

Disk On Module
DOM 40P / 44P Products

MS Series Product Specification

Sep 17, 2012
Rev. 0.4



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

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1. Revision History

Revision	Date	Description	Remark
0.1	August 11, 2008	Preliminary Specification	
0.2	April 20, 2010	The Second Version	
0.3	May 21, 2012	Supports ATA Command, Performance and Model name change	
0.4	Sep 17 2012	Capacity Change	

2. General Description

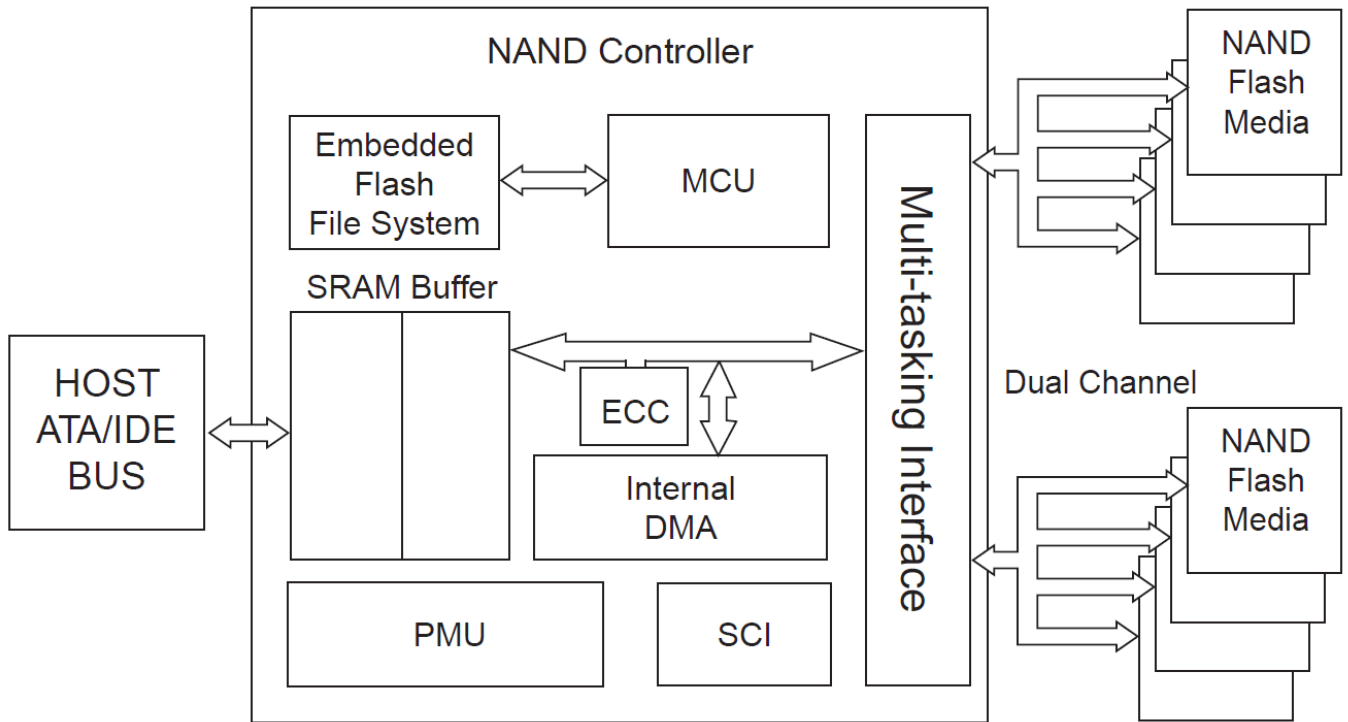
Myung Information Technology SSD is designed to solve the replacement of traditional HDD. It is fully consists of semiconductor device and using NAND flash memory, which has a high reliability and a high stability. AS the SSD doesn't have a moving part such as platter(HDD) and head media, it gives a 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

- Host Interface: 16-bit access
- Supports up to PIO Mode-6
- Supports up to Multi-word DMA Mode-4
- Supports up to Ultra DMA Mode-5
- Host intervention Zero wake-up latency
- Built-in Hardware ECC
 - Corrects up to 8 random bits of error per 512-byte sector
- Uses NAND flash memory
 - Single Level Cell (SLC) components
- Low Power Operation:
 - Active mode: 25 mA (3V) (typical)
 - Sleep mode: 65 μ A (3V) (typical)
- Sustained Write Performance (Host to Flash)
 - Supports up to 30MByte/sec
- Sustained Read Performance (Flash to Host)
 - Up to 40MByte/sec
- Storage Capacity
 - 128MB ~ 16GB
- Temperature
 - Commercial : 0°C ~ 70°C
 - Industrial : - 40°C ~ 85°C
 - storage : -55°C ~ 95°C
- Products Line
 - DOM 40P Angle / Straight Type
 - DOM 44P Angle / Straight Type

※ OEM production and production capacity are available other than the standard capacity.
ex) 3.3GB , 2.8GB

4. Block Diagram



1397 B1.0

5. Specifications

Physical Dimension

Form Factor		40Pin Angle	40Pin Straight	44Pin Angle	44Pin Straight
Dimensions (mm)	Length	57	57	48.1	50.2
	Width	27.3	35.5	32.85	27.5
	Height	22.1	12.8	5.6	6.5

Electrical Specifications

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

Performance

Sustained Read (Windows)	30MB/s
Sustained Write (Windows)	15MB/s
Sustained Read (DOS)	18MB/s
Sustained Write (DOS)	10MB/s
Access Time	0.1ms or less

User Addressable Sectors

Capacity	Total Byte	Cylinders	Heads	Sectors	Max LBA
128MB	128,057,344	977	8	32	250,112
256MB	256,901,120	980	16	32	501,760
512MB	512,483,328	993	16	63	1,000,944
1GB	1,024,966,656	1986	16	63	2,001,888
2GB	2,048,385,024	3969	16	63	4,000,752
4GB	4,096,253,952	7937	16	63	8,000,496
8GB	8,001,552,384	15504	16	63	15,628,032
16GB	8,455,200,768	16383	16	63	31,252,032

6. Reliability Characteristics

Temperature	
Operating(Commercial type)	- 40°C ~ 70°C
Operating (Industrial type)	-40°C ~ 85°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

- Note : Random Vibration Grms 16.32 / TEST X, Y, Z
Shock TEST $\pm X$, $\pm Y$, $\pm Z$

Wear-Leveling algorithm

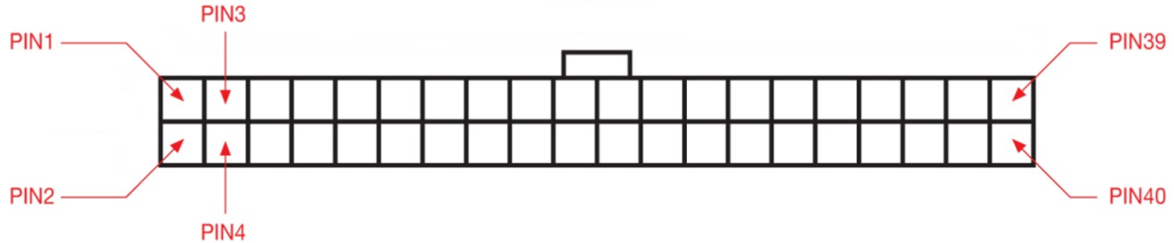
Myung's SSD supports static wear leveling. When the free blocks' erase count is higher than the data blocks', it will activate the static wear leveling, replacing the not so frequently used user blocks with the high erase count free blocks.

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.

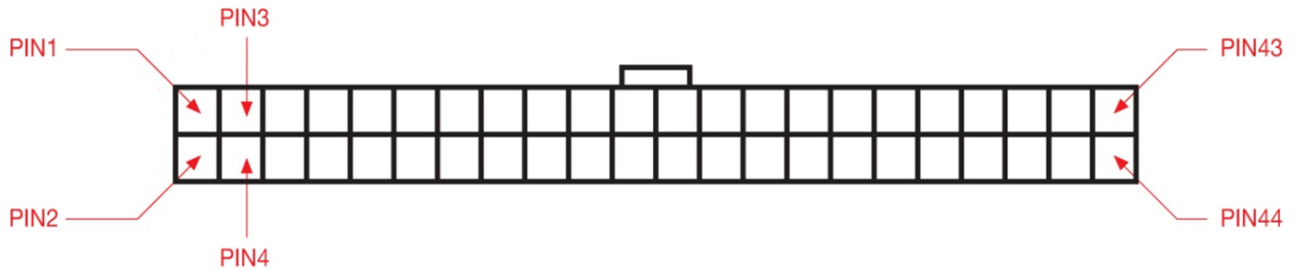
7. DOM Connector Descriptions

7-1 DOM 40P Connector Description



Pin			
Signal	Pin Number		Signal
RESET-	1	2	Ground
DD7	3	4	DD8
DD6	5	6	DD9
DD5	7	8	DD10
DD4	9	10	DD11
DD3	11	12	DD12
DD2	13	14	DD13
DD1	15	16	DD14
DD0	17	18	DD15
Ground	19	20	(keypin)
DMARQ	21	22	Ground
DIOW-	23	24	Ground
DIOR-	25	26	Ground
IORDY	27	28	CSEL
DMACK-	29	30	Ground
INTRQ	31	32	Obsolete
DA1	33	34	PDIAG-
DA0	35	36	DA2
CS0-	37	38	CS1-
DASP-	39	40	Ground

7-2 DOM 44P Connector Description



IDE(ATA) Pin Assign			
Signal	Pin Number		Signal
RESET-	1	2	Ground
DD7	3	4	DD8
DD6	5	6	DD9
DD5	7	8	DD10
DD4	9	10	DD11
DD3	11	12	DD12
DD2	13	14	DD13
DD1	15	16	DD14
DD0	17	18	DD15
Ground	19	20	(keypin)
DMARQ	21	22	Ground
DIOW-	23	24	Ground
DIOR-	25	26	Ground
IORDY	27	28	CSEL
DMACK-	29	30	Ground
INTRQ	31	32	Obsolete
DA1	33	34	PDIAG-
DA0	35	36	DA2
CS0-	37	38	CS1-
DASP-	39	40	Ground
+5V	41	42	+5V
Ground	43	44	NC

8. Supports Command List

COMMAND NAME	COMMAND CODE (HEX)
Check-Power-Mode	E5H or 98H
Execute-Drive-Diagnostic	90H
Erase-Sector(s)	C0H
Flush-Cache	E7H
Format-Track	50H
Identify-Drive	ECH
Idle	E3H or 97H
Idle-Immediate	E1H or 95H
Initialize-Drive-Parameters	91H
NOP	00H
Read-Buffer	E4H
Read-DMA	C8H or C9H
Read-Multiple	C4H
Read-Sector(s)	20H or 21H
Read-Verify-Sector(s)	40H or 41H
Recalibrate	10H
Request-Sense	03H
Security-Disable-Password	F6H
Security-Erase-Prepare	F3H
Security-Erase-Unit	F4H
Security-Freeze-Lock	F5H
Security-Set-Password	F1H
Security-Unlock	F2H
Seek	70H
Set-Features	EFH
SMART	B0H
Set-Multiple-Mode	C6H
Set-Sleep-Mode	E6H or 99H
Set-WP#/PD#-Mode	8BH
Standby	E2H or 96H
Standby-Immediate	E0H or 94H
Translate-Sector	87H
Write-Buffer	E8H
Write-DMA	CAH or CBH
Write-Multiple	C5H
Write-Multiple-Without-Erase	CDH
Write-Sector(s)	30H or 31H
Write-Sector(s)-Without-Erase	38H
Write-Verify	3CH

9. Identify Device Parameters

Word	Contents	Description
0	044AH	General configuration bit
1	bbbbH ²	Default number of cylinders
2	0000H	Reserved
3	bbbbH ²	Default number of heads
4	0000H	Reserved
5	XXXXH	Vendor Unique
6	bbbbH ²	Default number of sectors per track
7-8	bbbbH ³	Number of sectors per device (Word 7 = MSW, Word 8 = LSW)
9	xxxxH	Vendor Unique
10-14	eeeeH ⁴	User-programmable serial number in ASCII
15-19	ddddH ⁵	SST preset, unique ID in ASCII
20	0002H	Buffer type
21	xxxxH	Vendor Unique
22	xxxxH	Vendor Unique
23-26	aaaaH ⁶	Firmware revision in ASCII. Big Endian Byte Order in Word
27-46	ccccH ⁷	User Definable Model number
47	8001H	Maximum number of sectors on Read/Write-Multiple command
48	0000H	Reserved
49	0B00H	Capabilities
50	0000H	Reserved
51	0200H	PIO data transfer cycle timing mode
52	0000H	Reserved
53	0007H	Translation parameters are valid
54	nnnnH	Current numbers of cylinders
55	nnnnH	Current numbers of heads
56	nnnnH	Current sectors per track
57-58	nnnnH	Current capacity in sectors (LBAs) (Word 57 = LSW, Word 58 = MSW)
59	010X	Multiple sector setting
60-61	nnnnH	Total number of sectors addressable in LBA mode
62	0000H	Reserved

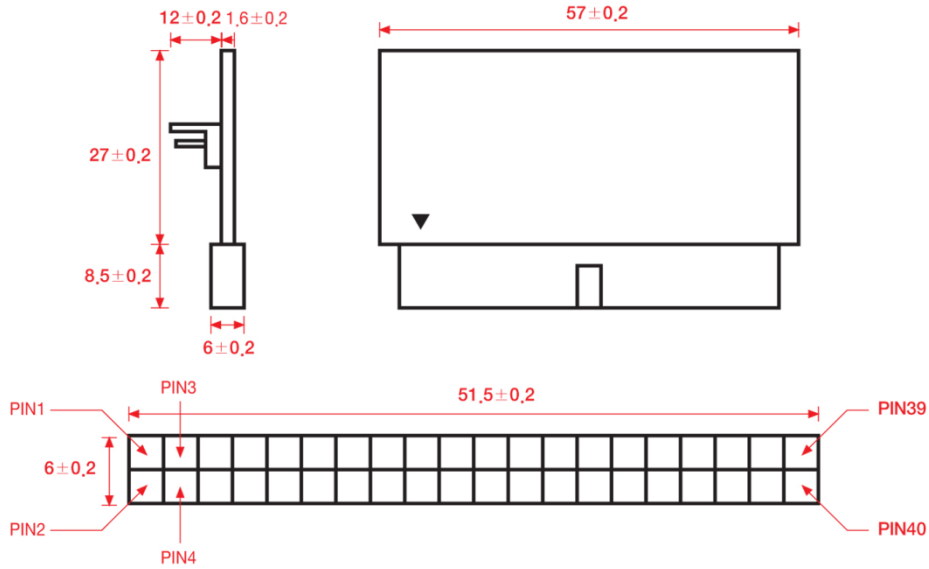
63	0x07H	DMA data transfer is supported in ATA Flash Disk Controller
64	0003H	Advanced PIO Transfer mode supported
65	0078H	120 ns cycle time support for Multi-word DMA Mode-2
66	0078H	120 ns cycle time support for Multi-word DMA Mode-2
67	0078H	PIO Mode-4 supported
68	0078H	PIO Mode-4 supported
69-79	0000H	Reserved
80	007EH	ATA/ATAPI major version number
81	0019H	ATA/ATAPI minor version number
82	706BH	Features/command sets supported
83	400CH	Features/command sets supported
84	4000H	Features/command sets supported
85-87	xxxxH	Features/command sets enabled
88	xx1FH	UDMA modes
89	xxxxH	Time required for security erase unit completion
90	xxxxH	Time required for enhanced security erase unit completion
91-127	0000H	Reserved
128	xxxxH	Security Status
129-159	0000H	Vendor unique bytes
160-162	0000H	Reserved
163	xx2H	CF Advanced True IDE Timing Mode capabilities and settings
164-255	0000H	Reserved

1. XXXX = This field is subject to change by the host or the device.
2. bbbb - default value set by controller. The selections could be user programmable.
3. n - calculated data based on product configuration
4. eeee - the default value is '0000000000'
5. dddd - unique number of each device
6. aaaa - any unique SST firmware revision
7. cccc – product model name

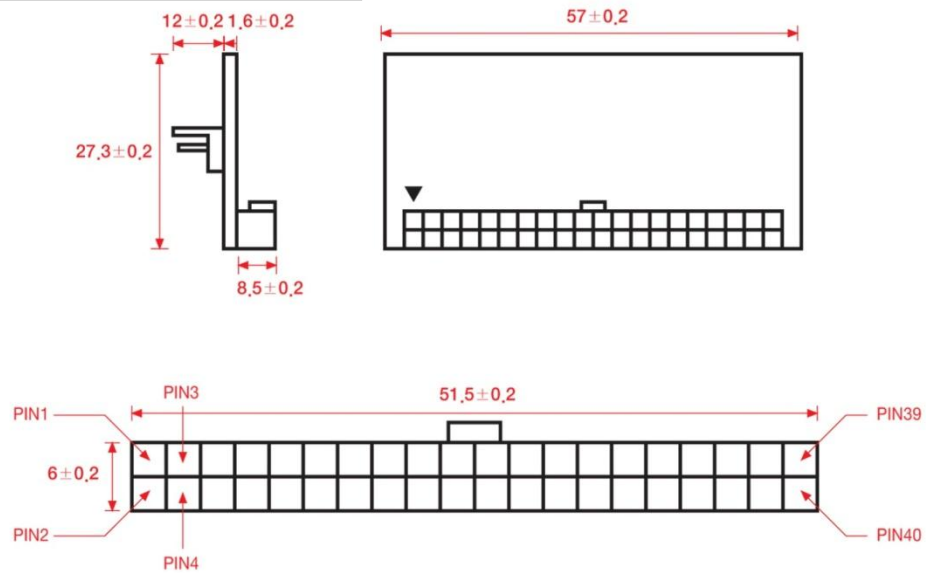
10. Package Dimensions

10-1 DOM 40P Dimension

DOM 40P (Straight Type)



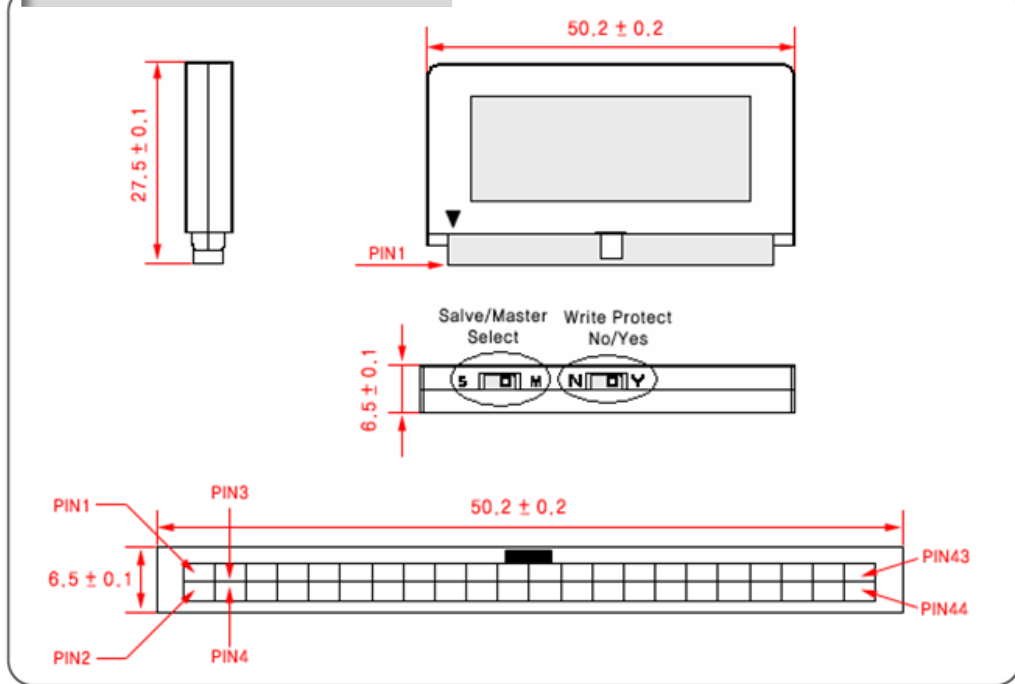
DOM 40P (Angle Type)



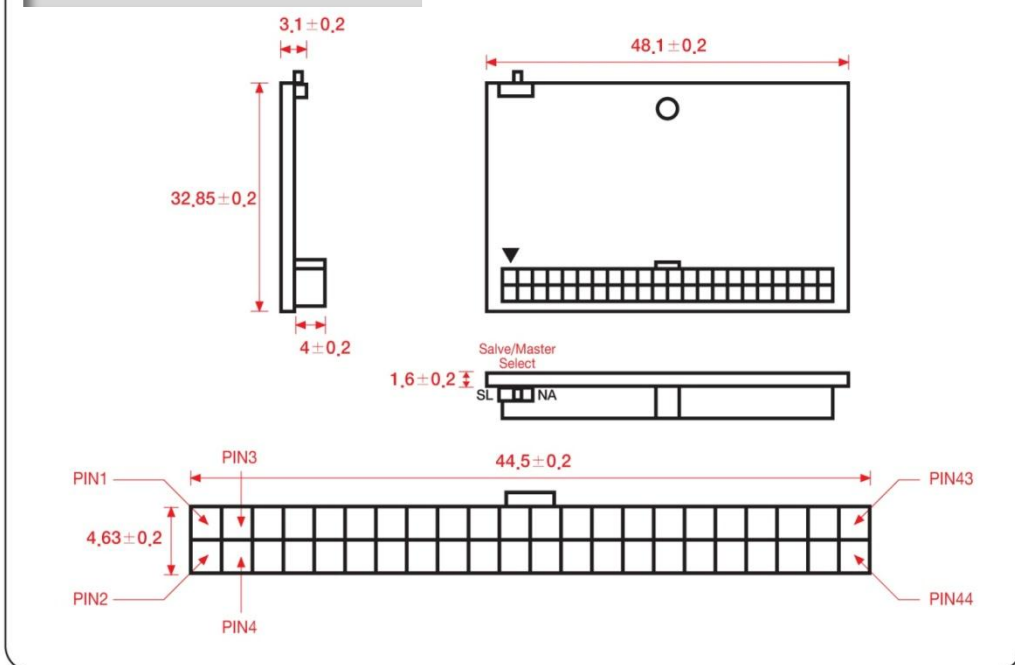
➤Note : All Dimensions are in Millimeters.

10-2 DOM 44P Dimension

DOM 44P (Straight Type)



DOM 44P (Angle Type)



➤Note : All Dimensions are in Millimeters.

11. Ordering Information

<u>MS</u>	<u>2</u>	<u>004G</u>	<u>D</u>
1	2	3	4

1. MS : Myung Info. Tech
Solid State Drive. (MyStor)

2. Form factor

Form factor	Content
2	44Pin type
3	40Pin type

3. Capacity

Capacity	Content
128M	128MB
256M	256MB
512M	512MB
001G	1GB
002G	2GB
004G	4GB
008G	8GB
016G	16GB

4. Bus Architecture

Interface	Content
D	DOM

Sample)

MS2004GD

Product Spec

Form factor : 44pin

Capacity : 4GB

Bus Architecture : DOM

12. Contact

Myung Information Technologies Co., Ltd.

Headquarters : 82-43-218-8400

644-5 Gakri Ochang Cheongwon Chungbuk Korea

Customer service : 82-2-3273-9700

82-2-1577-1377

102 Terminal Electronic Market 40-696 Hangangro 3Ga Yongsangu Seoul Korea

Home page : <http://www.myung.co.kr>

<http://www.my-ssd.com>

Thanks you.

