faspeed Solid State Disk

Product Specification

faspeed P8 series

Product Name	faspeed P8 Serial M.2 SSD
Product Model	faspeed P8-120G
	faspeed P8-240G
	faspeed P8-480G
	faspeed P8-960G

Table of Contents

1. General Description

The standard faspeed Solid State Drive (SSD) fully consists of semiconductor devices using NAND Flash Memory which provides high reliability and high performance for storage media. faspeed SSD doesn't have any moving parts such as platter (disk) and head media, which provides a better solution for notebook and Tablet PC as a storage device, also it provides rugged features for industrial PC with an extreme environment with a high MTBF.

1.1 Feature

- Capacity：***120GB*** 、***240GB*** 、***480GB*** 、***960GB***
- Read/Write Performance (Ctystal DiskMark 5.2.1)：**960GB 2000 / 1600 MB/s;**
- Form factor：**M.2**
- Interface：NVMe
- Fully compliant with NVMe 1.3 / PCIe 3.0 x4
- Wide operating TEMP range from 0℃ to +70℃ and -40℃ to +70℃ for storage TEMP
- Flash management algorithm：global static and dynamic wear-leveling, bad block management algorithm
- MTBF：1,200,000 Hours

1.2 Capacity

Model	Capacity	Total number of sectors (512/Sector)	Total number of bytes	Flash Type
faspeed P8-120G	120GB	234441648	120034123776	3D NAND Flash
faspeed P8-240G	240GB	468862128	240057409536	3D NAND Flash
faspeed P8-480G	480GB	937703088	480103981056	3D NAND Flash
faspeed P8-960G	960GB	1875385008	960197124096	3D NAND Flash

1.3 Supply Voltage

Item	Requirements
Allowable voltage	3.3 V ± 5%
Allowable noise/ripple	100mV p-p or less

1.4 Power Consumption

Power	faspeed P8 Series
Active (W)	1.8-4.5
Idle (W)	0.32

1.5 Reliability

Item	Typical(Hours)
MTBF	1,200,000

1.6 Environment

Features	Operating	Non-Operating
Temperature	0℃ to +70℃	-40℃ to +70℃
Humidity	5% to 95%, non-condensing	
Vibration	20G Peak, 10~2000Hz, (15mins/Axis) x3Axis	
Shock	1500G, duration 0.5ms, Half Sine Wave	

2. Performance

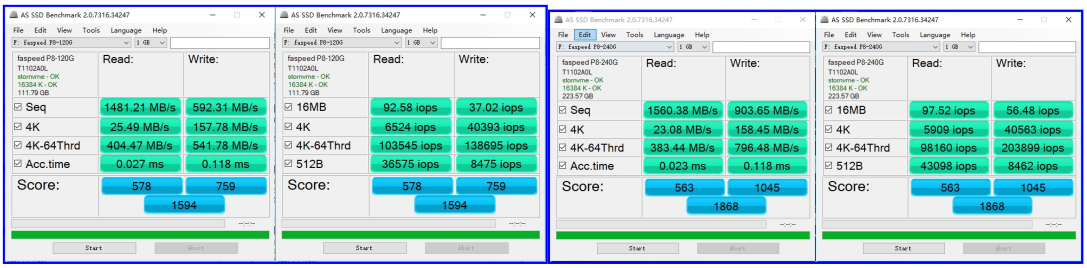
2.1 AS SSD Benchmark Test Result

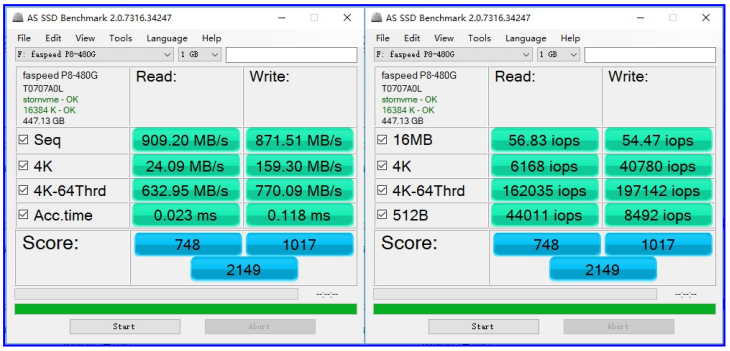
Performance by MB/s

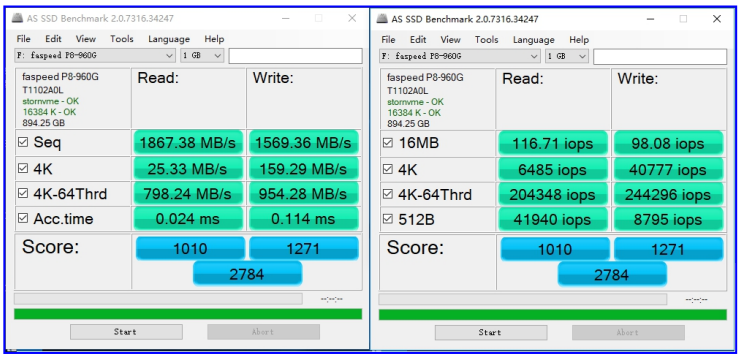
Model	Cap.	Read/Write (MB/S)			
		Seq	4K	4K-64Thrd	Acc.time
faspeed P8-120G	120GB	1481 / 592	25.4 / 157.7	404 / 451	0.027 / 0.118
faspeed P8-240G	240GB	1560 / 903	23.0 / 158.4	383 / 796	0.023 / 0.118
faspeed P8-480G	480GB	909 / 871	24.0 / 159.3	632 / 770	0.023 / 0.118
faspeed P8-960G	960GB	1867 / 1569	25.3 / 159.2	798 / 954	0.024 / 0.114

Performance by IOPS

Model	Cap.	Read/Write (IOPS)			
		16MB	4K	4K-64Thrd	512B
faspeed P8-120G	120GB	92.5 / 37.0	6524 / 40393	103545/138695	36575 / 8475
faspeed P8-240G	240GB	97.5 / 56.4	5909 / 40563	98160 / 203899	43098 / 8462
faspeed P8-480G	480GB	56.8 / 54.4	6168 / 40780	162035/197142	44011 / 8492
faspeed P8-960G	960GB	116.7 / 98.0	6485 / 40777	204348/244296	41940 / 8795

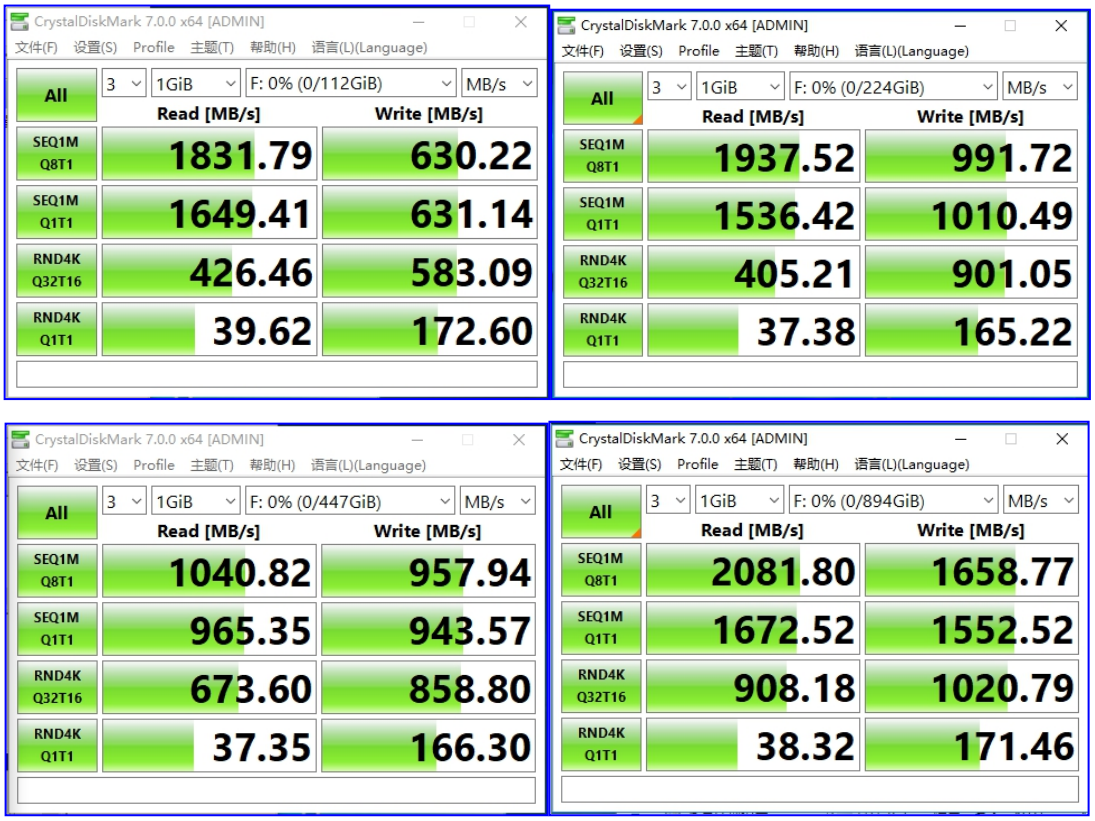






2.2 CrystalDiskMark Test Result

Model	Cap.	Read/Write (MB/S)			
		Seq Q32T1	4K Q32T4	Seq	4K
faspeed P8-120G	120GB	1831 / 630	1649 / 631	426 / 583	39.6 / 172.6
faspeed P8-240G	240GB	1937 / 991	1536 / 1010	405 / 901	37.3 / 165.2
faspeed P8-480G	480GB	1040 / 957	965 / 943	673 / 858	37.3 / 166.3
faspeed P8-960G	960GB	2081 / 1658	1672 / 1552	908 / 1020	38.3 / 171.4



Note: 1: Platform: Intel(R) i5-7500 CPU , ASUS B250H-PLUS, 8GB DDR4 , Windows 10 64bit.

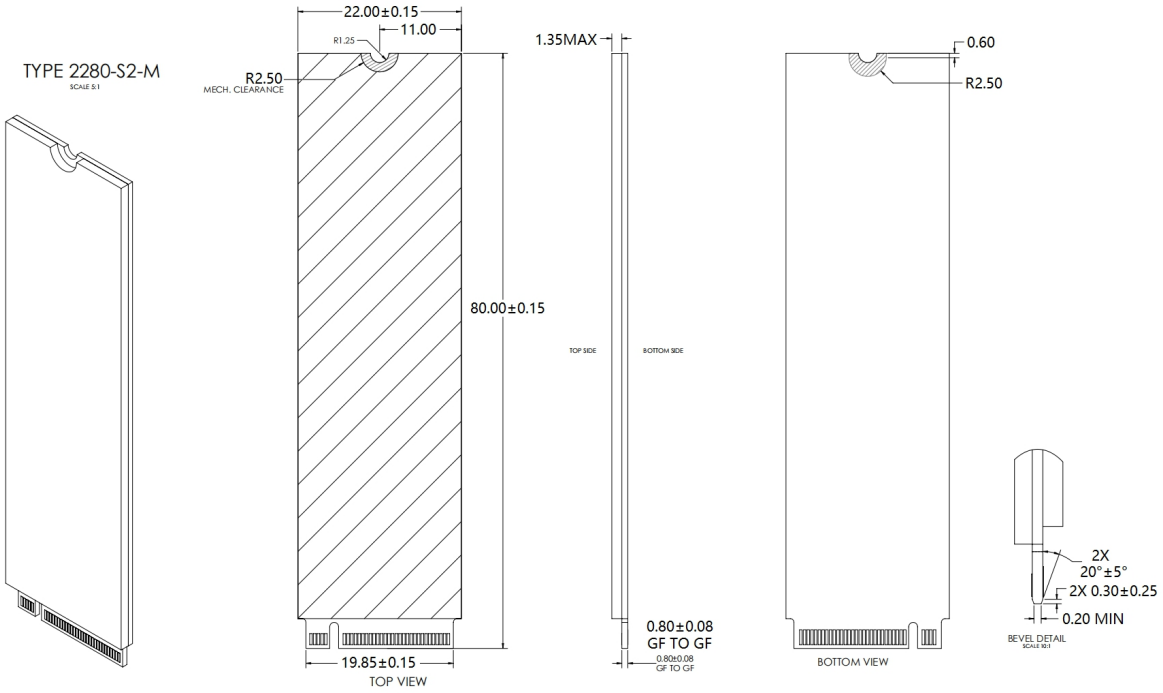
2: Test data depending on the software / hardware platform, is for reference only.

3. Structure & dimension

3.1 Physical Dimension

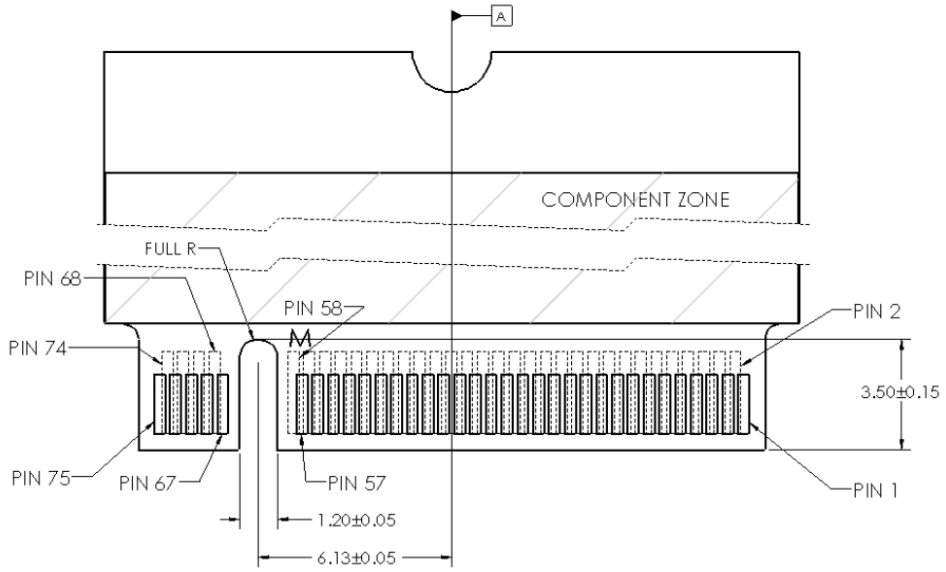
Model	Length (mm)	Width (mm)	Height (mm)	Weight (g)
faspeed P8 series	80 ±0.15	22 ±0.15	2.15 ±0.2	≈ 7.7g

3.2 Physical Structure



4. Electrical Structure

4.1 M.2 Interface



FRONT VIEW

Figure 6-16: Keying Option M

4.2 Pin definition

Pin#	Assignment	Pin#	Assignment
1	GND	2	3.3V
3	GND	4	3.3V
5	PETn3	6	NC
7	PETp3	8	NC
9	GND	10	Active LED
11	PETn3	12	3.3V
13	PETp3	14	3.3V
15	GND	16	3.3V
17	PETn2	18	3.3V

19	PETp2	20	NC
21	GND	22	NC
23	PETn2	24	NC
25	PETp2	26	NC
27	GND	28	Force ROM
29	PETn1	30	NC
31	PETp1	32	NC
33	GND	34	NC
35	PETn1	36	NC
37	PETp1	38	NC
39	GND	40	I2C_SCL
41	PETn0	42	I2C_SDA
43	PETp0	44	M2_ALERT
45	GND	46	NC
47	PETn0	48	NC
49	PETp0	50	PERST
51	GND	52	CLKREQ
53	REFCLKn	54	WAKE
55	REFCLKp	56	MFG_DATA (NC)
57	GND	58	MFG_CLOCK (NC)
Key M		Key M	
67	NC	68	SUSCLK (NC)
69	PEDET	70	3.3V
71	GND	72	3.3V
73	GND	74	3.3V
75	GND		

5. Package

1： Packing box (L*W*H)： 120 * 110 * 14 mm

Weight（g）：≈30g （include SSD)

Product should be packed strictly to quality guarantee requirements of anti-static, anti-moisture and anti-misleading during warranty and storage period；

6. Note

1. Capacity calculation rule is, 1GB is equivalent to1000000000 bytes, while Windows operating system, 1GB capacity is defined as 1,073,741,824 bytes. When Windows operating system runs, capacity may be recognized as a smaller figure than the actual one. The available capacity may be different with operating systems;

2. Product pictures and size refer to the actual products; power, read and write speed data is for reference only;

3. Data such as power consumption, read and write speed is based on a specific Flash type, capacity, channel number, specific software and hardware conditions. It cannot be used for business contract.

4. We are doing our best to provide comprehensive and accurate information as we can, but we are not responsible for errors or omissions in the report that may cause any loss.

5. In order to provide users with a better user experience and support new NAND Flash, we will launch updated version of the FW. Newly released FW will not be notified, and the actual FW version received will prevail.