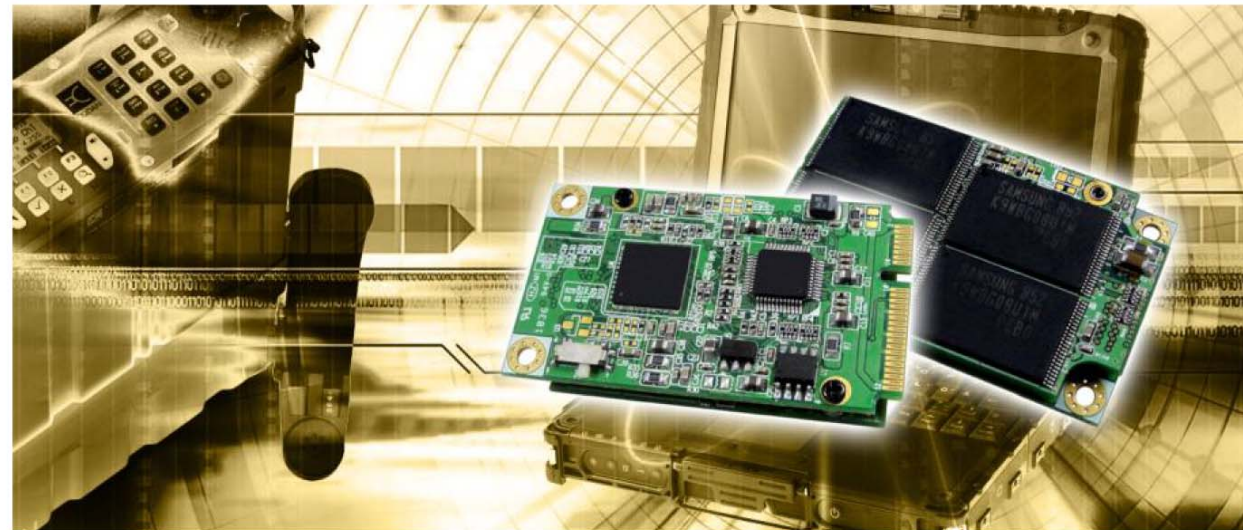


# HERCULES Series

## Industrial mini PCI-e Flash (MPM) Module supports Write Protect Function



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Advanced Performance & Rugged Orientation

CF  
Industrial CompactFlash Card

CFast  
Industrial CFast Card

ATA  
Industrial PCMCIA ATA Card

MIF  
Industrial micro IDE Flash Module

MSE  
Industrial micro SATA Flash Module

MUM  
Industrial micro USB Module

MPM  
Industrial mini PCI-e Module

SSD  
Industrial Solid State Disk

UED  
Industrial Rugged Metal USB Flash Disk

SD  
Industrial SD & SDHC Memory Card

AD  
Industrial Adapter Card-Drive

CF  
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### Write-protect switch



Operating temperature supports standard grade 0°C ~ 70°C and industrial grade -40°C ~ +85°C

### Part number list - Industrial mini PCI-e flash module supports write protection

Product picture	Capacity	0°C ~ 70°C	-40°C ~ +85°C
	16GB	SBMPM016G-MICSC	WBMPM016G-MIISI
	32GB	SBMPM032G-MICSC	WBMPM032G-MIISI
	64GB	SBMPM064G-MICSC	WBMPM064G-MIISI

### Product features

- SLC - NAND type flash technology
- Compliant with NVMHCI 1.0, AHCI 1.0 and ACPI 2.0
- Compact form factor for highly integrated system
- Support standard ATA command
- Support high speed PCI Express host bus
- Bootable for system installation
- Support write protect function by switch
- Performance up to 95.9 MB/sec
- Capacity from 16 GB up to 64 GB

### Product specifications

<b>Compatibility</b>	Compliant with NVMHCI 1.0, AHCI 1.0 and ACPI 2.0	<b>Write protect function</b>	Mechanism design By switch
	Compliant with ATA/ATAPI-7	<b>Power consumption</b>	
<b>Flash technology</b>	SLC-NAND type flash based	Power requirement	+3.3 V ± 5%
<b>Host Interface</b>	52 pins mini PCI Express host slot	Reading mode	353 mA (Max.)
	PCI Express x1 lane host bus	Writing mode	354 mA (Max.)
<b>Performance</b>		Sleeping mode	117 mA (Max.)
Data transfer mode	PIO-4 mode, MWDMA-2 mode and UDMA-6 mode (def.)	<b>Reliability</b>	
Sequential read	95.9 MB/sec (Max. /4-channel)	Wear-leveling	Global wear-leveling algorithms
Sequential write	93.0 MB/sec (Max. /4-channel)	MTBF	> 2,000,000 hours
Average access time	0.3 ms	ECC	8 bits or 15 bits per 512 bytes block
<b>Environmental specification</b>		Endurance	> 2,000,000 cycles
Operating temp.	STD. 0°C ~ 70°C / IND. -40°C ~ +85°C	Data retention	10 years
Non-operating temp.	STD. -20°C ~ +80°C / IND. -50°C ~ +95°C	<b>Physical specification</b>	
Humidity	10% ~ 95% non-condensing	Weight (max.)	19.0 g ± 2 g / 0.684 oz.
Vibration	15G compliance to MIL-STD-810F	Dimension(W x L x H)	16-32GB : 30.00 x 50.95 x 6.90 (mm) 64GB : 30.00 x 50.95 x 8.13 (mm)
Shock	40g, 11ms operating on ground compliance to MIL-STD-810G	Conformal coating	Option for special request
Altitude	70,000 feet	<b>Warranty</b>	
		Standard grade	3 years
		Industrial grade	5 years

### Part number decoder

X1 X2 X3 X4 X5 X6 X7 X8 X9 — X11 X12 X13 X14 X15 / C

### Example

S B M P M 0 6 4 G — M I C S C

#### X1 Grade

S : Standard grade operating temp. 0°C ~ 70°C  
 W : Industrial grade operating temp. -40°C ~ +85°C

#### X2 The material of frame kit

B : Bare (without casing)

#### X3 X4 X5 Product category

MPM : mini PCI-e Flash (MPM) Module supports write protect

#### X6 X7 X8 X9 Capacity

16G : 16GB  
 32G : 32GB  
 64G : 64GB

#### X11 Controller

M : SMI (HERCULES Series)

#### X12 Controller version

A,B,C,...I

#### X13 Controller grade

C : Commercial grade  
 I : Industrial grade

#### X14 Flash IC

S : Samsung SLC-NAND flash IC

#### X15 Flash IC grade

C : Commercial grade  
 I : Industrial grade

#### C Reserved for specific requirement

C : Conformal-coating