

XS5326D vs. XS5226D

Performance

Lab Report

April, 2023

ANNOUNCEMENT

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PREFACE

Executive Summary

The new XCubeSAN 5300 series is a high performance, simple, secure, scalable, and cost-effective SAN storage system for enterprise. In this document, we provide key performance figures compared to the previous product to see how much the improvement has been.

Audience

This document is applicable for QSAN customers and partners who are interested in QSAN new series of products. It assumes the reader is familiar with QSAN products and has general IT experience, including knowledge as a system or network administrator. If there is any question, please refer to the user manuals of products, or contact QSAN support for further assistance.

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- Via Telephone: +886-2-77206355
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- Via Email: support@qsan.com

Information, Tip, and Caution

This document uses the following symbols to draw attention to important safety and operational information.



INFORMATION

INFORMATION provides useful knowledge, definition, or terminology for reference.



TIP

TIP provides helpful suggestions for performing tasks more effectively.



CAUTION

CAUTION indicates that failure to take a specified action could result in damage to the system.

1. XCUBESAN OVERVIEW

1.1. Introduction to XS5326D

The XCubeSAN 5326D (2.5" 2U 26-bay) is the next generation of high-density hybrid flash storage. In addition to the leading density advantages, it can also deliver low latency like an all-flash array. Ultra-high performance is designed to be the ideal solution for applications in mission-critical data centers, high-performance computing, virtualization, or media environments.

1.2. Hardware Specifications

Continuing the XCubeSAN series, the following table lists the hardware specifications of XS5326D and XS5226D for reference.

Table 1-1 Hardware Specifications of XS5326D and XS5226D

MODEL NAME	XS5326D	XS5226D
Processor	Intel® Xeon® 64-bit 4-core	Intel® Xeon® 64-bit 4-core
Memory	32 GB (up to 512 GB)	16 GB (up to 256 GB)
Drive Bays	2.5" Slot x 26	2.5" Slot x 26
Max. Drive Bays w/ Expansion Unit	546	434
Onboard Connectivity	10 GbE (SFP+) x 8	10 GbE (RJ45) x 4
Capacity Expansion	12 Gb/s SAS Wide Port x 4	12 Gb/s SAS Wide Port x 4
PCIe Expansion	(Gen3x8 Slot) x 4	(Gen3x8 Slot) x 2, (Gen2x4 Slot) x 2
Versatile Host	32 Gb / 16 Gb Fibre Channel	32 Gb / 16 Gb Fibre Channel

Connectivity	25 GbE / 10 GbE iSCSI	25 GbE / 10 GbE / 1 GbE iSCSI
Max. Host Connectivity	24 (8 + 16)	20 (4 + 16)

While both have 4 host card slots for expansion connections, the new generation XS5326D is designed with 4 full Gen3x8 slots. Additionally, the XS5326D has onboard 10 GbE (SFP+) x 8 ports with higher bandwidth than the 10 GbE (RJ45) x 4 ports in the XS5226D.

2. PERFORMANCE DATA

2.1. Performance Comparison

Years ago, StorageReview tested the XS5226D and the full report is listed in the [QSAN XCubeSAN XS5226D Review](#). Nowadays, we test the performance of XS5326D in the same environment and get the following data. The figure on the left is the XS5326D data tested in QSAN lab. The red line in the figure on the right is the XS5226D data tested in StorageReview lab.

Random Read 4K

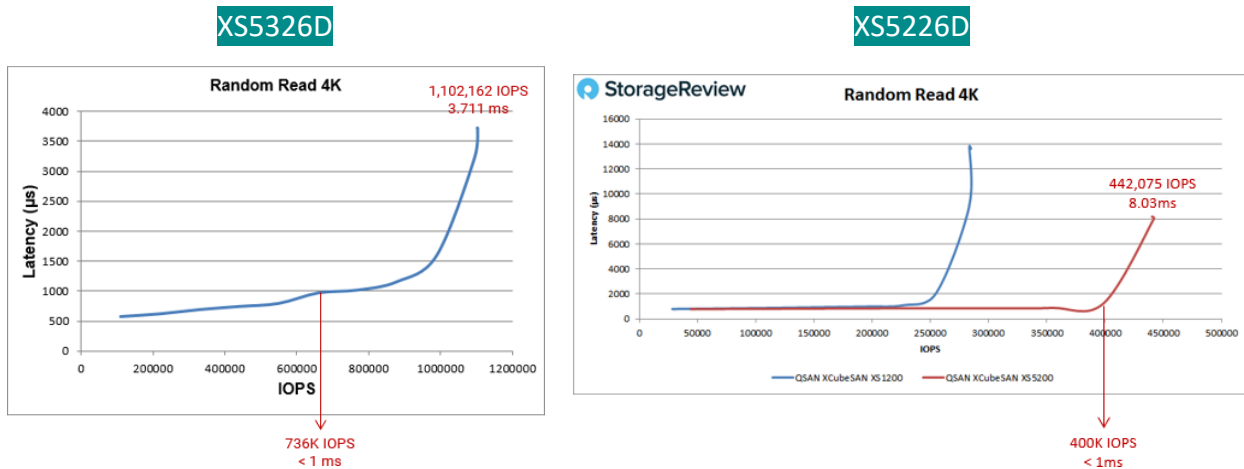


Figure 2-1 XS5326D vs. VS5226D Performance in Random Read 4K

In the random read 4K test, the IOPS of the XS5326D is as high as 1,102K, which is about **149%** higher than that of the XS5226D. There are even 736K IOPS at 1 millisecond latency, about an **84%** improvement.

Random Write 4K

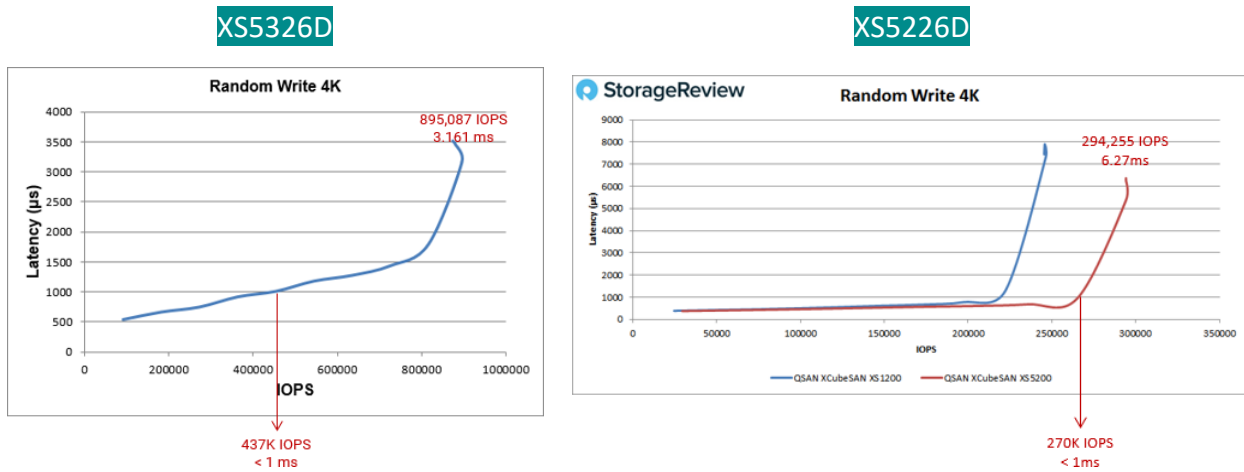


Figure 2-2 XS5326D vs. VS5226D Performance in Random Write 4K

In the random write 4K test, the XS5326D has 895K IOPS, an increase of about **204%**. 437K IOPS at 1 millisecond latency, about **62%** higher than XS5226D.

Sequential Read 64K

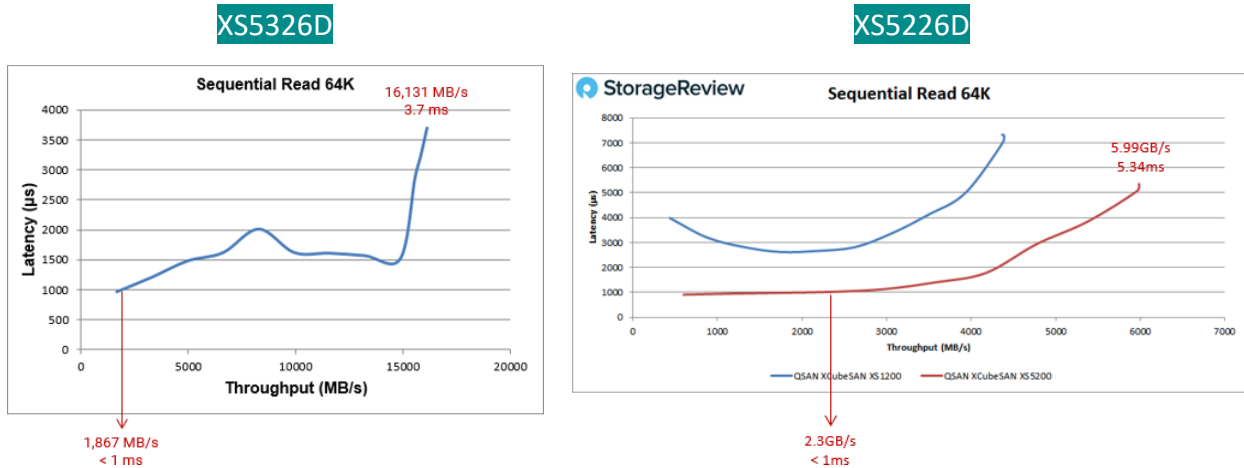


Figure 2-3 XS5326D vs. VS5226D Performance in Sequential Read 64K

In the sequential read 64K test, the throughput of the XS5326D is as high as 16.13 GB/s, far exceeding that of the XS5226D, with a **169%** improvement.

Sequential Write 64K

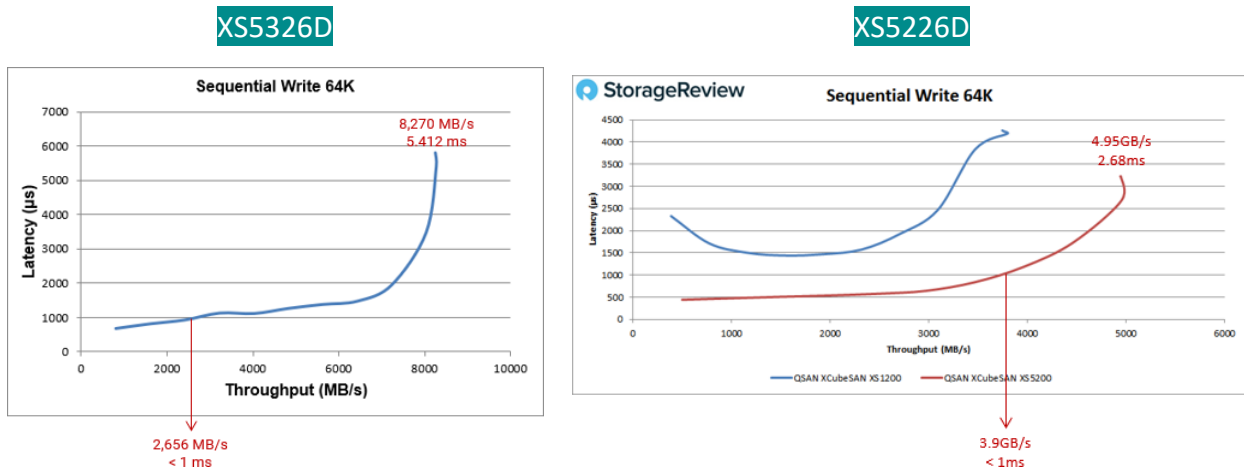


Figure 2-4 XS5326D vs. VS5226D Performance in Sequential Write 64K

In the sequential write 64K test, the throughput of the XS5326D is also 8.27GB/s, about **67%** higher than that of the XS5226D.

2.2. Performance Summary

The following table sorts out the performance comparison.

Table 2-1 Performance Summary of XS5326D and XS5226D

ITEM	XS5326D	XS5226D	% IMPROVEMENT
Random Read 4K (Max.)	1,102K IOPS	442K IOPS	149%
Random Read 4K (< 1 ms)	736K IOPS	400K IOPS	84%
Random Write 4K (Max.)	895K IOPS	294K IOPS	204%
Random Write 4K (< 1 ms)	437K IOPS	270K IOPS	62%
Sequential Read 64K (Max.)	16.13 GB/s	5.99 GB/s	169%
Sequential Write 64K (Max.)	8.27 GB/s	4.95 GB/s	67%

Overall, the new design of the XS5326D offers better performance than the previous generation in terms of both IOPS and throughput.

3. CONCLUSION

The XS5300 series has excellent hardware design and outstanding performance. Comes with the intuitive XEVO storage management system. It's an is ideal solution for applications in mission-critical data centers, high-performance computing, virtualization, or media environments.

4. APPENDIX

4.1. Reference

Products

- [XCubeSAN 5300 Series Page](#)
- [XS5326D Product Page](#)

Review

- [StorageReview: QSAN XCubeSAN XS5226D Review](#)