



# Support for Drives Greater than 2 TB for SAS1 IT/IR Products

Systems Engineering Note

Version 1.0, S11196  
February 2011



## Revision History

---

Version and Date	Description of Changes
Version 1.0, February 2011	First release

LSI and the LSI logo are trademarks or registered trademarks of LSI Corporation or its subsidiaries. All other brand and product names may be trademarks of their respective companies.

LSI reserves the right to make changes to the product(s) or information contained herein at any time without notice. LSI Corporation does not assume any responsibility or liability arising out of the application or use of any product or service described herein, except as expressly agreed to in writing by LSI Corporation; nor does the purchase, lease, or use of a product or service from LSI Corporation convey a license under any patent rights, copyrights, trademark rights, or any other of the intellectual property rights of LSI Corporation or of third parties.

**Corporate Headquarters**  
Milpitas, CA  
800-372-2447

**Email**  
[globalsupport@lsi.com](mailto:globalsupport@lsi.com)

**Website**  
[www.lsi.com](http://www.lsi.com)

Document Number: DB05-000277-00  
Copyright © 2011 LSI Corporation  
All Rights Reserved

# Systems Engineering Note

## Support for Drives Greater than 2 TB in SAS1 IT/IR Products

This note provides drive deployment recommendations.

### 1.0 Drive Support

LSI recommends that customers who plan to deploy drives of capacity greater than 2 TB (Terrabyte) should move to firmware releases for Phase-13 or later. Significant hardware and software limitations in current SAS1 products can prevent access to data beyond the 2 TB boundary.

Tables 1 and 2 show the level of drive support for SAS and SATA drives.

**Table 1: Phase-13 or later firmware releases**

	SAS	SATA
Non-RAID Disks	No Restriction — All drive capacities are supported.	Maximum of 2 TB is accessible for any drive.
IR Physical Disk	Maximum of 2 TB is accessible for any drive.	Maximum of 2 TB is accessible for any drive.

**Table 2: Pre-phase-13 Firmware Releases**

	SAS	SATA
Non-RAID Disks	No Restriction — All drive capacities are supported.	<b><i>Drive capacity is reported incorrectly.<sup>a</sup></i></b>
IR Physical Disk	Maximum of 2 TB is accessible for any drive.	Maximum of 2 TB is accessible for any drive.

- a. Drive capacity is reported incorrectly because the hardware does not support greater than 32-bit LBA addressing.

**NOTE:** Drives with a capacity greater than 2 TB are supported, but they are advertised as 2 TB drives.

### 2.0 Additional Information

**Hardware Limitation for SATA Disk Support:** Hardware does not support greater than 32-bit LBA addressing that is needed by READ/WRITE (16).

**Software Limitations for SAS RAID Disk Support:** Data structures in MPI interfaces and IR firmware use 32-bit fields and 32-bit math operations. To change every impacted field and the math operations to 64-bit arithmetic operations takes great effort and requires fundamental changes to the board (firmware and software stack). The effort to support such a change is not planned for the SAS1 products roadmap.





