Microsoft Azure Stack HCI Solutions on Lenovo ThinkSystem ST50 V2

Solution Brief

Accelerate your Business

Deploying hyperconverged infrastructure (HCI) has become the de-facto standard for organizations looking to modernize their aging infrastructure. Large storage deployments are increasingly being replaced by HCI-based solutions for most general-purpose workloads. HCI has proven to deliver better efficiency and price performance in the datacenter. Additionally, customers have been choosing a hybrid approach, migrating certain workloads to the cloud, while keeping other workloads on-premises.

Azure Stack HCI is Microsoft's hybrid cloud solution for customers that wish to run workloads on-premises and extend easily to Azure for hybrid capabilities such as back-up, site recovery, storage, cloud-based monitoring and more. Microsoft Azure Stack HCI with Azure Arc on Lenovo servers is the perfect hybrid cloud solution to help our joint customers on their modernization journey.

Azure Stack HCI is a new HCI host operating system from Microsoft, delivered as an Azure service, providing the latest and up-to-date security, performance, and features. Azure Stack HCI builds on the foundation of the Microsoft Windows Server Software Defined program and provides a certification path for Storage Spaces Direct solutions.

Lenovo has designed, tested, and validated ThinkSystem ST50 V2 Azure Stack HCI validated nodes to provide quick and easy solutions for small-to-medium businesses. The result is that you can quickly deploy a robust, high-performance hybrid cloud solution and rapidly solve your IT challenges.

Figure 1. Lenovo ThinkSystem ST50 V2

Reliability: Powered by Lenovo Servers

The Lenovo ThinkSystem ST50 V2 is an ideal first server for small businesses, remote/branch offices or retail locations. It's compact size, flexible mounting options, and whisper-quiet acoustics allow it to be placed in an office environment without disruption.

The ThinkSystem ST50 V2 adds value and flexibility for your growing business by providing support for three PCIe slots with support for single NVIDIA GPU, various high bandwidth network adapters, and an array of compatible storage drives. It can be scaled to fit your growing business, provides high reliability, and uses common components to reduce costs.

Lenovo's XClarity provisioning manager enables easy setup and firmware upgrades while Intel Active Management Technology (AMT) saves time and reduces costs by monitoring system health and preventing data disruption.

The ST50 V2 provides optimal performance for increased productivity and energy cost-savings. It´s energy-efficient with a TDP (thermal design power) of no more than 95W and supports up to 8 core performance.

Lenovo ThinkSystem servers are high performance systems, with nearly 300 world record benchmarks (as of January 1, 2023), and have been ranked #1 in reliability among x86 servers for the past eight years (ITIC).

Excellent Value

Lenovo Azure Stack HCI offerings use the Microsoft Azure Stack HCI operating system on the host nodes, and optionally include Windows Server 2022 Datacenter in case you require unlimited guest OS virtual machine licenses. The Azure Stack HCI OS license provides the following benefits:

- **Storage Spaces Direct**: State of the art software-defined storage from Microsoft with multiple high-performance resiliency options, deduplication, compression and more.
- **Windows Admin Center (WAC)**: A web-based management portal software is recommended for managing an Azure Stack HCI cluster. Deployment and update features in WAC make deployment extremely simple and easy to perform. Additionally, Lenovo's XClarity plugin allows you to deploy their hardware as well as software from the same interface, enabling single pane of management. Cluster-aware updating features makes it easy to streamline software and firmware updates in a single maintenance window.
- **Hyper-V**: Hypervisor is included in the license
- **Software-Defined Networking**: Features such as virtual network encryption, firewall auditing, and virtual network peering allow you to get the benefits of a more secure software defined network with Azure Stack HCI.
- **Azure Stack HCI** is hybrid by design, and you can benefit from native integration with Azure ARC and Azure Monitor and connect to Azure for a variety of Azure hybrid services seamlessly. Fleet management for hosts and VMs allows you to monitor and manage clusters at scale.

Microsoft Azure Stack HCI offering on Lenovo ThinkSystem ST50 V2

Specifications

Key Features

The ThinkSystem ST50 V2, an entry-level tower server ideal for small businesses, home offices, retail, and branch offices, provides enhanced performance for increased productivity.

Scalability and performance

The ST50 V2 offers the following features to boost performance, improve scalability, and reduce costs:

- Improved single-socket processor performance:
  - Intel Xeon E-2300 Series processors ("Rocket Lake-E") up to 8 cores and core speeds up to 3.7 GHz
  - Intel Pentium G6405, G6505 and G6605 processors ("Comet Lake Refresh") with 2 cores and core speeds up to 4.3 GHz
- Up to four 3200 MHz DDR4 ECC UDIMMs provide speed and capacity of up to 128 GB
- Three PCIe slots for I/O expansion, one of which has the new PCIe Gen4 interface to maximize I/O performance.
- Support for a NVMe M.2 drive for OS boot operations
- Up to three non-hot-swap (NHS) drive bays, two 3.5-inch and one 2.5-inch, supporting hard disk drives (HDDs) or solid-state drives (SSDs) provide flexible internal storage capacity.
- The use of solid-state drives (SSDs) instead of, or along with, traditional hard disk drives (HDDs) can significantly improve I/O performance. An SSD can support up to 100 times more I/O operations per second (IOPS) than a typical HDD.

Validation Bill of Material

Part number	Product Description	Qty
7D8JCTO1WW	Server : ThinkSystem ST50 V2 - 3yr Warranty	1
BMDX	ThinkSystem ST50 V2 Base Chassis	1
BMDH	ThinkSystem Intel Xeon E-2356G 6C 80W 3.2GHz Processor	1
BMDW	ThinkSystem 16GB TruDDR4 3200 MHz (2Rx8, 1.2V) ECC UDIMM	4
5977	Select Storage devices - no configured RAID required	1
BMEL	On Board SATA AHCI Mode for ST50 V2	1
BME5	ThinkSystem ST50 V2 3.5" S4520 960GB Read Intensive SATA 6Gb NHS SSD	2
BS2P	ThinkSystem M.2 7450 PRO 480GB Read Intensive NVMe PCIe 4.0 x4 NHS SSD	1
BME1	ThinkSystem ST50 V2 3rd HDD Cage - 3.5" (Drive Bay 3)	1
BCD6	ThinkSystem Intel E810-DA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter	1
AUZW	ThinkSystem I350-T4 PCIe 1Gb 4-Port RJ45 Ethernet Adapter	1
BMEX	ThinkSystem ST50 V2 Slim ODD Cage Kit	1
BMFM	ThinkSystem ST50 V2 Platinum ATX-500W Power Supply	1
6311	2.8m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable	1
BMDY	ThinkSystem ST50 V2 System Rear Fan Kit	1
BMFQ	Feature Enable TPM on MB for ST50 V2	1
BMFS	TPM 2.0 and Secure Boot for ST50 V2	1
BMDZ	ThinkSystem ST50 V2 Motherboard	1
BMEK	ThinkSystem ST50 V2 NVMe M.2 Bracket Kit	1
BMEV	ThinkSystem ST50 V2 W/O Slim ODD Bezel Kit	1
BMEN	ThinkSystem ST50 V2 Drive Bay 1-2 185mm R/A SATA Signal Cable	1
BMF4	ST50 V2 SSL Label LI	1
AWF9	ThinkSystem Response time Service Label LI	1
BMEP	ThinkSystem ST50 V2 Drive Bay 1-2 300mm+80mm SATA Power Cable	1
BMDT	ST50 V2 80W Heat Sink (CPU <= 80W)	1
BMEZ	ST50 V2 WW Packaging	1
BMER	ThinkSystem ST50 V2 Drive Bay 3 W/O Slim ODD 380mm SATA Power Cable	1
BMEQ	ThinkSystem ST50 V2 Drive Bay 3/Slim ODD 520mm SATA Signal Cable	1
BMF5	ST50 V2 Model Label	1
BMFB	ST50 V2 System Label GBM	1
BMFP	ST50 V2 500W FIX PSU Warning Label	1
BNR1	No CPU Label Selected	1
BP0G	Best Performance	1
BRM1	Bay3 Cage w/ SATA Cable Connection	1
BK14	Low voltage (100V+)	1

Table 1. Bill of Materials

As Much Help As You Need

Lenovo and Lenovo partners have a comprehensive portfolio of professional services that support the full life cycle of your infrastructure. At every stage—from planning to deploying, supporting, optimizing, and end of life—extra help is available to accelerate meeting your business objectives.

Lenovo and Microsoft

With co-located engineering organizations and a history of technical collaboration, Microsoft and Lenovo consistently deliver innovative joint solutions for the data center and for edge scenarios. Lenovo's leadership in reliability, customer satisfaction, and performance, combined with Microsoft's leadership in software and cloud services, continues to deliver innovative data center and edge solutions and lower TCO for our joint customers.

For More Information

To learn more about ThinkSystem ST50 V2 server, contact your Lenovo representative or Business Partner, or visit https://lenovopress.lenovo.com/lp1547-thinksystem-st50-v2-server

Microsoft Azure Stack HCI catalog:
https://azurestackhcisolutions.azure.microsoft.com/#/catalog?Manufacturer=Lenovo

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Related product families

Product families related to this document are the following:

- Microsoft Alliance
- ThinkSystem ST50 V2 Server

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This document, LP1687, was created or updated on January 31, 2023.

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