

承 认 书

Specification for Approval

Customer	
Product Name	PCIe Gen3 x4 NVMe SSD 固态硬盘
Model	NVME SSD 1TB
Flash/Master Control	IG5216/2230/YMTC
Date	2023.7.12

Customer Approval

Checker	Approve	Date

TRX Approval

Drawn	ENG	QC	Checker	Approve

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May, 2022

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Table of contents

Shenzhen Xinkerui Technology	错误！未定义书签。
NVME Solid State Drive Datasheet	错误！未定义书签。
I. Introduction	3
1 Overview	3
2 Part Type Introduction	3
II. Outline	3
III. Block Diagram	4
IV. Product Specifications	5
4.1 Physical Dimensions	5
4.2 Interface Specification	5
4.2.1 Pin Assignment	5
4.2.2 Interface Mode	错误！未定义书签。
V Reliability Specification	错误！未定义书签。
5.3.1 ECC Descriptions	错误！未定义书签。
5.3.2 Advance Wear-Leveling Algorithm	错误！未定义书签。
5.3.3 S.M.A.R.T Function	错误！未定义书签。
VI. Command Descriptions	错误！未定义书签。
6.1 ATA Command Register	错误！未定义书签。
6.2 ATA Commands Specifications	错误！未定义书签。
VII. order number	7
VIII. Related documentation	7
Attachment	错误！未定义书签。
PERFORMANCE TEST	7

I. Introduction

1 Overview

NVMe Gen3 x4 SSD (Solid State Drive) is a high performance and high reliability storage device based on NAND Flash technology that designed to solve the bottleneck of computing system by traditional hard disk drives. NVMe SSD can be plugged into a standard M.2 M-Key connector commonly found in desktops.

NVMe Gen3 x4 SSD purely consists of semiconductor devices and NAND flash memories, without any moving parts. It gives rugged features against shock and vibration, used in extreme environment such as industrial PC to increase MTBF. Furthermore, Our SSD has highly advanced flash memory management algorithm to guarantee higher performance and data integrity.

2 Part Type Introduction

This chapter is about the specifications of the M.2 SSD with PCIE M key interface, it is compatible with PCIE NVMe protocol.

Product Type	Capacity	Flash	interface
NVME SSD 1TB	1TB	3D NAND	PCle3.0 X4

Table 1 Capacity Specifications

① the letter 'x' means some information of the products, please visit the chapter 8 for more information.

Capacity	Available Capacity	Flash Type	Read (MB/s)	Write(MB/s)
1TB	931GB	3D TLC	3200(CDM)	2800(CDM)

Note: The performance test by ATTO Benchmark V2.4

II. Outline

Based spec	Interface	M.2 M key
	Dimension	22*30*3.53 mm
	Weight①	<45g
	Capacity	1TB
	Flash type	3D TLC NAND
Read/Write Performance②	Sequential Read	Up to 2700MB/s (ASSSD)
	Sequential Write	Up to 2500MB/s (ASSSD)
	4KB Random Read IOPS	202K
	4KB Random Write IOPS	165K
Power Consumption	Power Supply	DC 3.3V $\pm$ 5%
	Standby	0.5W
	4KB Random Write	3.75W
Reliability	Write endurance(TBW): 300TB	
	Read endurance: unlimited	
	MTBF: >2,000,000 hours	

	Data retention: >20years @ 25℃
	Data destroy do not support
	Sudden power-off recovery support
	S.M.A.R.T, NCQ, Trim and dynamic power management support
	Static and dynamic wear-leveling
	Bad block management algorithm
	ECC: LDPC ECC
Environment	Storage temperature: -40~85 ℃
	Operation temperature: 0~70 ℃
	Humidity: 5%~95%
	Vibration: 20G Peak, 10 ~ 2000Hz, (15mins/ Axis) x3 Axis
	Shock: 1500G (@0.5ms half sine wave)
Warranty	3 years

Table 2 outline of the driver

①, ②: The Read/Write performance and weight vary with different capacity of products.

The testing environment is below:

OS: Windows 7 Ultimate

CPU: Intel (R) Core(TM) i3 CPU

Memory: 8GB Motherboard: B250

Test program: ATTOBenchMark V2.47 (sequential R/W speed)

IOmeter2008 (IOPS)

HD tune V4.6.1 (sustainably R/W speed, access time)

Test Drive: SSD 128GB (TLC)

III. Block Diagram

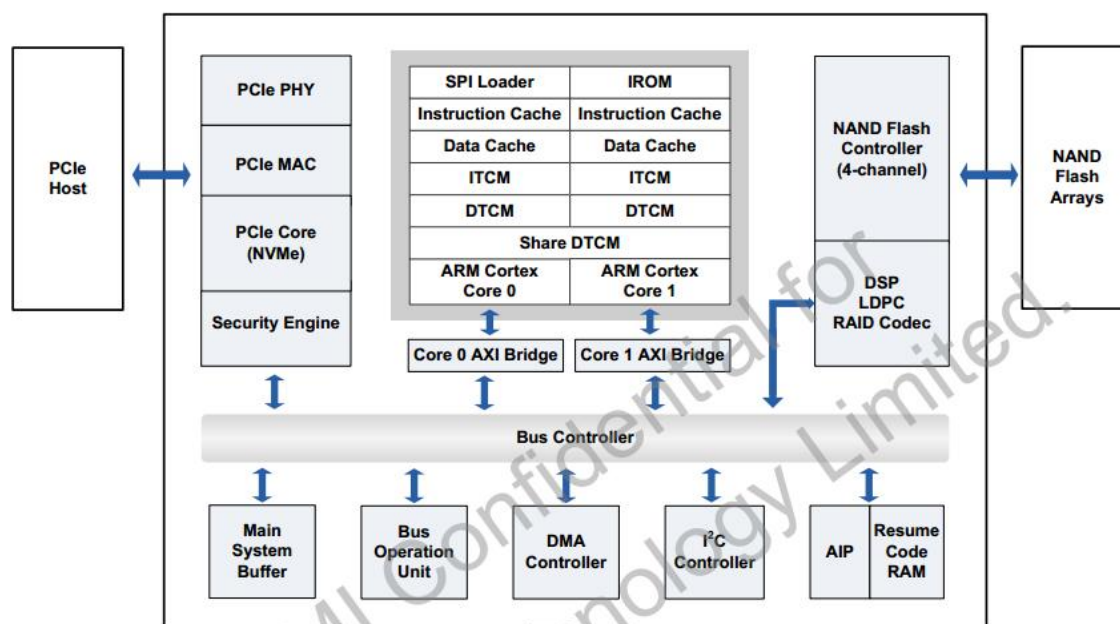


Figure 1 Block Diagram

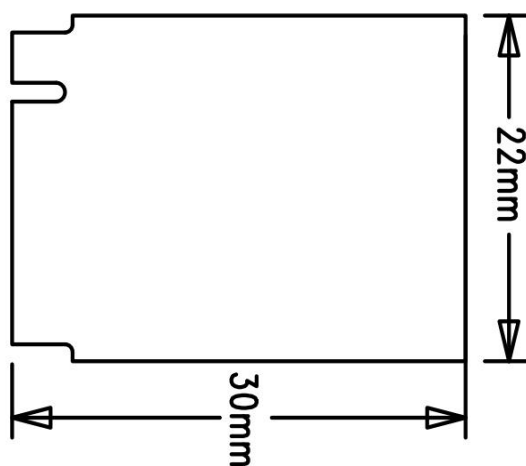
IV. Product Specifications

4.1 Physical Dimensions

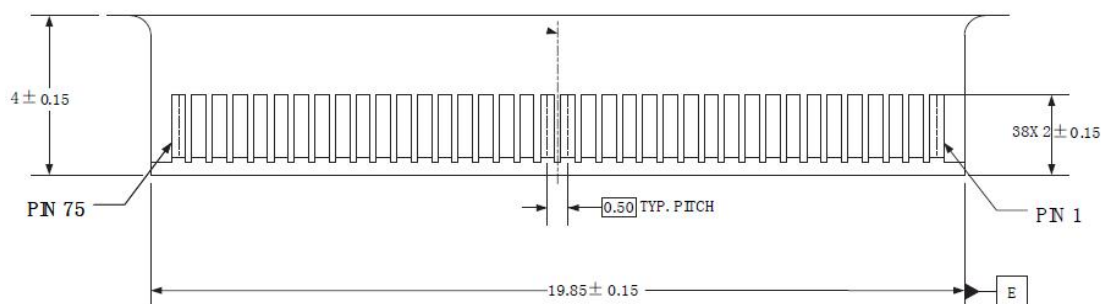
Parameter	Value
Length	30 ± 0.2 mm
width	22 ± 0.1 mm
height	3.50 ± 0.2 mm

Table 3 Physical dimensions of the driver

Figure 2 Physical dimensions



4.2 Interface Specification



4.2.1 Pin Assignment

Table 4 pin assignment

Pin#	Assignment	Pin#	Assignment
1	GND	2	VCC 3.3V
3	GND	4	VCC 3.3V
5	P3 TXN	6	N/A
7	P3 TXP	8	N/A
9	GND	10	LED1
11	P3 RXN	12	VCC 3.3V
13	P3 RXP	14	VCC 3.3V
15	GND	16	VCC 3.3V
17	P2 TXN	18	VCC 3.3V
19	P2 TXP	20	N/A
21	GND	22	N/A
23	P2 RXN	24	N/A
25	P2 RXP	26	N/A
27	GND	28	P1_3_R
29	P1 TXN	30	N/A
31	P1 TXP	32	N/A
33	GND	34	N/A
35	P1 RXN	36	N/A
37	P1 RXP	38	N/A
39	GND	40	I2C_SCL
41	P0 TXN	42	I2C_SDA
43	P0 TXP	44	M2_ALERT
45	GND	46	N/A
47	P0 RXN	48	N/A
49	P0 RXP	50	PERST
51	GND	52	CLKREQ#
53	REFCLKN	54	WAKE#
55	REFCLKP	56	N/A
57	GND	58	N/A
59	Notch	60	Notch
61	Notch	62	Notch
63	Notch	64	Notch
65	Notch	66	Notch
67	N/A	68	N/A
69	PEDET	70	VCC 3.3V
71	GND	72	VCC 3.3V
73	GND	74	VCC 3.3V
75	GND		

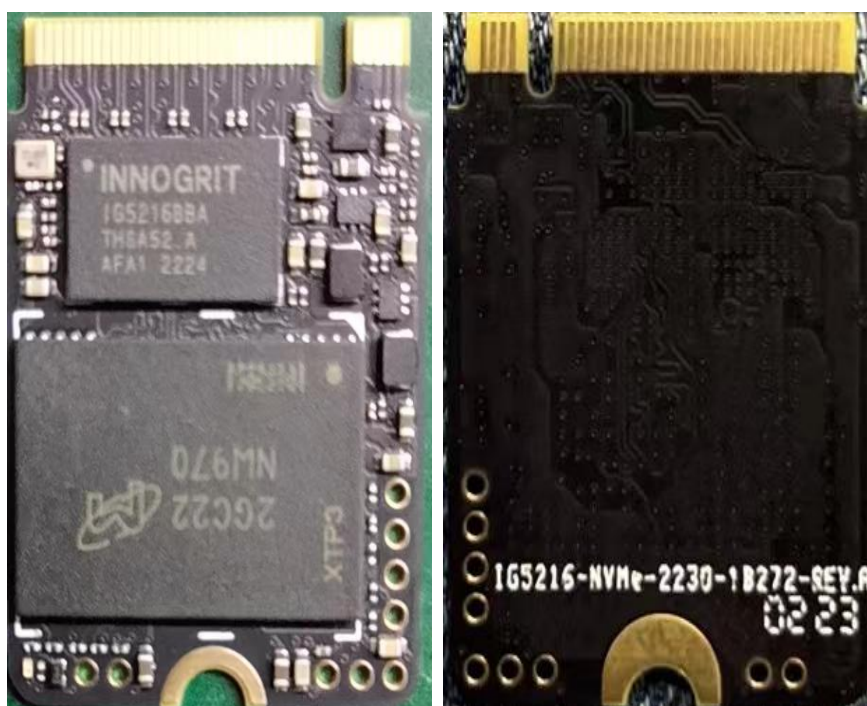
VII. order number

Model	Capacity	PN
NVME SSD 512GB	512GB	NVME SSD 512GB

VIII. Related documentation

For more information, visit

Attachment



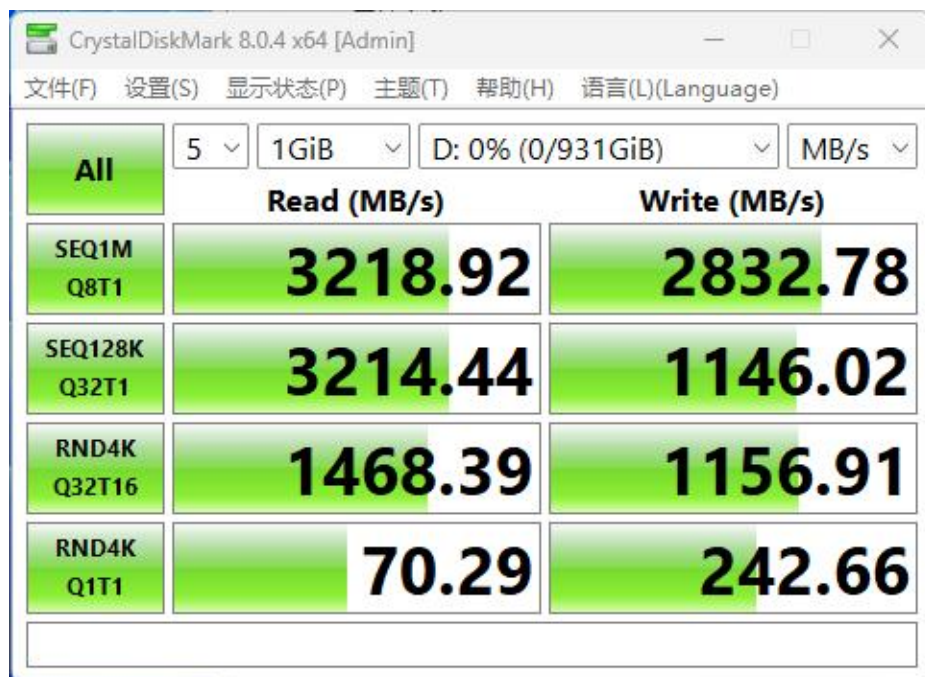
PERFORMANCE TEST

Testing Platform Information

OS: Windows 7 Ultimate
CPU: Intel (R) Core(TM) i3 CPU
Memory: 8GB
Motherboard: B250
SSD: SSD 128GB

Performance:

Crystaldiskmark:



AS SSD benchmark:

