Myung Solid State Drive
3.5 Inch SCSI 50P

MS Series Product Specification

Sep 2012
Rev. 0.5

MYUNG INFO.TECH.
Myung Information Technologies Co., Ltd.

Table of Contents

1. Revision History

- Rev. 0.1 (2010.12.12) : SCSI 50P Product Preliminary Specification
- Rev. 0.2 (2011.05.16) : Image Design & Specification Modified.
                            Add capacity information and Block Diagram.
- Rev. 0.3 (2012.09.18) : Datasheet Reconfirm.
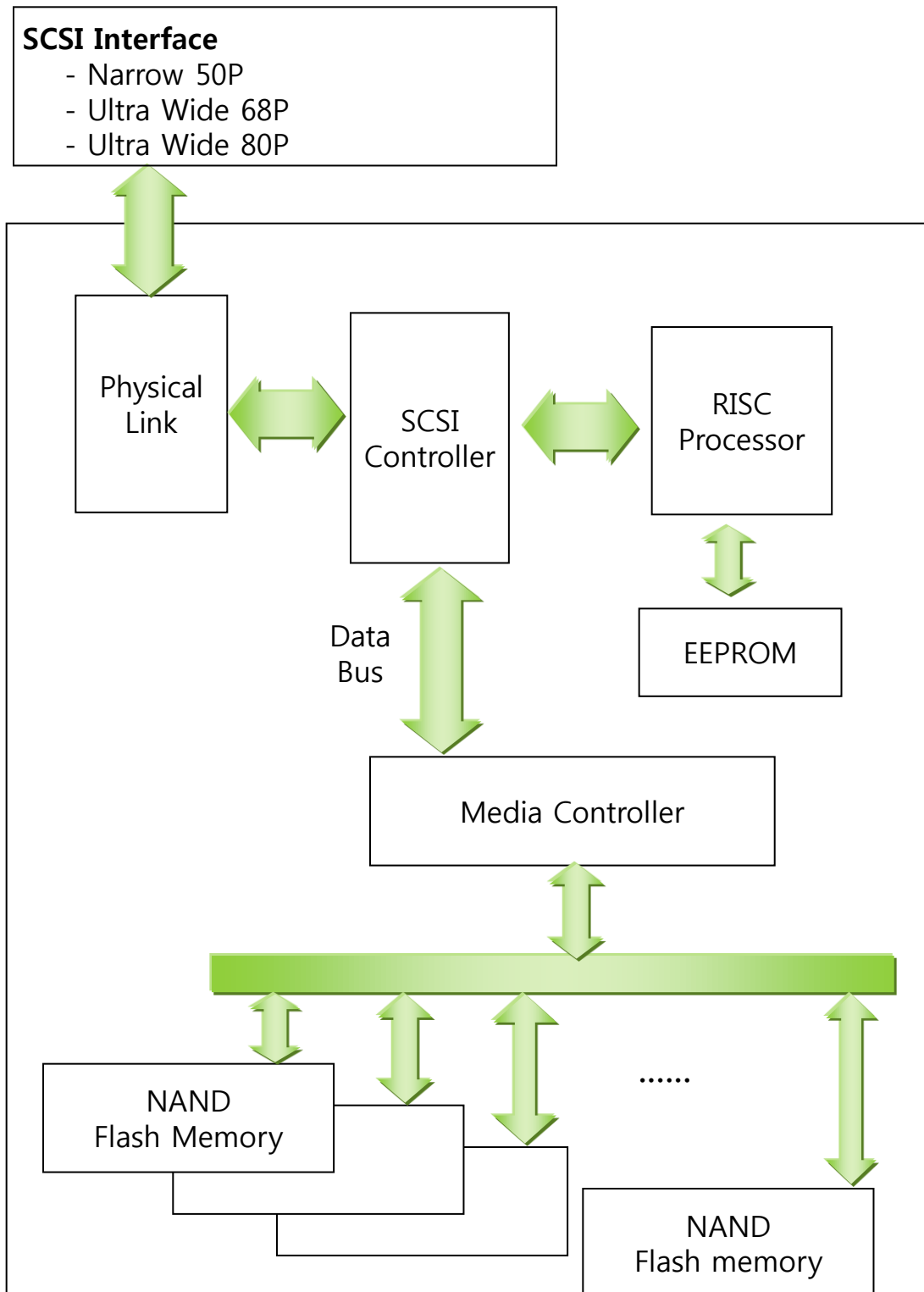
2. General Description

Myung Information Technology SSD is designed to solve the replacement of traditional HDD. It is fully consists of semiconductor device and using NAND flash memory, which has a high reliability and a high stability. AS the SSD doesn't have a moving part such as platter(HDD) and head media, it gives a good solution in a any System for a storage device with high performance and low power consumption and small form factor.SSD gives rugged features in industrial PC with an extreme environment and on increased MTBF. For and easy adoption, it has a same host interface with HDD and has a same physical dimension.

3. Features

• Interface :

  SCSI Narrow 50p

• Uses NAND flash memory Single Level

  Cell (SLC) components

• Built-in Hardware ECC

– Corrects up to 8 random single-bit errors per

  512-byte sector

• Standard Capacity

 - Max 32GB

• Temperature

 - storage Temp : -55°C ~ 95°C

 - operating Temp : - 40°C ~ 85°C

• Equipment being used

- NEC PC

- Advantech Computer

- Workstation (Sun Ultra 5, HP, IRM, Intel,

                    DELL, etc, ...)

- Beck Hoff Rack Mount System

- etc

※ **OEM production and production capacity are available other than the standard capacity.**

   ex) 3.3GB , 2.8GB

4. Block Diagram

SCSI Interface
- Narrow 50P
- Ultra Wide 68P
- Ultra Wide 80P

Physical Link

SCSI Controller

RISC Processor

Data Bus

EEPROM

Media Controller

......

NAND Flash Memory

NAND Flash memory

5. Specifications

Physical Dimension

Form Factor		SCSI 50P
Dimensions (mm)	**Length**	146
	Width	101.6
	Height	25.3
Weight		270g ~ 280g

Electrical Specifications

Parameter	Symbol	MIN	TYP	MAX	UNIT
Voltage Input	**VCC**	4.75	5.0	5.25	V

Performance

Interface	Read	Write
Narrow 50P	20MB/s	20MB/s
Ultra Wide 68P	50MB/s	20MB/s
Ultra Wide 80P	20MB/s	20MB/s
Access Time	0.5 ms or less	

User Addressable Sectors

Capacity	Total User Addressable Sectors in LBA Mode
1GB	2,001,888
2GB	4,000,752
4GB	8,000,496
8GB	15,628,032
16GB	31,277,232
32GB	62,502,048

6. Reliability Characteristics

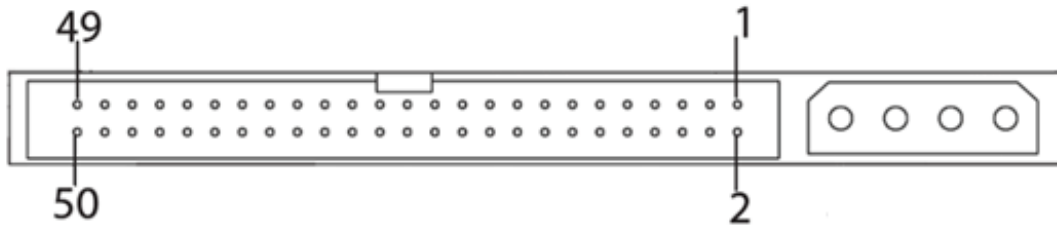| Temperature	
Industrial Operating	- 40°C ~ 85°C
Commercial Operating	0°C ~ 70°C
Non-operation	-55°C ~ 95°C
Humidity	
Operating	5% to 95% (60°C)
Altitude	
Non-Operating	80,000feet (24.384Km)
Random Vibration	
Non-Operating	20Hz ~ 2,000Hz
Shock	
Non-Operating	1,500g / 0.5ms

Wear-Leveling algorithm
Myung's SSD supports static wear leveling. When the free blocks' erase count is higher than the data blocks', it will activate the static wear leveling, replacing the not so frequently used user blocks with the high erase count free blocks.

ECC algorithm
The ATA Flash Disk Controller uses BCH Error Detection Code (EDC) and Error Correction Code (ECC) algorithms which correct up to eight random single-bit errors for each 512-byte block of data. High performance is achieved through hardware-based error detection and correction.
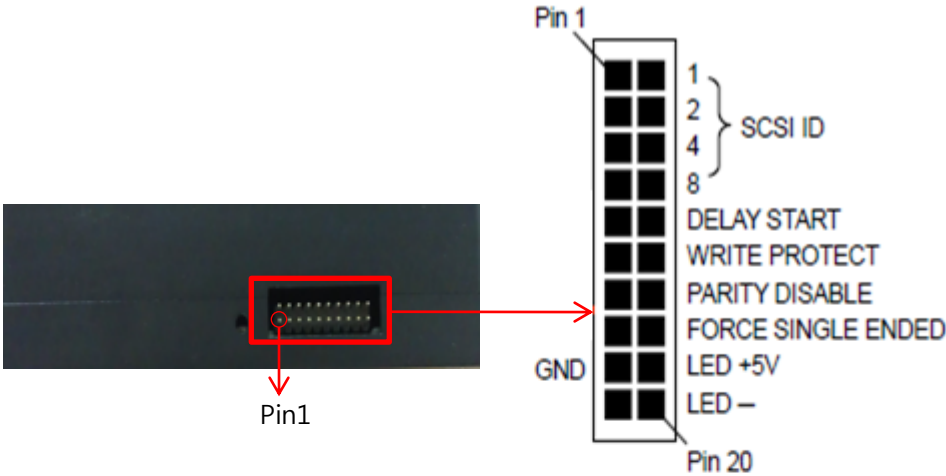
7. SCSI Connector Descriptions
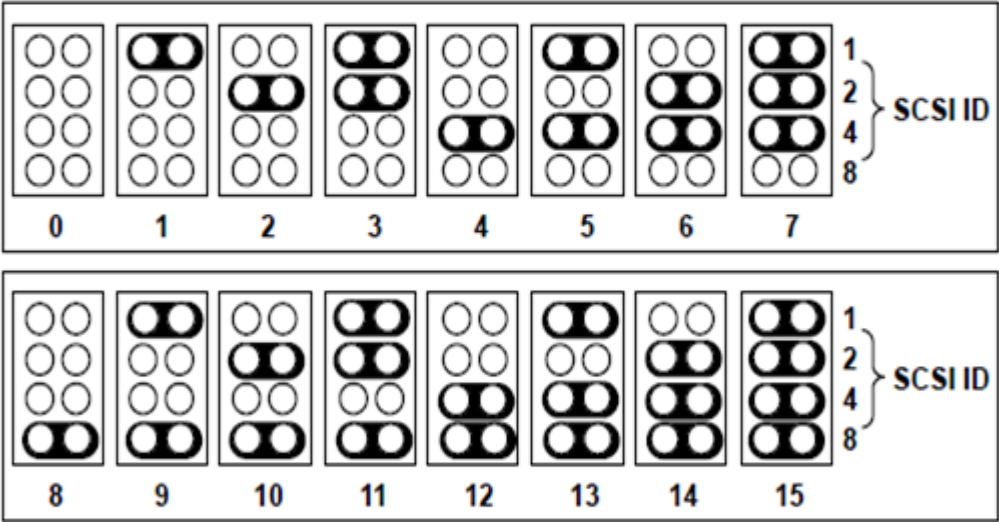
7-1 Narrow 50P Connector Description

Signal	Pin Number		Signal
50 Pin Assignments			
Signal	Pin Number		Signal
Ground	1	2	/DB0
Ground	3	4	/DB1
Ground	5	6	/DB2
Ground	7	8	/DB3
Ground	9	10	/DB4
Ground	11	12	/DB5
Ground	13	14	/DB6
Ground	15	16	/DB7
Ground	17	18	/DBP
Ground	19	20	Ground
Ground	21	22	Ground
Reserved	23	24	Reserved
NC	25	26	TERM POWER
Reserved	27	28	Reserved
Ground	29	30	Ground
Ground	31	32	/ATN
Ground	33	34	Ground
Ground	35	36	/BSY
Ground	37	38	/ACK
Ground	39	40	/RST
Ground	41	42	/MSG
Ground	43	44	/SEL
Ground	45	46	/CD
Ground	47	48	/REQ
Ground	49	50	/IO

7-2 Set the Jumper

```
Pin 1
        ┌─────────┐
        │ ■ ■ │ 1 ┐
        │ ■ ■ │ 2 ├ SCSI ID
        │ ■ ■ │ 4 │
        │ ■ ■ │ 8 ┘
        │ ■ ■ │ DELAY START
        │ ■ ■ │ WRITE PROTECT
        │ ■ ■ │ PARITY DISABLE
        │ ■ ■ │ FORCE SINGLE ENDED
   GND  │ ■ ■ │ LED +5V
        │ ■ ■ │ LED −
        └─────────┘
        Pin 20
```

Pin1

2. The (J1) setting of SCSI ID

```
 0    1    2    3    4    5    6    7
                                       1 ┐
                                       2 ├ SCSI ID
                                       4 │
                                       8 ┘
```

```
 8    9   10   11   12   13   14   15
                                       1 ┐
                                       2 ├ SCSI ID
                                       4 │
                                       8 ┘
```
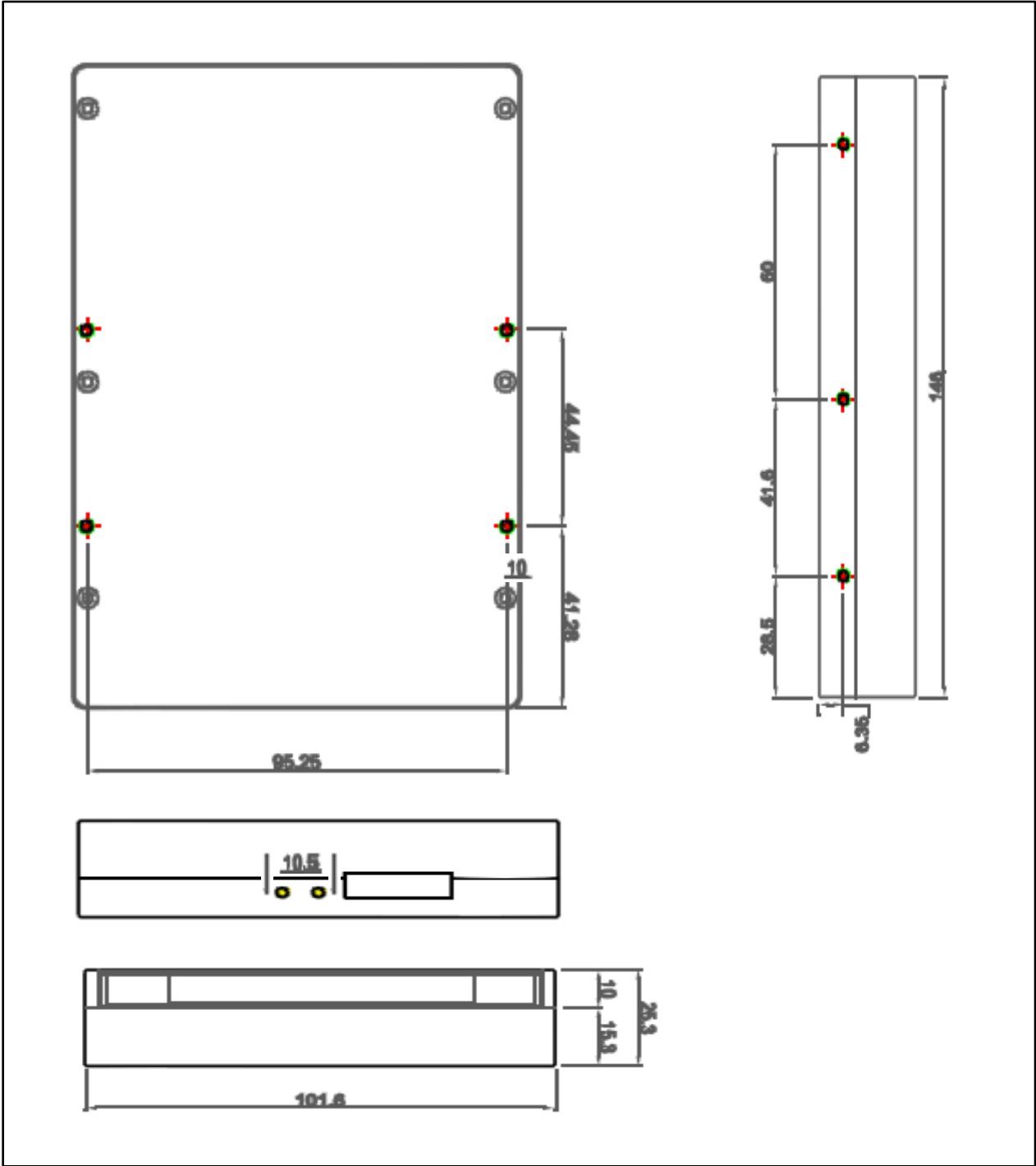
ID 7 is reserved for SCSI host, so don't set the ID of your SCSI drive as 7.

Short
Open

	Short	Open
DELAY START	Delay Start	Normal Start
WRITE PROPECT	Write Protect	Normal read/write
PARITY DISABLE	Parity Disable	Parity Enable
FORCE SINGLE ENDED	SE SCSI mode	LVD SCSI mode

8. Package Dimensions

➢Note : All Dimensions are in Millimeters.

9. MS Series Ordering Information

MS   3   004G   N
1   2   3   4

1. MS : Myung SSD Generation 1

2. Form factor

Form factor	Content
3	3.5 Inch Drive

3. Capacity

Capacity	Content
128M	128MB
256M	256MB
512M	512MB
001G	001GB
002G	002GB
004G	004GB
008G	008GB
016G	016GB
032G	032GB

4. Bus Architecture

Interface	Content
N	SCSI Narrow 50p
W	SCSI WIDE 68P
U	SCSI WIDE 80P

Sample)

MS3008GN

Product Spec

Form factor : 3.5 Inch Drive

Capacity : 8GB

Interface : SCSI 50P

Controller : SST

Memory : SLC

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10. Contact

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Thanks you.