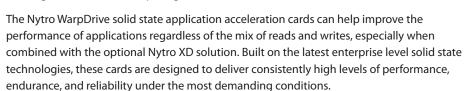![LSI logo](Storage. Networking. Accelerated.™)

LSI® Nytro™ WarpDrive™
Application Acceleration Card

LSI Nytro WarpDrive Card

- High performance PCIe® solid state storage
- Low latency and a low CPU burden
- Designed to maximize transactional I/O performance
  - Online transaction processing
  - Web serving
  - Data analytics and warehousing
  - Data mart and Data mining
  - High-Performance computing

The Nytro WarpDrive solid state application acceleration cards can help improve the performance of applications regardless of the mix of reads and writes, especially when combined with the optional Nytro XD solution. Built on the latest enterprise level solid state technologies, these cards are designed to deliver consistently high levels of performance, endurance, and reliability under the most demanding conditions.

DuraClass™ Technology

LSI's unique DuraClass technology is a set of SSD management features that deliver reliability, performance, and power efficiency. DuraClass technology features include:

- **DuraWrite™ architecture:** optimizes the program cycles to extend endurance by 20x or more compared to standard controllers.

- **Flash media error correction (ECC) and RAISE™ (Redundant Array of Independent Silicon Elements):** delivers an orders-of-magnitude improvement in reliability versus today's best enterprise hard disk drives (HDDs) and solid state drives (SSDs).

- **Advanced Wear Leveling and Monitoring** - Optimized wear leveling algorithms, further extending flash endurance

- **Advanced Read/Program Disturb Management,** protects against errant re-programming of cells during read and program cycles

- **Recycler,** intelligently performs garbage collection with the least impact on flash endurance.

Fast

- Founded in enterprise grade flash storage
- LSI SandForce® Driven
- Uses minimal CPU and memory resources

Smart

- Built on the latest enterprise level solid state technologies
- Hardware is tightly integrated with software

Easy

- No manual tuning is required
- Analysis tools are included with every Nytro product
- Offered with a broad range of OS support

Nytro XD Solution

The optional Nytro XD solution intelligently and dynamically caches frequently accessed "hot-spot" data by copying it from SAN attached storage to a Nytro WarpDrive card acting as a dedicated SSD cache pool. Copying the hot-spot data to a Nytro WarpDrive card relieves the SAN of time-consuming transactions which allows for more efficient hard disk operation, reduced latency, and accelerated read and write speeds. This can provide significant improvements to overall system performance for a wide variety of server applications.

THE Smarter WAY
TO FASTER™

LSI Nytro WarpDrive Acceleration Card Specifications

Usable Capacity	200GB to 1.6TB
Average Latency	< 50 microseconds
End of Life Data Retention	>6 months SLC, >3 months eMLC
Interface	x8 PCI Express 2.0
Form Factor	MD2 Low profile / (6.6" X 2.536")
Brackets	Full height and low-profile bracket included
Power	Consumes <25 Watts
Environmental Compliance	RoHS, WEEE Halogen and lead free
Product Health Monitoring	Self-Monitoring, Analysis and Reporting Technology (SMART) com¬mands, plus additional SSD monitoring
Emission Compliances	Safety: US/Canada UL, Europe TUV Agency Cert: US/Canada, Europe, Japan, Taiwan, NZ/AUS, All Major
Environmentals	Operational at 0º to 45ºC Humidity: 5 to 90% non-condensing; Airflow requirement 200 LFM; Altitude: Operational max 10,000

Ordering Information LSI Nytro WarpDrive Card

Name	Memory Type	Capacity	Part Number	Card Size
WLP4-200	SLC	200GB	LSI00323	MD2 Low Profile
WLP4-400	SLC	400GB	LSI00324	MD2 Low Profile
BLP4-400	eMLC	400GB	LSI00318	MD2 Low Profile
BLP4-800	eMLC	800GB	LSI00319	MD2 Low Profile
BLP4-1600	eMLC	1.6TB	LSI00320	MD2 Low Profile

Features and Benefits:

- Over 300K Read IOPs, Up to 2GB/s throughput
- Capacity options from 200GB to 1.6TB storage
- Installs as single drive with no user configuration required, just plug-and-play
- Low host burden – No static CPU and memory overhead
- Lower space, power, cooling and management costs than traditional HDD solutions

Nytro Predictor™ Software Tool

Hot spot activity varies by application. The Nytro Predictor software tool*, a free assessment software package from LSI, is designed to allow system administrators to determine the potential benefits the Nytro XD solution may provide in their specific environment. Using non-intrusive Windows or Linux utilities (xperf and blktrace), traces of the storage activity generated by the application are captured and analyzed for hot spot activity using the similar algorithms that the Nytro XD solution uses. Administrators will see the potential benefits that the Nytro XD solution may provide.

*The Nytro Predictor software is provided "AS IS" without warranty of any kind express or implied for use at your sole risk. Further, use of the Nytro Predictor software is strictly subject to an end user license agreement which accompanies the software.

For more information and sales office locations, please visit the LSI web sites at:
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