3 Port PCI Express 2.0 SATA III 6 Gbps RAID Controller Card w/ mSATA Slot and HyperDuo SSD Tiering

Product ID: PEXMSATA343

The PEXMSATA343 3-Port PCI Express 2.0 SATA Card with HyperDuo adds an internal mSATA SSD (Solid State Drive) slot plus three internal SATA III ports to your computer through a PCIe x2 slot, adding multiple 6 Gbps internal connections that enable you to improve the overall speed and storage capacity of your computer by connecting high-performance SSDs and hard drives.

Featuring HyperDuo technology, the SATA card offers SSD auto-tiering which lets you balance the performance advantages of SSD storage with the cost-effectiveness and large capacity of standard hard drives. By combining SSD and HDD drives into a single volume (up to 3 SSD + 1 HDD), HyperDuo discreetly works in the background to identify and move frequently accessed files to the faster SSD drive(s) for improved data throughput - up to 80% of SSD performance! (Note: The HyperDuo automatic storage tiering feature is compatible with computers that use a BIOS.)

The PCIe SATA controller card offers Port Multiplier (PM) support, so multiple SATA drives can be connected over a single cable, for a total of 7 drives (Up to 4 drives through PM on one port, and a single drive to the remaining 2 ports and mSATA slot). Plus, the SATA controller card offers an effective hardware RAID solution, with native RAID (0, 1) support.

Throughput Benchmark

Drive configuration	Throughput	Drive size
1 x HDD	112.81 MB/s	2 TB
1 x SSD	490.28 MB/S	120 GB
1 x HDD + 1 x SSD HyperDuo (Safe Mode)	**489.28 MB/s**	2 TB
1 x HDD + 2 x SSD HyperDuo (Safe Mode)	**715.13 MB/s**	2 TB

Drives Used:
SSD: OCZ Vertex 3 Series 2.5" 120 GB (VTX3-25SAT3-120G)
HDD: Western Digital Caviar Green 3.5" 2 TB (WD20EARS)

Software Used:
IO Meter, 256KB Sequential Read, queue depth = 10

You can install a SSD directly to the card via a convenient metal latching clip to help relieve the internal space constraints often associated with multiple hard drive configurations. Plus the controller card also includes a low profile/half-height installation bracket for small form factor (SFF) systems.

Backed by a StarTech.com 2-year warranty and free lifetime technical support.

Certifications, Reports and Compatibility

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Applications

- Use SSD tiering to optimize your system for I/O intensive applications such as office suites, photo/video editing and media players
- Upgrade an older PCIe-based system to SATA 6Gbps capability, to better utilize faster SATA drives
- Add more internal SATA ports to your computer, for connecting additional storage drives and/or optical drives
- Provide optimized off-site back-ups/vaulting, through built-in RAID 1 capability
- Perfect for multi-drive internal RAID storage solutions
- Install an internal SSD directly to the card for a simple and discreet solution for improving overall computer system performance

Features

- Supports HyperDuo SSD auto-tiering
- 1 mSATA SSD slot and 3 AHCI SATA III (6Gbps) ports through PCI Express x2
- Supports hardware RAID 0 and 1 modes configured through BIOS
- Fully compliant with SATA 3.0 specifications and backward compatible with SATA I/II (1.5/3.0Gbps) drives
- Port Multiplier FIS-based and Command-based switching supported
- Compliant with PCI Express 2.0 standards
- Simple HyperDuo configuration via card-BIOS level or intuitive GUI console (Windows® only)
- Supports TRIM command with compatible SSD and Operating System
- Supports Native Command Queuing (NCQ) and ATA/ATAPI commands
- On-board durable, metal latching mSATA clip for SSDs - no screws required
- Includes Low Profile/Half-Height installation bracket
- Supports HDDs/SSDs/Optical/Blu-Ray drives

Hardware	Warranty	2 Years
	Bus Type	PCI Express
	Card Type	Standard Profile (LP bracket incl.)
	Chipset ID	Marvell - 88SE9230
	Industry Standards	Serial ATA 3.0 specification
		PCI Express 2.0
	Interface	SATA
		Mini SATA
	Port Style	Integrated on Card
	Ports	3
Performance	ATAPI Support	Yes
	Bootable	Yes
	LBA support	48-bit
	Max Drive Capacity	Currently tested up to 4TB per drive
	Number of Drives Supported Through Port Multiplier	1 to 4
	Number of Ports That Support Port Multiplier	3 (can only use 1 PM at a time)
	Port Multiplier	Yes
	RAID	Yes
	Supported RAID Modes	JBOD - (Just a Bunch of Disks)
		RAID 1 (Mirrored Disks)
		RAID 0 (Striped Disks)
	Type and Rate	SATA III (6 Gbps)
Connector(s)	Connector Type(s)	1 - PCI Express x2 Male
	Internal Ports	3 - SATA (7 pin, Data) Plug
		1 - mSATA (52 pin, Mini SATA) Slot Receptacle
Software	OS Compatibility	Windows® XP, Vista, 7, 8, 8.1, 10 Windows Server® 2003, 2008 R2, 2012, 2012 R2, 2016 Mac OS® 10.6 to 10.14 Linux 3.5.x to 4.11.x *LTS versions only* Note: Connected drives cannot be used as System / Primary drive in Windows Server 2012, 2012 R2, 2016

Special Notes / Requirements	Note	The maximum throughput of this card is limited by the bus interface. If used with PCI Express Gen 1.0 enabled computers, the max throughput is 2.5 Gbps per lane. If used with PCI Express Gen 2.0 enabled computers, the max throughput is 5 Gbps per lane. Only one port can use the Port Multiplier feature at a time. Supports up to 4 drives connected via Port Multiplier, 7 drives total. Port Multiplier not supported in Mac OS.
	System and Cable Requirements	Available PCI Express x2 slot (backward compatible with x4, x8, and x16 slots)
Environmental	Humidity	20-80% RH
	Operating Temperature	5°C to 50°C (41°F to 122°F)
	Storage Temperature	-25°C to 70°C (-13°F to 158°F)
Physical Characteristics	Product Height	4.7 in [12 cm]
	Product Length	4.5 in [11.5 cm]
	Product Width	0.7 in [18 mm]
	Weight of Product	2 oz [57 g]
Packaging Information	Package Height	1.2 in [30 mm]
	Package Length	6.9 in [17.5 cm]
	Package Width	5.5 in [14 cm]
	Shipping (Package) Weight	5.3 oz [151 g]
What's in the Box	Included in Package	1 - PCIe SATA Controller Card
		1 - Low Profile Bracket
		1 - Driver CD
		1 - Instruction Manual

Product appearance and specifications are subject to change without notice.