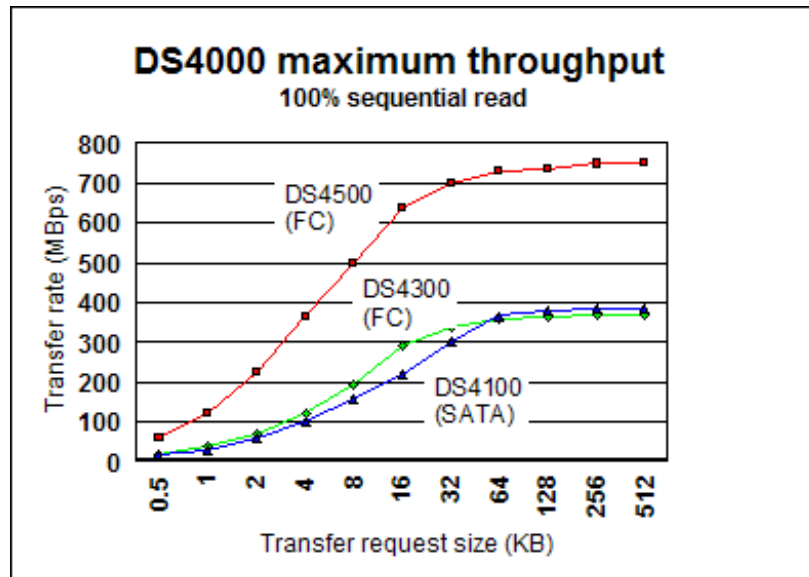


## Comparing Fibre Channel with SATA Positioning Information (withdrawn product)

### Main

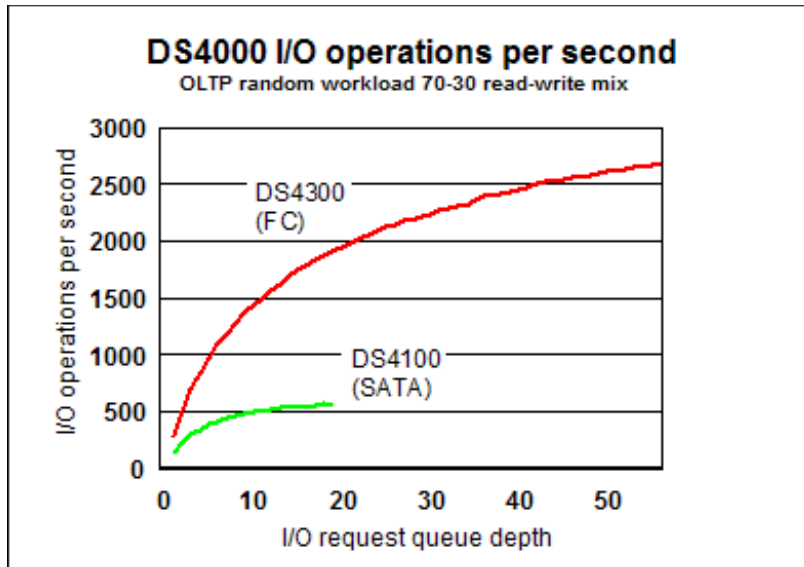
The DS4100 controller using a SATA drive is suited primarily for sequential I/O operations. In this type of environment, the DS4100 performs very well. Figure 1 illustrates the throughput obtained when performing 100% sequential reads (such as from a video streaming application). Note that the DS4500 (FASTT900) is the best performer for streaming workloads and that the SATA-based DS4100 (FASTT100) is as good if not better than the DS4300 (FASTT600).

The RAID controllers contribute to the significant difference in maximum throughput capability. The DS4500 is a more powerful RAID controller than the DS4300. The similar performance in maximum throughput capability between the DS4100 and the DS4300 is because these RAID controllers are very similar, with the exception that the DS4100 is a storage server that uses a SATA drive while the DS4300 is a storage server that uses a Fibre Channel drive.



**Figure 1:** DS4000 throughput comparison using 100% sequential read operations (Configuration: 64 KB segment, Read cache enabled, 16 KB cache block, 8% drive stroke, Dual RAID controllers, RAID-5, 14 drives, DS4300: 15K RPM, DS4100: 7200 RPM)

For random OLTP workloads, however, the DS4300 can handle significantly more I/O requests than the DS4100, as shown in Figure 2.



**Figure 2:** DS4000 throughput comparison using 70-30 read-write mix (Configuration: 64 KB segment, Read cache enabled, 16 KB cache block, 8% drive stroke, Dual RAID controllers, RAID-5, 14 drives, DS4300: 15K RPM, DS4100: 7200 RPM)

The data illustrated in Figure 2 substantiates that the D4100 is designed for seldom-accessed, near-line storage. You should not implement this system as part of a storage subsystem that you use to access data frequently, such as file serving, Web serving, database applications, and mail applications. SATA drive technology is currently not robust enough to handle the duty cycles of enterprise class applications.

For more information about SATA, see:

- *Introducing IBM TotalStorage FASt EXP100 with SATA Disks*, REDP-3794
- *Tuning IBM eServer xSeries Servers for Performance*, SG24-5287

This redpaper and redbook are available from: <http://ibm.com/redbooks>

For more detailed DS4000 performance information, read the following papers written by Charles Stephan of the xSeries Performance Lab:

- *Comparison of the Performance of the DS4300 (FAStT600) and FAStT200 Storage Servers*
- *Comparison of the Performance of the DS4500 (FAStT900) and DS4400 (FAStT700) Storage Servers*

These papers are both available in from:

<http://www.pc.ibm.com/ww/eserver/xseries/benchmarks/related.html>

## Related product families

Product families related to this document are the following:

- [Host Bus Adapters](#)

## Notices

Lenovo may not offer the products, services, or features discussed in this document in all countries. Consult your local Lenovo representative for information on the products and services currently available in your area. Any reference to a Lenovo product, program, or service is not intended to state or imply that only that Lenovo product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any Lenovo intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any other product, program, or service. Lenovo may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

Lenovo (United States), Inc.  
8001 Development Drive  
Morrisville, NC 27560  
U.S.A.  
Attention: Lenovo Director of Licensing

LENOVO PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. Lenovo may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

The products described in this document are not intended for use in implantation or other life support applications where malfunction may result in injury or death to persons. The information contained in this document does not affect or change Lenovo product specifications or warranties. Nothing in this document shall operate as an express or implied license or indemnity under the intellectual property rights of Lenovo or third parties. All information contained in this document was obtained in specific environments and is presented as an illustration. The result obtained in other operating environments may vary. Lenovo may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Any references in this publication to non-Lenovo Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this Lenovo product, and use of those Web sites is at your own risk. Any performance data contained herein was determined in a controlled environment. Therefore, the result obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

© Copyright Lenovo 2024. All rights reserved.

This document, TIPS0458, was created or updated on November 4, 2004.

Send us your comments in one of the following ways:

- Use the online Contact us review form found at:  
<https://lenovopress.lenovo.com/TIPS0458>
- Send your comments in an e-mail to:  
[comments@lenovopress.com](mailto:comments@lenovopress.com)

This document is available online at <https://lenovopress.lenovo.com/TIPS0458>.

## Trademarks

Lenovo and the Lenovo logo are trademarks or registered trademarks of Lenovo in the United States, other countries, or both. A current list of Lenovo trademarks is available on the Web at <https://www.lenovo.com/us/en/legal/copytrade/>.

The following terms are trademarks of Lenovo in the United States, other countries, or both:

Lenovo®

xSeries®

Other company, product, or service names may be trademarks or service marks of others.