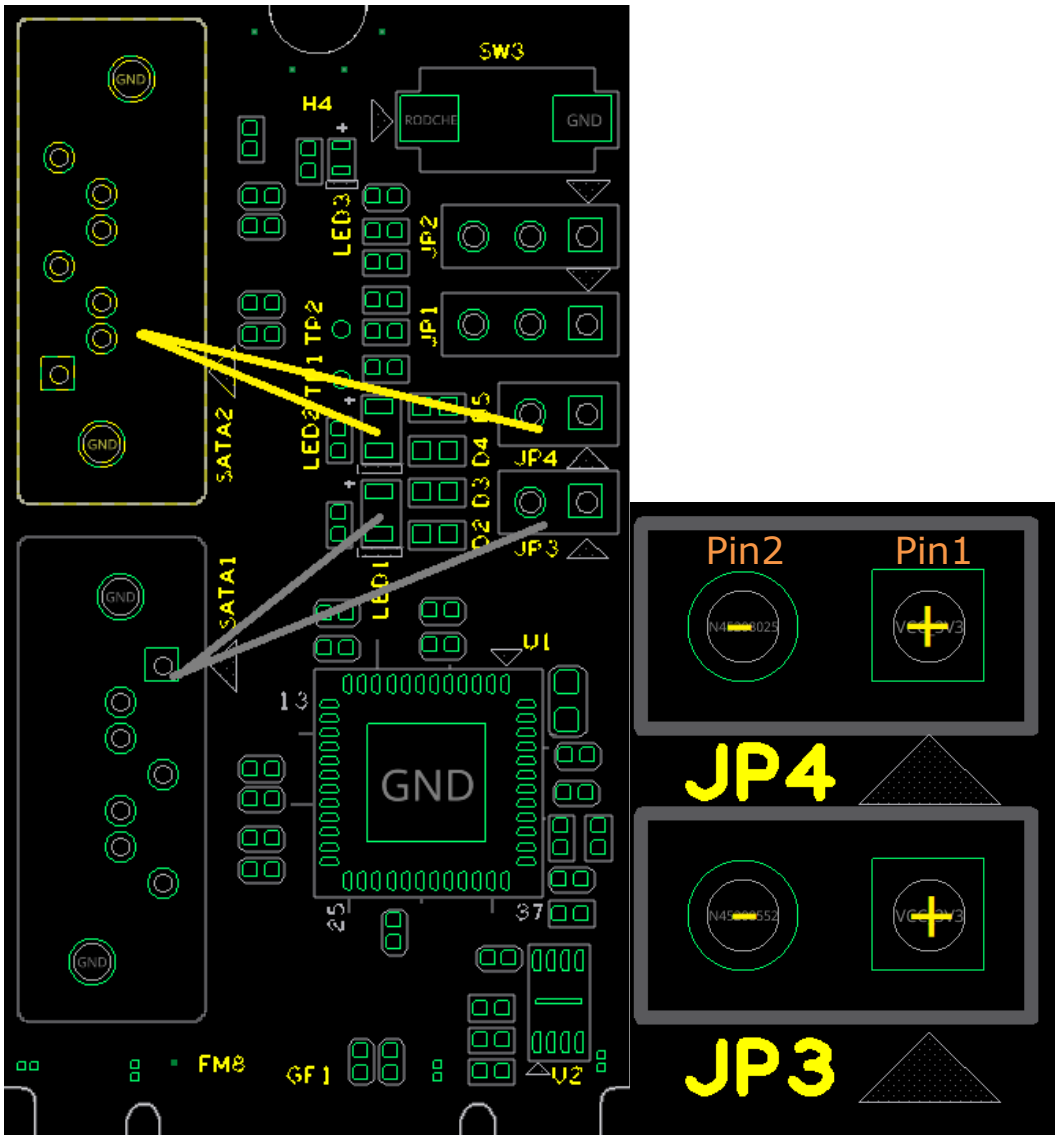
SATA 2 Status LED	On board LED2(Green)	EXT LED pin header(JP4)
SATA 1 Status LED	On board LED1(Green)	EXT LED pin header(JP3)

Table 9: LED Assignment

Access	Green, Bright blinking
Rebuild	Green, Breath Light (the light gradually fade-in back and forth)

Table 10: Externa LED Pin Define

External LED Pin Define			
JP3(SATA1), JP4(SATA2)			
Pin1	LED+ (3.3V)	Pin2	LED-



2.7 Packing List

EGPS-32R1 M.2 Card x 1

2.8 Software Support

Use native AHCI driver for setting.

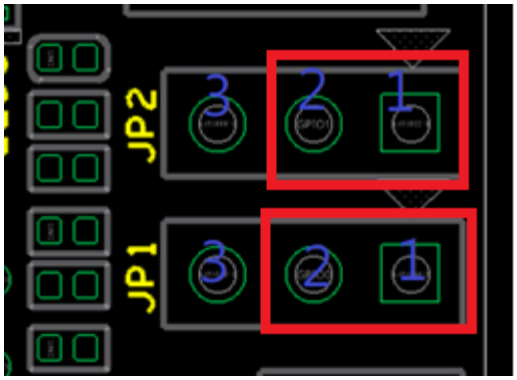
3. Installation Guide

EGPS-32R1 can support both Legacy BIOS and UEFI.

For the UEFI, **DISABLE "Secure Boot"** is required

Please refer to the following step to install.

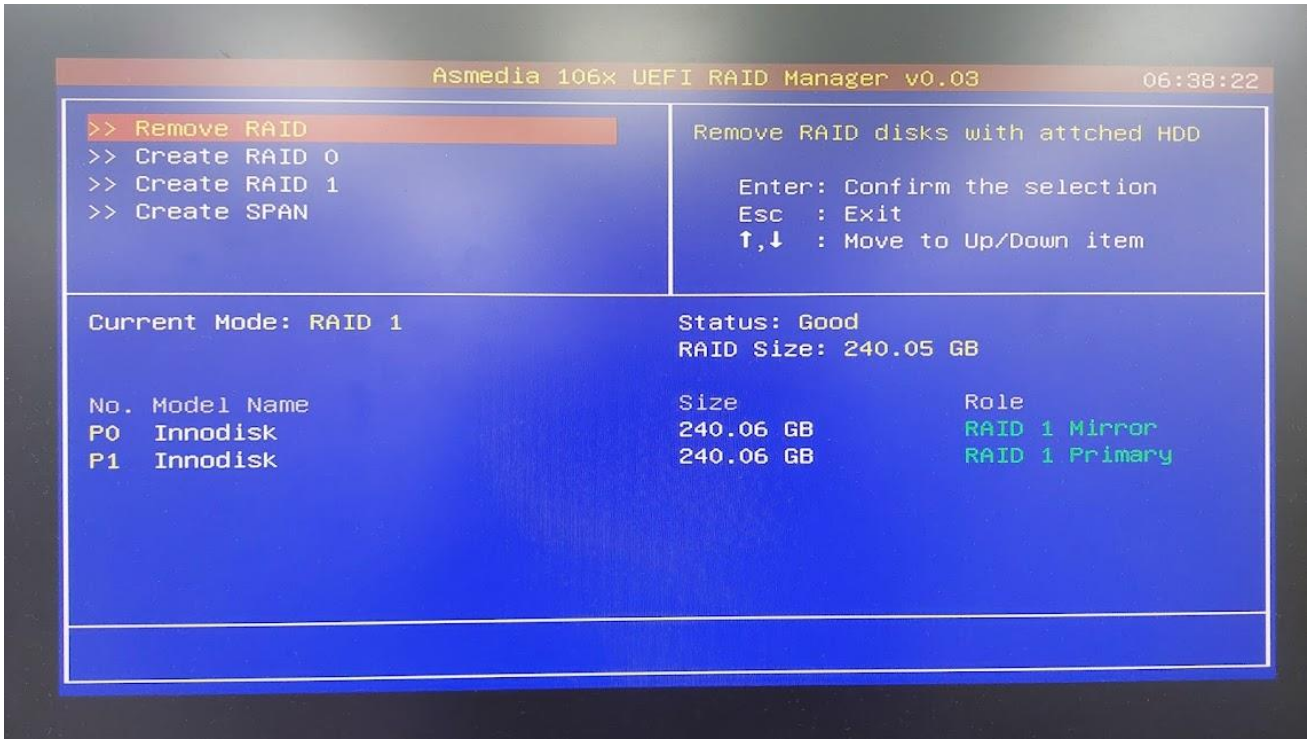
1. Set [JP1, JP2] RAID Setting Jumper to [1-2, 1-2]



2. Connect two SATA SSD to EGPS-32R1, then install the card to the M.2 2242 or 2280 slot which is PCIe interface.

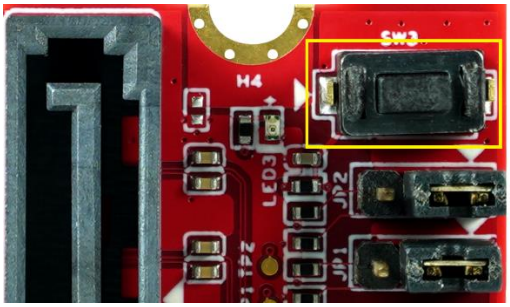
3. During boot process, while see the following option ROM screen, press **'Ctrl-r'** to enter the RAID menu.

4. In RAID menu, you can remove/create RAID or check RAID/disk status.



5. Some UEFI cannot support third party optional ROM so that you cannot enter into the above RAID menu. You can also use hardware switch (SW3) to set RAID mode.

   Refer to **2.6.5 RAID Mode Setting** to set RAID mode, then press the SW3 take effect.



4. Appedix

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

Tel:(02)7703-3000 Fax:(02) 7703-3555 Internet: https://www.innodisk.com/

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

Company Representative Title 公司代表人職稱：Quality Assurance Div. SR. Manager 品保處經理

Date 日期：2024 / 02 / 19

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宜鼎國際股份有限公司
Innodisk Corporation

Tel:(02)7703-3000 Internet: https://www.innodisk.com/

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

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宜鼎國際股份有限公司
Innodisk Corporation

立 保 證 書 人 (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： 簡川勝

Company Representative Title 公司代表人職稱： Chairman 董事長

Date 日期： 2023 / 06 / 14

CERTIFICATE OF CONFORMITY

Equipment : RAID Module
Test Model No. : E%PS-32#1
Multiple Listing : E%PS-32#1
(%: Form factor: (2: 2.5"SSD,3:DDR3 DIMM,D:Dongle,G:NGFF_M.2,
H:mPCIe Half, L:PCIe Low profile,M:mPCIe,
S:PCIe Standard,X:Multi,Z:Others),
#: Feature: (0:Normal, R:RAID))
Applicant : Innodisk Corporation
Test Report No. : CE171017D12

We, **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, declare that the equipment above has been tested in our facility and found compliance with the requirement limits of applicable standards, in accordance with the Directive 2014/30/EU. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate under the standards herein specified.

EN55032:2015 +AC:2016, Class B
EN 61000-3-2:2014 (Not applicable)
EN 61000-3-3:2013 (Not applicable)
EN 55024:2010
EN 61000-4-2:2009 / IEC 61000-4-2:2008 ED. 2.0
EN 61000-4-3:2006 +A1:2008 +A2:2010 / IEC 61000-4-3:2010 ED. 3.2
EN 61000-4-4:2012 / IEC 61000-4-4:2012 ED. 3.0 (Not applicable)
EN 61000-4-5:2014 / IEC 61000-4-5:2014 ED. 3.0 (Not applicable)
EN 61000-4-6:2014 / IEC 61000-4-6:2013 ED. 4.0 (Not applicable)
EN 61000-4-8:2010 / IEC 61000-4-8:2009 ED. 2.0
EN 61000-4-11:2004 / IEC 61000-4-11:2004 ED. 2.0 (Not applicable)

NOTE: The above EN/IEC basic standards are applied with latest version if customer has no special requirement.

Henry Lai / Director
Oct. 23, 2017

No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)
Tel: 886-2-26052180 Fax: 886-2-26051924 http://www.bureauveritas-adt.com E-Mail: service.adt@tw.bureauveritas.com

CERTIFICATE OF CONFORMITY

Equipment	:	RAID Module
Test Model No.	:	E%PS-32#1
Multiple Listing	:	E%PS-32#1 (%: Form factor: (2: 2.5"SSD,3:DDR3 DIMM,D:Dongle,G:NGFF_M.2, H:mPCIe Half, L:PCIe Low profile,M:mPCIe,S:PCIe Standard,X:Multi,Z:Others), #: Feature: (0:Normal, R:RAID))
Applicant	:	Innodisk Corporation
Test Report No.	:	FD171017D12

We, **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, declare that the equipment above has been tested in our facility and found compliance with the requirement limits of applicable standards. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate under the standards herein specified.

47 CFR FCC Part 15, Subpart B, Class B

ICES-003:2016 Issue 6, Class B

ANSI C63.4:2014

Henry Lai / Director
Oct. 23, 2017

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September 30, 2024