M.2 2242 /

PES

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1.0		2023/7/13

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1.1 : 4

1.2 5

1.3 5

2.1 6

2.2 (TBW) 6

2.3 6

2.4 7

2.5 7

2.6 8

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2.9 8

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5.5 Identify 18

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1.

1.1 :

PES G Â 3D NAND ˘ PCIe Gen4 x4 ˘
NVMe1.4 / 2.0 Â ˘ Ω ˘ ˘ ˘
˘ G ˘ ˘ Ũ Â

å
M.2 2280 / 2242
:80.00 / 42.00 ± 0.15 mm
:22.00 ± 0.15 mm
: 3.65 mm
9

å
up to 7400 MB/s Ω
up to 6500 MB/s

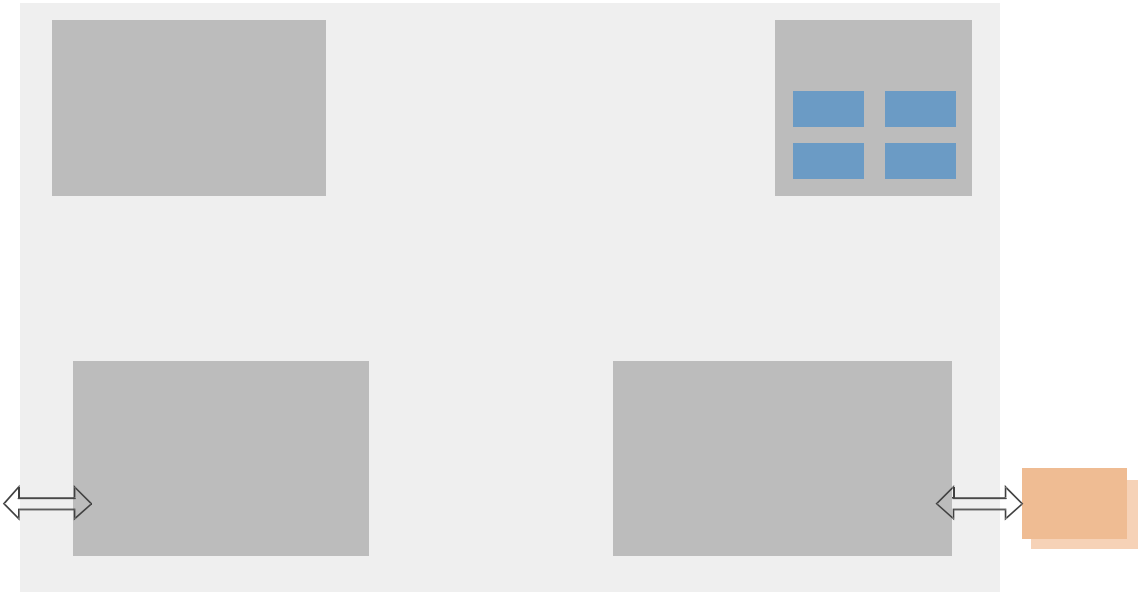
å
:<4.1W Ω
:<4.2W
:<0.46W
L1.2: <2.5mW

å
256GB/512GB/1TB/2TB/4TB

å :
PCIe Gen4 x4

å
Trim
Thermal Throttling

HMB
LDPC
NVMe 1.4/ 2.0



2 ﻡﻡ ﺱﺒ

2.1

2ﻡﻡ ﺱﺒ

256GB	238GB
512GB	476GB
1TB	952GB
2TB	1908GB
4TB	3815GB

1. 1GB=1,000,000,000 ˘ G Ũ Â

2.2 Ω ^ TBW˜

3ﻡﻡ ﺱﺒ Ω

	TBW
256GB	750 TB
512GB	1500 TB
1TB	3000 TB
2TB	6 PB
4TB	12 PB

1. TBW

2.4

		MB/s		IOPS
256GB	Ω	/ /	4K 4K Ω	/ /
512GB	Ω	5071MB/S 2532MB/S	4K 4K Ω	377K 495K
1TB	Ω	4948MB/S 4410MB/S	4K 4K Ω	486K 835K
2TB	Ω	4910MB/S 4562MB/S	4K 4K Ω	718K 777K
4TB	Ω	7400MB/S 6500MB/S	4K 4K Ω	930K 1049K

h y

1. g CrystalDiskMark 8.0.0 Intel(R) Core(TM) i7-10700K CPU @ 3.80GHz' ' 8GB' ' MPG Z490 GAMING CARBON WIFI(MS-7C73)Â Micronsoft StorNVMe Windows 10 (64)Â Â1MB=1,000,000 ÂIOPS= Ω
2. flash à SDR Â
3. ĭ Â ‰ flash ož

2.5

		‰	
3.3V(+/-5%)	3.135V	3.3V	3.465V

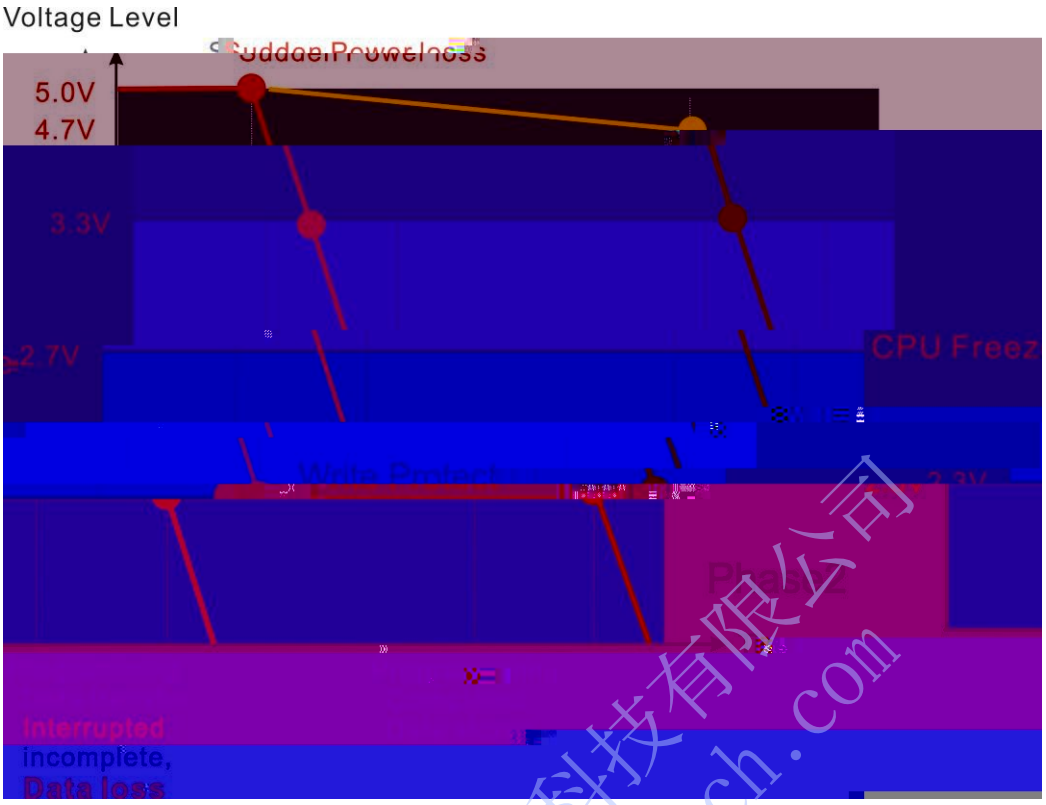
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2



2.10 PLP

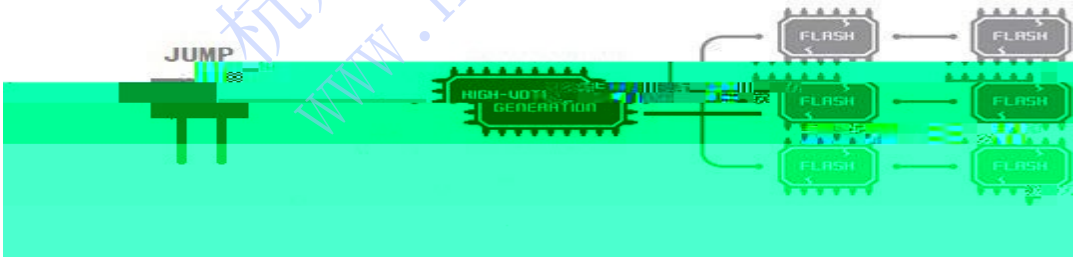
Ω Â



2.11

à Ű : Â G

’ Â ˘ ’P Â



1 à G 28V

Â

2 à FLASH = G Â 28V

G 10A˘ FLASH 2 -3 Â 3 à Â

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3 ĩ

3.1

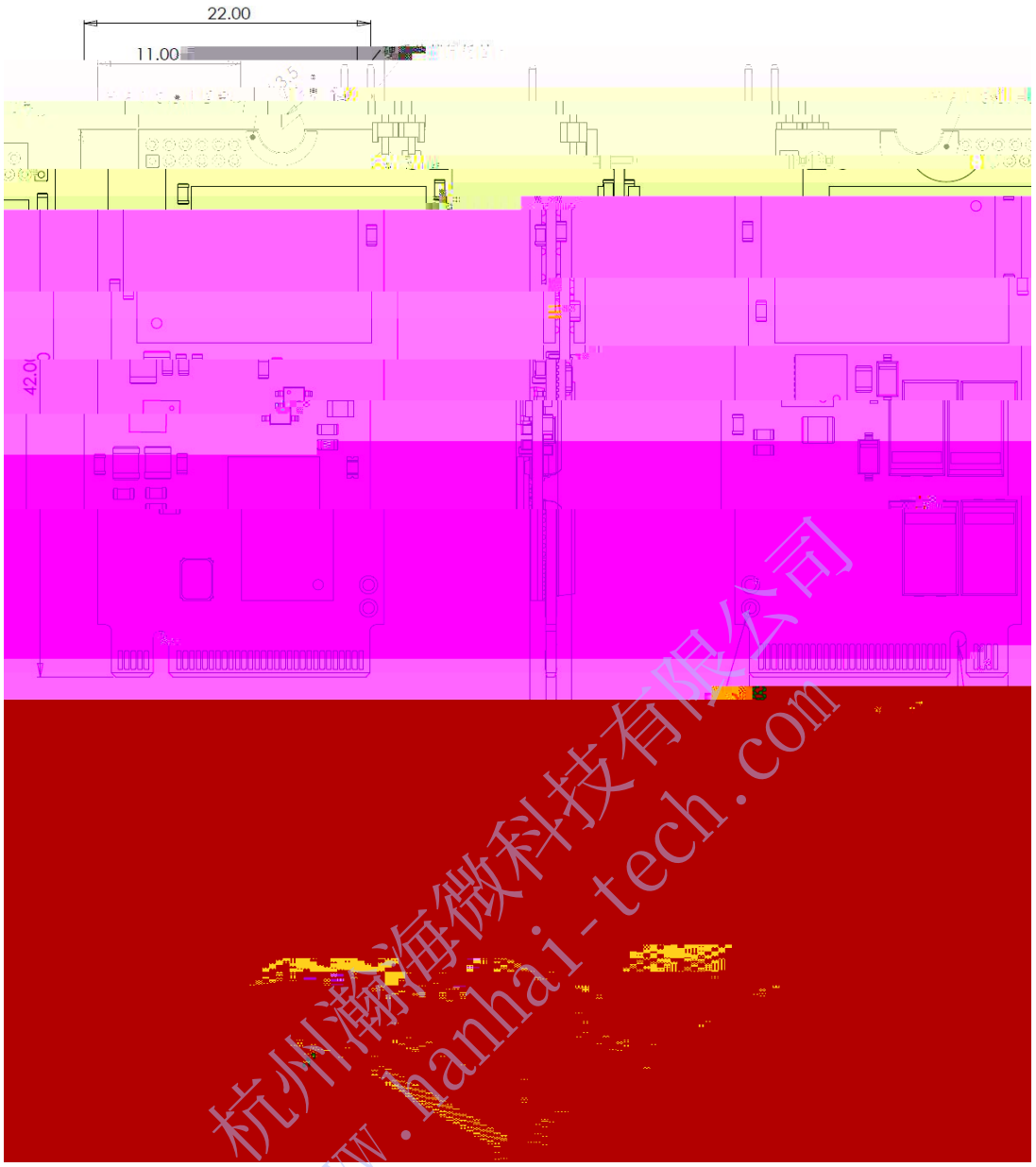
		42.00 ± 0.15 mm
		mm

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3.2



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4

10

1	GND	Return Current Path	2	+3.3V	3.3V Power (Source)
3	GND	Return Current Path	4	+3.3V	3.3V Power (Source)
5	PETn3	PCIe TX	6	N/A	Reserved
7	PETp3	PCIe TX	8	N/A	Reserved
9	GND	Return Current Path	10	DAS#	Device Activity Signal
11	PERn3	PCIe RX	12	+3.3V	3.3V Po40 > 398qer (So40 > 7

			22	N/A	Reserved
23	PERn2	PCIe RX	24	N/A	Reserved
25	PERp2	PCIe RX	26	N/A	Reserved
27	GND	Retun Curren Pah	28	N/A	Reserved
29	PETn1	PCIe TX	30	N/A	Reserved
31	PETp1	PCIe TX	32	N/A	Reserved
33	GND	Retuuen Pah	34	N/A	Reserved

37	PERp1	PCIe RX	38	N/A	Reserved
39	GND	Return Current Path			

5

5.2 NVM Express I/O

00h	Flush
01h	Write
02h	Read
09h	Dataset Man

231:228	Thermal Management T2 Total Time
511:232	Reserved

5.4 Get/Set Feature

00h	Reserved
01h	Arbitration
02h	Power Management
03h	LBA Range Type
04h	Temperature Threshold
05h	Enor Recovery
06h	Volatile WYite Cache
07h	Number of Queues
08h	Interrupt Coalescing
09h	Interrupt Vector Configuration
0Ah	Write Atomicity Normal
0Bh	Asynchronous Event Configuration
0Ch	Autonomous Power State Transition
0Dh	Host Memory Buffer
0Eh	Time stamp
0Fh	Keep Alive Timer
10h	Host Controlled Thermal Management
11h	Non-Operational Power State Config
12h	Read Recovery Level Config
13h	Predictable Latency Mode Config
14h	Predictable Latency Mode Window
15h	LBA Status Information Report Interval
16h	Host Behavior Support
17h	Sanitize Config
18h	Endurance Group Event Configuration
19hto77h	Reserved
78h to 7Fh	Refer to the NVNIe Management Interface Specification for definition.
80h to BFh	Command set specific(reserved)

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5.5 Identify



323:322	Host Controlled Thermal Management Attributes	0x1
325:324	Minimum Thermal Management Temperature	233
327:326	Maximum Thermal Management Temperature	368
511:328	Reserved	0
512	Submission Queue Entry Size	0x66
513	Completion Queue Entry Size	0x44
515:514	Maximum Outstanding Commands	0
519:516	Number ofNamespaces	1
521:520	Optional NVM Command Support	0x14
523:522	Fused Operation Support	0
524	Fomiat NVM Attributes	0x4
525	Volatile Write Cache	0x1
527:526	Atomic Write Unit Normal	1
529:528	Atomic Write Unit Power Fail	0
530	NVM Vendor Specific Command Configuration	1
531	Reserved	0
533:532	Atomic Compare & Write Unit	0
535:534	Reserved	0
539:536	SGL Support	0x70001
767:540	Reserved	0