



# ExpressSAS R348 Low-Profile SAS RAID Adapter

**4 External and 4 Internal Ports  
or 8 Internal Ports, Configurable**



## Product Features

### **Blazing Fast Performance**

- Up to 3-Gb/sec per port transfer rates with SAS, SATA and SATA II attachment
- Increased bandwidth through x8 PCI Express host interface
- Point-to-point technology delivers full throughput to each connected storage device

### **Smooth Data Streaming**

- Alleviate data transfer bottlenecks and move data more efficiently while managing latency with ATTO's exclusive ADS™ technology
- Improve I/O through optimized data movement

### **One Click Installation**

- One-click installation allows for quick and easy set-up
- Simple GUI based utility for effortless adapter configuration
- BIOS setup utility provides flexibility for custom applications

ATTO introduces the ExpressSAS R348 Low-Profile RAID Adapter. Providing 3-Gb SAS/SATA II connectivity with integrated RAID support and flexible port configurations, the ATTO SAS RAID adapter is ideal for both IT and digital video environments that require a high level of data protection and performance.

The ATTO ExpressSAS host adapter product family provides enhanced reliability and performance thanks to more than 15 years of experience with SCSI hardware and storage connectivity solutions. Using PCI Express bus technology and the flexibility of either a 4 external and 4 internal or an 8 internal user selectable port configuration, the ATTO ExpressSAS R348 adapter delivers blazing-fast performance with transfer rates of up to 3-Gb per second per port. With two x4 Mini SAS connectors, configured internally or combined internal and external, the R348 provides connectivity of up to 128 SAS/SATA targets. The R348 also features 256MB of ECC-protected DDR2 DRAM to allow support for multiple RAID groups.

The ATTO ExpressSAS RAID adapters are engineered for the most stringent IT server and digital media workgroup environments. To satisfy the data protection requirements of these environments, ATTO leverages its time tested ATTO RAID Stack (ARS™) technology based on a proven RAID core that is compatible with multiple operating systems, applications, and drives.

The easy-to-use GUI utility enables RAID management, monitoring, and configuration. ATTO also incorporates its field proven Advanced Data Streaming (ADS™) technology to meet the most demanding performance requirements of data intensive applications. In addition, ATTO provides industry standard PCIe to SAS control using Serial SCSI Protocol (SSP), Serial ATA Tunneling Protocol (STP), and Serial Management Protocol (SMP).

## Technical Highlights

- x8 PCIe host interface
- True low-profile form factor
- User Selectable: 4 external and 4 internal ports or 8 internal ports
- Outstanding performance with up to 3-Gb/sec per port
- Highly configurable RAID (0, 1, 4, 5, 6, 10, 50, 60, JBOD and DVRAID support)
- SAS, SATA and SATA II connectivity
- Supports up to 128 virtual SAS/SATA drives
- Exclusive Advanced Data Streaming (ADS™) technology
- User friendly GUI configuration utility
- Driver support for Windows®, Linux and Mac® OS X
- RoHS Compliant
- 3-year standard product warranty

**Tech-**  
ExpressSAS R348 RAID Adapter

## RAID Adapter

For More Information:



# ExpressSAS Low-Profile RAID Adapter

ATTO Technology, Inc.

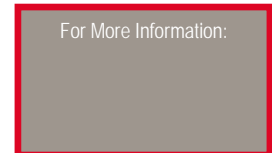
## 4 External and 4 Internal Ports or 8 Internal Ports

Hardware Specifications	
Applications	<ul style="list-style-type: none"> <li>• Support for IT server and digital media workgroup solutions requiring high-bandwidth and data protection. Applications include audio/video, VOD, fixed content, database and other data intensive environments.</li> </ul>
Maximum Transfer Rate	<ul style="list-style-type: none"> <li>• Up to 3-Gb/sec per port</li> </ul>
Advanced Capabilities	<ul style="list-style-type: none"> <li>• Device support for SAS, SATA and SATA II</li> <li>• SES Support</li> <li>• S.M.A.R.T Support</li> <li>• Support for staggered drive spin-up</li> <li>• Pass-through mode to support tape devices</li> <li>• Support for RAID levels 0, 1, 4, 5, 6, 10, 40, 50, 60, JBOD and DVRAID</li> <li>• On-line capacity expansion</li> <li>• Hot spare, auto-rebuild</li> <li>• Native Command Queuing</li> <li>• Cache memory—256MB ECC protected memory</li> <li>• User friendly GUI for RAID setup</li> <li>• External LEDs for on-line status</li> </ul>
PCI Bus Specifications	<ul style="list-style-type: none"> <li>• x8 PCI Express host interface</li> <li>• Supports PCI Express Base Spec 1.0a</li> </ul>
Connectivity	<ul style="list-style-type: none"> <li>• Easy-to-install full height connection bracket; low-profile bracket included in Finished Goods packaging</li> <li>• Two x4 Internal Mini SAS (SFF-8087) connectors</li> <li>• One x4 External Mini SAS (SFF-8088) connector</li> </ul>
Software Specifications	
Driver Support	<ul style="list-style-type: none"> <li>• Windows® Server 2003, 2008, XP, Vista</li> <li>• Mac® OS X (10.4.x &amp; 10.5.x)</li> <li>• Linux (Fedora, Red Hat and SuSE)</li> </ul>
Agency Approvals	
Safety and Environmental	<ul style="list-style-type: none"> <li>• FCC Rules, Part 15, Class B</li> <li>• CE Mark: CISPR 22:2002</li> <li>• EN55022:2002, Class B</li> </ul>
Compliance	<ul style="list-style-type: none"> <li>• RoHS Compliant</li> </ul>
Environmental & Physical Specifications	
Dimensions	<ul style="list-style-type: none"> <li>• Conforms to PCI low-profile form factor specifications</li> <li>• Length 6.600"</li> <li>• Height 2.713"</li> </ul>
Operating Environment	<ul style="list-style-type: none"> <li>• Temperature: 0-40° C (32°-104°F)</li> <li>• Humidity: 5 - 95% non-condensing</li> </ul>
Storage Environment	<ul style="list-style-type: none"> <li>• Temperature: -40°-70°C (-40°-157°F)</li> <li>• Humidity: 5 - 95% non-condensing</li> </ul>
Power	<ul style="list-style-type: none"> <li>• 12V @ 1.05A max.</li> <li>• 3.3V @ 0.45A max.</li> </ul>
Airflow	<ul style="list-style-type: none"> <li>• 150 lf/m (min) recommended</li> </ul>
Ordering Information	
Model Number	<ul style="list-style-type: none"> <li>• ESAS-R348-000 (RoHS)</li> </ul>

**Technical Specification**  
ExpressSAS R348 RAID Adapter



Power Behind the Storage



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