

Cervoz Industrial SSD

2.5" PATA

Supreme Series (SLC)

S120 Family

Product Datasheet



Date: 2015.04.13

Revision: 1.1

File: Cervoz_Industrial_SSD_2.5"_PATA_S120_Datasheet_Rev1.1

Revision History

Date	Revision	Description
2015.01.05	1.0	First Released
2015.04.13	1.1	TeraByte Written (TBW) Information Added

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1. Product Overview

1.1 Introduction

Cervoz Industrial 2.5" PATA SSD S120 is a high capacity Solid State Disk product that is in compliance with the 2.5" form factor and PATA standards. It is a perfect replacement for traditional PATA hard disk drives with much lower power consumption.

S120 uses superior quality, preselected single-level cell (SLC) NAND flash memory from the industry leading manufacturer Toshiba. This product includes both standard temperature range and wide temperature range options with various capacities to choose from.

S120 offers outstanding performance and reliability, ideal for extreme applications in mission critical environments. Factory Automation, Transportation, Networking and Video Surveillance all benefit from this superior read/write endurance and data retention.

1.2 Feature

- Compliant with ATA command set
- SLC NAND flash memory
- Capacity: 16GB ~ 256GB
- Operating as boot disk
- Product includes Standard Temperature range & Wide Temperature range
- Static and dynamic wear leveling
- Bad block management
- S.M.A.R.T.

1.3 Product Appearance & Models

Cervoz Industrial 2.5" PATA SSD S120



S120 Family Standard Temp. (0°C ~ 70°C) Model No.	S120 Family Wide Temp. (-40°C ~ 85°C) Model No.	Capacity
CIS-2PS120THT016GS	CIS-2PS120THT016GW	16GB
CIS-2PS120THT032GS	CIS-2PS120THT032GW	32GB
CIS-2PS120TIT064GS	CIS-2PS120TIT064GW	64GB
CIS-2PS120TIT128GS	CIS-2PS120TIT128GW	128GB
CIS-2PS120TJT256GS	CIS-2PS120TJT256GW	256GB

Please Note:

Since certain storage capacity has to be reserved for firmware and controller management purposes; the physical capacity of the PATA flash module will be approximately 90% of the indicated capacity. If you need to install an image that has the exact (or close to) the indicated size of the flash module, please choose your flash module with a greater capacity.

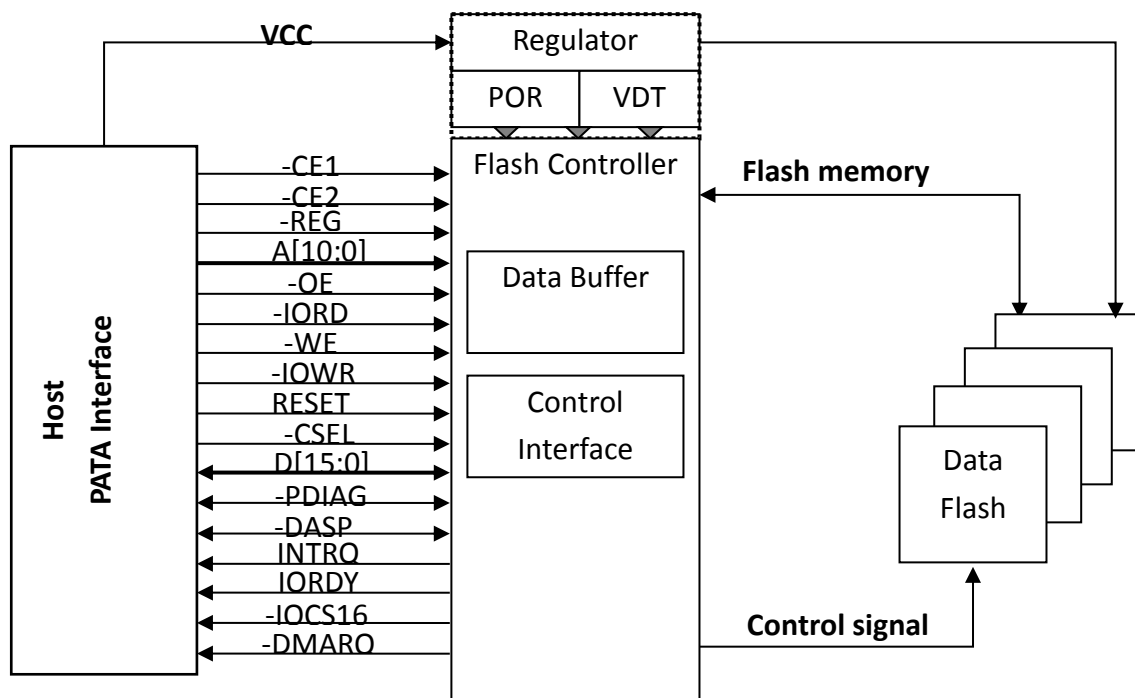
2. Product Specifications

2.1 General Specifications

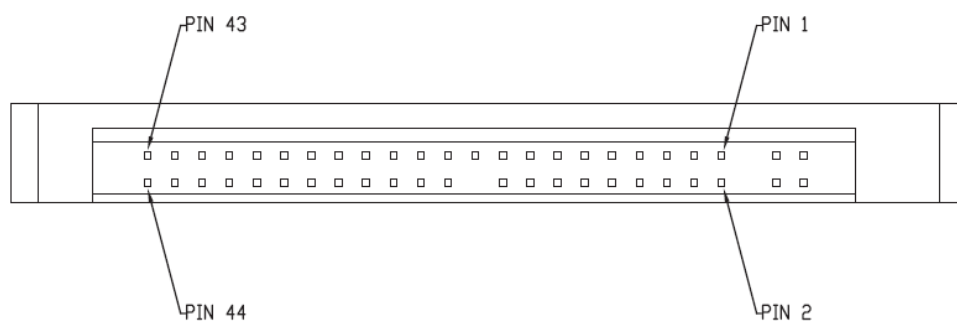
Form Factor	2.5inch
Interface	PATA
Connector	PATA (44 pin)
NAND Flash Type	SLC
Capacity	16GB/32GB/64GB/128GB/256GB
Sequential Read	up to 80MB/s
Sequential Write	up to 90MB/s
ECC Scheme	up to 68bits / 1K Byte
MTBF	2,000,000 hours
TeraByte Written (TBW)	16GB : 313 32GB : 625 64GB : 1250 128GB : 2500 256GB : 5000
Supply Voltage	+5V DC +/-5% (3.3V and 5.0V)
Power Consumption	Active mode: < 945mW Idle mode: < 5mW
Dimension (LxWxH)	100.00*69.85*7.20mm

2.2 Electronic Specifications

2.2.1 Block Diagram



2.2.2 Pin Assignment



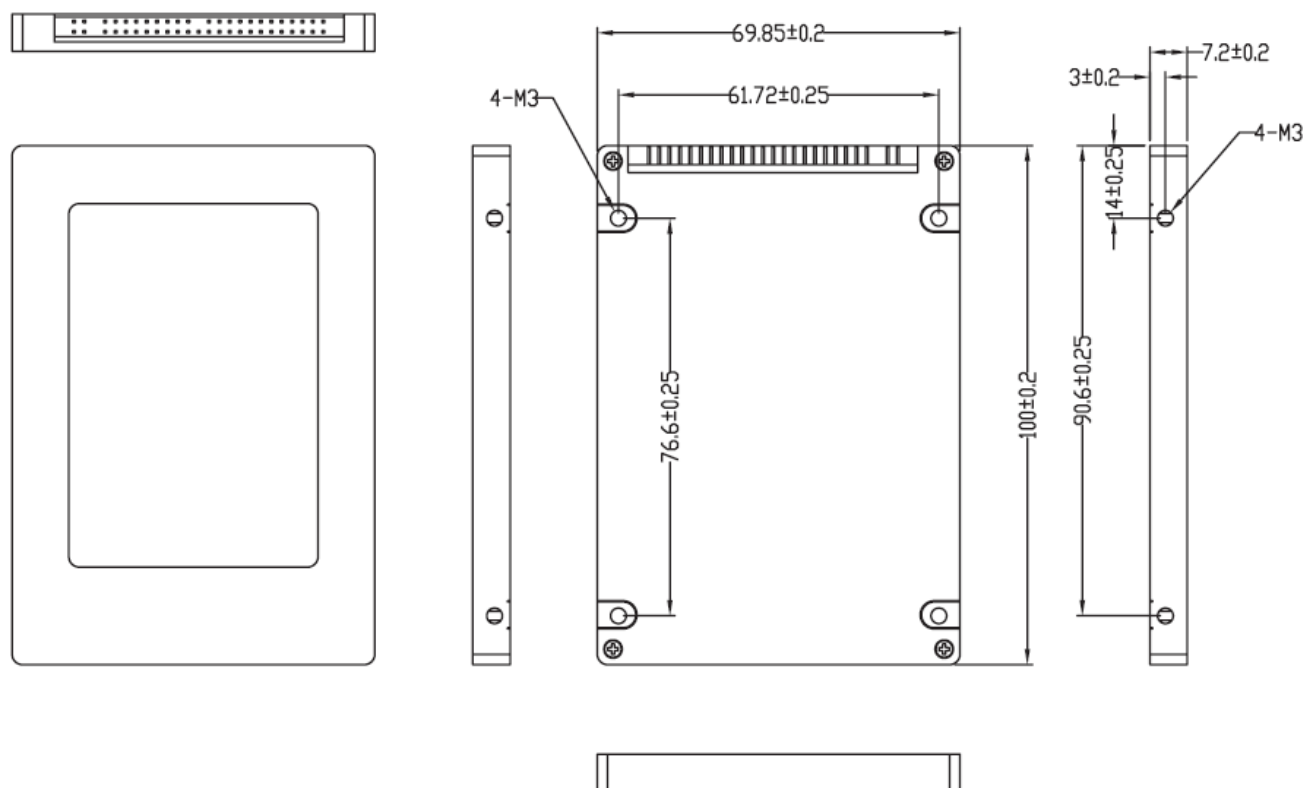
Pin No.	Pin Name	Pin No.	Pin Name
01	-RESET	02	GND
03	DD7	04	DD8
05	DD6	06	DD9
07	DD5	08	DD10
09	DD4	10	DD11
11	DD3	12	DD12
13	DD2	14	DD13
15	DD1	16	DD14
17	DD0	18	DD15
19	GND	20	KEY_PIN(OPEN)
21	DMARQ	22	GND
23	-DIOW:STOP	24	GND
25	-DIOR:-HDMARDY:HSTOBE	26	GND
27	IORDY:DDMARDY:DSTROBE	28	CSEL
29	-DMACK	30	GND
31	INTRQ	32	IOIS16
33	DA1	34	-PDIAG:-CBLID
35	DA0	36	DA2
37	-CS0	38	-CS1
39	-DASP	40	GND
41	VCC	42	VCC
43	GND	44	NC

2.3 Environmental Specifications

Type		Value
Temperature	Standard Temperature Operating:	0°C~70°C
	Standard Temperature Storage:	-40°C~85°C
	Wide Temperature Operating:	-40°C~85°C
	Wide Temperature Storage:	-50°C~95°C
Humidity	Operating & Storage	10~95%, Non-Condensing
Vibration	Operating	20G, 10Hz~2000Hz
Shock	Operating	1500G, 0.5ms

2.4 Mechanical Specifications

Type	Value
Form Factor	2.5" PATA
Length	100.00mm +/-0.20mm
Width	69.85mm +/-0.20mm
Thickness	7.20mm +/-0.20mm



3. Supported Command

3.1 List of Command Sets

No.	Command Set	Code	FR	SC	SN	CY	DR	HD	LBA
1	CFA Erase Sector(s)	C0h	--	Y	Y	Y	Y	Y	Y
2	CFA Request Extended Error Code	03h	--	--	--	--	Y	--	--
3	CFA Translate Sector	87h	--	Y	Y	Y	Y	Y	Y
4	CFA Write Multiple w/o Erase	CDh	--	Y	Y	Y	Y	Y	Y
5	CFA Write Sector w/o Erase	38h	--	Y	Y	Y	Y	Y	Y
6	Check Power Mode	E5h	--	--	--	--	Y	--	--
7	Execute Device Diagnostic	90h	--	--	--	--	Y	--	--
8	Identify Device	ECh	--	--	--	--	Y	--	--
9	Idle	E3h	--	Y	--	--	Y	--	--
10	Idle Immediate	E1h	--	--	--	--	Y	--	--
11	Initialize Device Parameters	91h	--	Y	--	--	Y	Y	--
12	NOP	00h	--	--	--	--	Y	--	--
13	Read Buffer	E4h	--	--	--	--	Y	--	--
14	Read DMA	C8h	--	Y	Y	Y	Y	Y	Y
15	Read Multiple	C4h	--	Y	Y	Y	Y	Y	Y
16	Read Sector(s)	20h	--	Y	Y	Y	Y	Y	Y
17	Read Verify Sector(s)	40h	--	Y	Y	Y	Y	Y	Y
18	Seek	70	--	--	Y	Y	Y	Y	Y
19	Set Features	EFh	Y	--	--	--	Y	--	--
20	Set Multiple Mode	C6h	--	Y	--	--	Y	--	--
21	Sleep	E6h	--	--	--	--	Y	--	--
22	Standby	E2h	--	--	--	--	Y	--	--
23	Standby Immediate	E0h	--	--	--	--	Y	--	--
24	Write Buffer	E8h	--	--	--	--	Y	--	--
25	Write DMA	CAh	--	Y	Y	Y	Y	Y	Y
26	Write Multiple	C5h	--	Y	Y	Y	Y	Y	Y
27	Write Sector(s)	30h	--	Y	Y	Y	Y	Y	Y

Note:

FR: Feature Register

SC: Sector Count Register

SN: Sector Number Register

CY: Cylinder Low/High Register

DR: Drive bit of Drive/Head register

HD: Head No. of Drive/Head Register

LBA: LBA mode supported

Y: Set up

--: Not set up

4. Part No. Decoder

4.1 Part No. Decoder

1	-	2	3	4	5	6	7	8	9
Product Line	-	Form Factor	Product Series	Cervoz Family Code (Bus / Internal Control)	Flash Brand	Flash Capacity	Die Package	Module Capacity	Operating Temp.
XXX	-	XX	X	XXX	X	X	X	XXXX	X

1. Product Line

CIS	Cervoz Industrial SSD
CIM	Cervoz Industrial Memory Card
CIE	Cervoz Industrial Embedded Module

2. Form Factor

2S	2.5" SATA
2P	2.5" PATA
CF	CompactFlash
CA	CFast
MS	mSATA
HS	Half Slim
0V	PATA Disk 40pin Vertical
4V	PATA Disk 44pin Vertical
7T	SATA Disk 7pin Vertical Tall

3. Product Series

S	Supreme Series (SLC)
R	Reliance Series (RO-MLC)
M	Momentum Series (MLC)

4. Cervoz Family Code

Bus and Internal Control for Cervoz Product Families

5. Flash Brand

M	Micron
T	Toshiba

6. Flash Capacity

A	256Mb
B	512Mb
C	1Gb
D	2Gb
E	4Gb
F	8Gb
G	16Gb
H	32Gb
I	64Gb

J	128Gb
K	256Gb
L	512Gb
M	1Tb

7. Die Package

T	TSOP
B	BGA

8. Module Capacity

128M	128MB
256M	256MB
512M	512MB
001G	1GB
002G	2GB
004G	4GB
008G	8GB
016G	16GB
032G	32GB
064G	64GB
128G	128GB
256G	256GB
512G	512GB

9. Operating Temperature

S	Standard Grade (0~ +70°C)
W	Wide Temperature Grade (-40 ~ +85°C)