# 2 Port PCI Express 2.0 SATA III 6Gbps RAID Controller Card w/ 2 mSATA Slots and HyperDuo SSD Tiering

*StarTech ID: PEXMSATA3422*

The PEXMSATA3422 PCI Express SATA Card helps you improve the overall speed and storage capacity of your computer by giving you multiple 6 Gbps SATA connections for connecting high-performance SSDs (Solid State Drives) and hard drives in a HyperDuo RAID array. Now, you can easily add two mSATA slots and two SATA III ports to your computer through a single PCIe x4 slot.

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 Windows® 8, 7, Vista, and XP only)

This versatile RAID controller card helps to relieve the internal space constraints often associated with multi-drive configurations by letting you install two mSATA SSDs directly to the card via convenient, latching slots. With dual mSATA slots, as well as two internal SATA ports, the card offers an effective hardware RAID solution, with native RAID (0, 1, 1+0) support.

The PCIe SATA controller also offers Port Multiplier (PM) support, so you can connect multiple SATA drives to just one port, for a total of 7 drives (up to 4 drives through PM on one port, plus a single drive to the other SATA port and two mSATA slots).

For added versatility, the controller card is equipped with a standard profile bracket and includes a low-profile/half-height bracket for installation in small form-factor computers.

**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

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

**Applications**

- Use SSD tiering to optimize your system for I/O intensive applications such as office suites, photo/video editing and media players
- Install 2 internal SSDs directly to the card, for a simple and discreet solution that improves overall system performance
- 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

**Features**

- Supports HyperDuo SSD auto-tiering, merging SSD performance with HDD capacity
- 2 mSATA SSD slots and 2 AHCI SATA III (6 Gbps) ports through PCI Express
- Supports hardware RAID 0, 1, and 1+0 modes
- 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 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 latching mSATA slots - SSD installation with no screws required
- Configured with standard profile bracket, low-profile/half-height bracket included
- Supports HDDs/SSDs/Optical/Blu-Ray drives

**Technical Specifications**

| | |
|---|---|
| Warranty | 2 Years |
| Ports | 2 |
| Interface | Mini SATA |
| Bus Type | PCI Express |
| Card Type | Standard Profile (LP bracket incl.) |
| Interface | SATA |
| Port Style | Integrated on Card |
| Industry Standards | Serial ATA 3.0 specification |
| Industry Standards | PCI Express 2.0 |
| Chipset ID | Marvell - 88SE9230 |
| Connector Type(s) | 1 - PCI Express x4 Male |
| Internal Ports | 2 - mSATA (52 pin; Mini SATA) Slot Receptacle |
| Internal Ports | 2 - SATA (7 pin; Data) Plug |
| Type and Rate | SATA III (6 Gbps) |
| Port Multiplier | Yes |
| LBA support | 48-bit |
| RAID | Yes |
| Supported RAID Modes | JBOD - (Just a Bunch of Disks) |
| Supported RAID Modes | RAID 1 (Mirrored Disks) |
| Supported RAID Modes | RAID 0 (Striped Disks) |
| Supported RAID Modes | RAID 10 (1+0; Striped set of Mirrored Subset) |
| Max Drive Capacity | Currently tested up to 4TB per drive |
| OS Compatibility | Windows® 8 / 8.1 (32/64bit), 7 (32/64), Vista (32/64), XP (32/64) Windows Server® 2012, 2008 R2, 2003 Mac OS® 10.6 and up (Tested up to 10.10) Linux 3.5 |

| | |
|---|---|
| System and Cable Requirements | Available PCI Express x4 slot (backward compatible with x8, and x16 slots |
| **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. |
| Product Length | 125 mm [4.9 in] |
| Product Width | 20 mm [0.8 in] |
| Product Height | 120 mm [4.7 in] |
| Product Weight | 60 g [2.1 oz] |
| Operating Temperature | 5°C to 50°C (41°F to 122°F) |
| Storage Temperature | -25°C to 70°C (-13°F to 158°F) |
| Humidity | 20~80% RH |
| Shipping (Package) Weight | 160 g [5.6 oz] |
| Included in Package | 1 - PCIe mSATA/SATA Controller Card |
| Included in Package | 1 - Low Profile Bracket |
| Included in Package | 1 - Driver CD |
| Included in Package | 1 - Instruction Manual |

**Certifications, Reports and Compatibility**

CE

FC

works with
**Linux**

X
works with
**Mac OS X
Mavericks**

RoHS Compliant
Available

works with
**Windows** 7

works with
**Windows
Server 2012**

works with
**Windows** 8