

faspeed Solid State Disk

Product Specification

faspeed K series

Product Name	faspeed K Serial 2.5inch SSD
Product Model	faspeed K5-120G
	faspeed K5-240G

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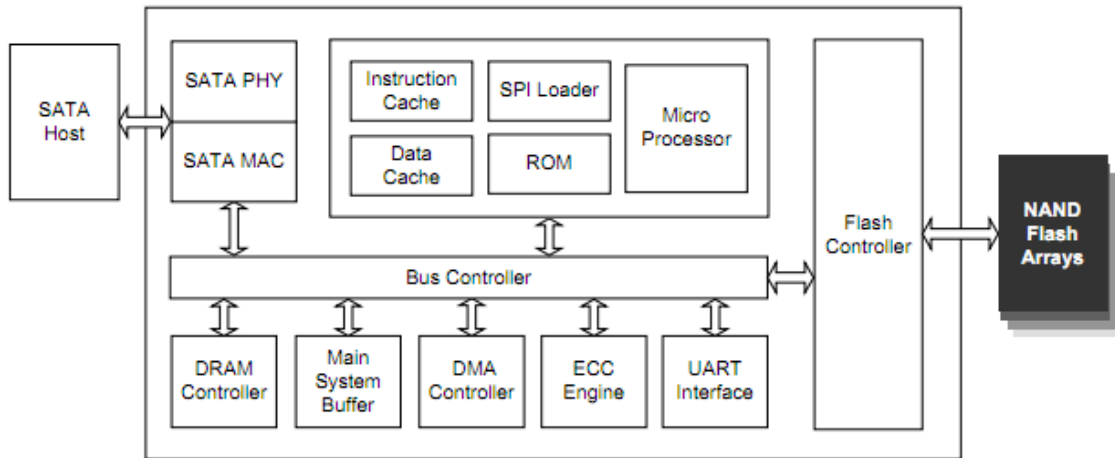
1. General Description

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**
- ▶ Read/Write Performance (Up to): **240GB 550 / 450 MB/s;**
- ▶ Form factor: **SATA**
- ▶ Interface: SATAIII, 6.0Gb/s
- ▶ Fully compliant with SATA3.1, compatible with SATA 1.5/ 3.0/ 6.0Gb/s interface rates
- ▶ Wide operating TEMP range from 0°C to +70°C and -40°C to +70°C for storage TEMP
- ▶ Flash management algorithm: global static and dynamic wear-leveling, bad block management algorithm
- ▶ Supports ATA and SATA Interface power management and SMART (Self-Monitoring, Analysis and Reporting Technology)
- ▶ ECC (Error Correction Code): **Supports LDPC ECC.**
- ▶ MTBF: 1,200,000 Hours

1.2 Block Diagram



1.3 Capacity

Model	Capacity	Total number of sectors (512/Sector)	Total number of bytes	Flash Type
faspeed K5-120G	120GB	234441648	120034123776	3D NAND Flash
faspeed K5-240G	240GB	468862128	240057409536	3D NAND Flash

1.4 Supply Voltage

Item	Requirements
Allowable voltage	5V ± 2%
Allowable noise/ripple	100mV p-p or less

1.5 Power Consumption

Power	faspeed K5
Active (W)	1.8-4.5
Idle (W)	0.36

1.6 Reliability

Item	Typical(Hours)
MTBF	1,200,000

1.7 Environment

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

1.8 Control / Flash

Model	Control	Flash Vendors	Flash Model	Flash Type
120G / 240G	HG2258	Hynix H25BFT8A1M8R	HG <u>202593</u> H2P2	TLC
Note: " <u>202593</u> " Represents production batches, different batches will vary.				

2. Performance

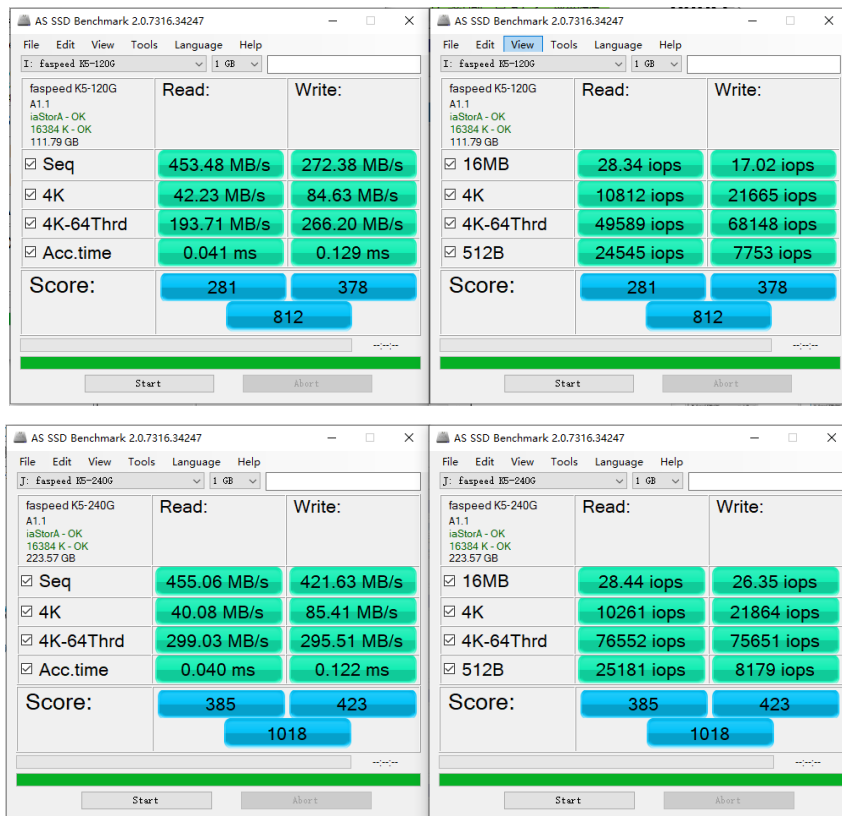
2.1 AS SSD Benchmark Test Result

Performance by MB/s

Model	Cap.	Read/Write (MB/S)			
		Seq	4K	4K-64Thrd	Acc.time
faspeed K5-120G	120GB	453 / 272	42.2/84.6	193 / 266	0.041/0.129
faspeed K5-240G	240GB	455 / 421	40.8/85.4	299 / 295	0.040/0.122

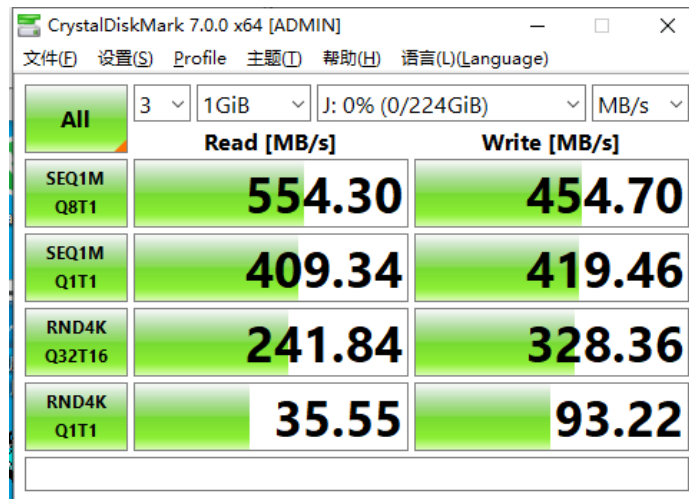
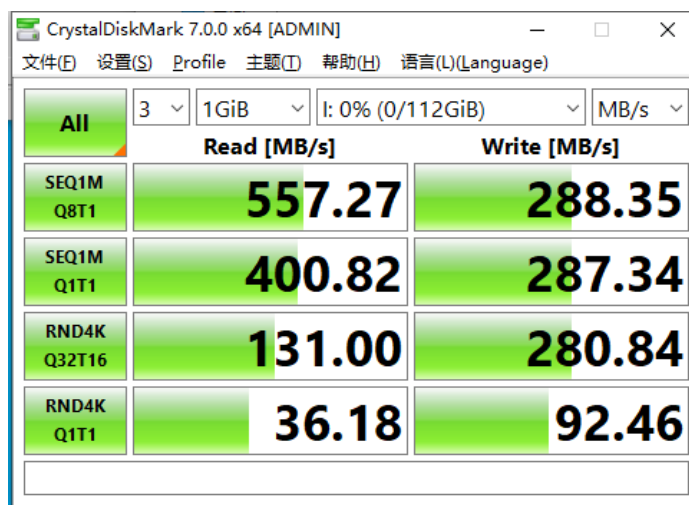
Performance by IOPS

Model	Cap.	Read/Write (MB/S)			
		16MB	4K	4K-64Thrd	512B
faspeed K5-120G	120GB	28.34/17.02	10812/21665	49589/68148	24545/7753
faspeed K5-240G	240GB	28.44/26.35	10261/21864	76552/75651	25181/8179



2.2 CrystalDiskMark Test Result

Model	Cap.	Read/Write (MB/S)			
		SEQ1M Q8T1	SEQ1M Q1T1	RND4K Q32T16	RND4K Q1T1
faspeed K5-120G	120GB	557 / 288	400 / 287	131 / 280	36.18 / 92.4
faspeed K5-240G	240GB	554 / 454	409 / 419	241 / 328	35.55 / 93.2



Note:

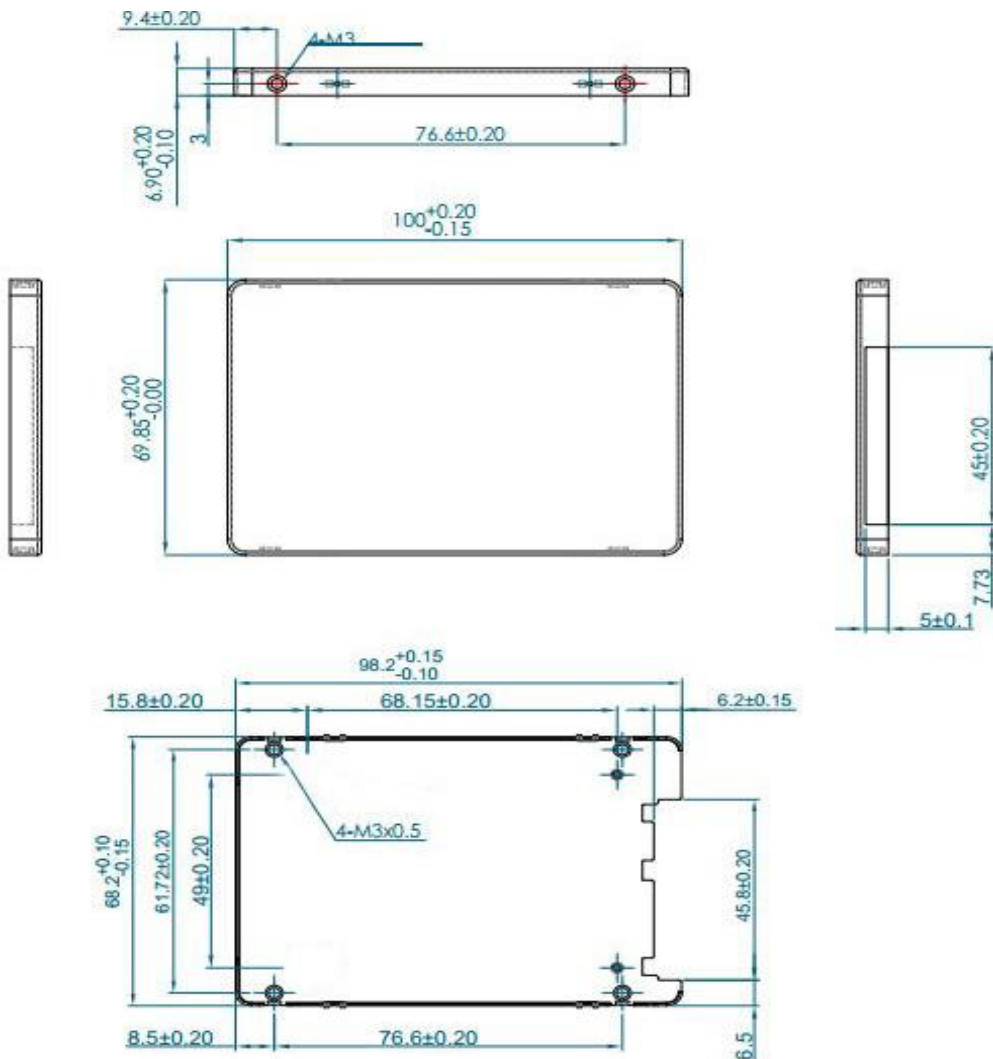
1. Platform: Intel(R) Core(TM) i3-6100 CPU @ 3.70GHz,
ASUS H110M-A/M.2, 8GB DDR4 , Windows 10 64bit.
2. Test data depending on the software / hardware platform, is for reference only.

3. Structure & dimension

3.1 Physical Dimension

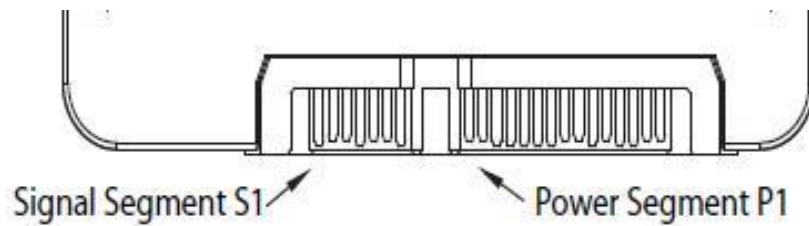
Model	Length (mm)	Width (mm)	Height (mm)	Weight (g)
faspeed K5	100 +/- 0.2	69.85 +/- 0.2	6.9 +/- 0.2	≈ 40.5

3.2 Physical Structure



4. Electrical Structure

4.1 SATAIII Interface



4.2 Pin definition

Pin#	Assignment	Description
1	GND	Return Current Path
2	A+	Host Transmitter Differential Signal Pair
3	A-	Host Transmitter Differential Signal Pair
4	GND	Return Current Path
5	B-	Host Receiver Differential Signal Pair
6	B+	Host Receiver Differential Signal Pair
7	GND	Return Current Path
8	3.3v	No Connect
9	3.3v	No Connect
10	DEVSLP	No Connect
11	GND	Return Current Path
12	GND	Return Current Path
13	GND	Return Current Path
14	5v	5 V Source
15	5v	5 V Source
16	5v	5 V Source
17	GND	Return Current Path
18	DASP/GD	No Connect
19	GND	Return Current Path
20	12v	No Connect
21	12v	No Connect
22	12v	No Connect

5. Package

1: Packing box (L*W*H): 145 * 142 * 15.5mm

Weight (g) : ≈80g (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 to 1000000000 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.