

Jumpstart your IoT Projects Faster and More Efficiently with Lenovo and SAP

Solution Brief

Empowering analytics at the Edge

IoT technology, coupled with 5G and Edge server capabilities will give customers and partners an opportunity to effectively process volumes of data from the edge and garner insights.

To help customers deploy their IoT projects with ease and agility, Lenovo partnered with SAP to validate and certify the ThinkEdge SE450 for SAP IoT Gateway Edge.



Benefits

The certification demonstrates the ability of the ThinkEdge SE450 to communicate with the IoT Edge platform and directly to the SAP IoT platform. It provides a platform for collecting data from sensors, making local decisions and sending data to the SAP Cloud Platform for further processing, analysis and to trigger business transactions.



Figure 1. Lenovo ThinkEdge SE450

Sensors can now generate tens of thousands of data points per second. The ThinkEdge SE450 preprocesses the data locally at the edge before sending it on to the cloud. Since the data is aggregated, summarized and tactically analyzed at the edge, it minimizes the volume of data that needs to be forwarded on to the cloud, which can have a big impact on response times and network transmission costs.

Another benefit of an IoT gateway is that it can provide additional security for the IoT network and the data it transports. Because the gateway manages information moving in both directions, it can protect data moving to the cloud from leaks and IoT devices from being compromised by malicious outside attacks with features such as tamper detection, encryption, hardware random number generators and crypto engines.

Internet of Things Gateway enables communication between devices and SAP Internet of Things platform. The IoT Gateway Cloud and the IoT Edge Platform are the two SAP Internet of Things gateways. Both collect data from and send commands to them and provide adapters for the communication with various protocols. The ThinkEdge SE450 acts as a virtual gateway that brings previously offline devices and assets online, managing the connectivity with devices according to the specific communication protocol that the devices implement.

Engineered for the Edge

Today, you need computing resources, and therefore servers, almost everywhere — not just in the data center, but remotely as well. However, for performance reasons, your remote data-generating devices must be close to computing and storage resources.

This is why the Lenovo ThinkEdge SE450 Edge server was created. Compact, ruggedized and power efficient, it also demonstrates the compute power to process multiple AI workloads at various Edge locations.

This 1S Intel® Xeon Scalable 3rd-generation processor-based server has a 2U height and short depth case that can go anywhere. Mount it on a wall, stack it on a shelf or install it in a rack. It can handle anything from 5-45°C as well as high performance in high dust and vibration environments.

As one of the first NVIDIA-Certified Edge systems, Lenovo's ThinkEdge SE450 leverages NVIDIA GPUs for enterprise and industrial AI at the edge applications, providing maximum accelerated performance.

Specifications

The following table lists the specifications of the ThinkEdge SE450 server.

Table 1. Specifications

Components	Specification
Form Factor	2U rack server 300mm (11.8in) depth with 4x FHHL adapters; or 2U rack server 360mm (14.2in) depth with 4x FHFL adapters
Processor	1x 3rd Gen Intel® Xeon® Platinum processor, up to 36 cores, up to 225W TDP
Drive Bays	Up to 6x 2.5-inch 7mm drives; Up to 6x NVMe drives supported; 2x M.2 boot drives (RAID 1)
Memory	10x DDR4 memory slots; Maximum 1TB using 8x 128GB 3DS RDIMMs; Supports up to 4x Intel® Optane™ Persistent Memory 200 Series modules (PMem)
Expansion Slots	Up to 4x PCIe 4.0 slots, 1x OCP 3.0 slot
GPUs	Up to 4x single-width GPUs or 2x double-width GPUs
Network Interface	LOM adapter installed in the OCP 3.0 slot; PCIe adapters
Ports	Front: 1x Power Button, 1x system locator, health with LED, 1x VGA, 2x USB 3.1, 1x Serial Port (optional), 1x RJ-45 1Gb for dedicated management, 1x system locator LED; Optional Wi-Fi (management)
HBA/RAID Support	SW RAID standard; optional HW RAID with or without cache, or SAS HBAs
Power	Dual redundant power supplies AC (up to 1100W Platinum) or Dual redundant power supplies -48V DC 1100W
Systems Management	Lenovo XClarity Controller
OS Support	Microsoft, Red Hat, Ubuntu, CentOS, VMware. Visit lenovopress.com/osig for details.
Limited Warranty	3-year customer replaceable unit and onsite service, next business day 9x5; optional service upgrades

To learn more about the SE450, view the [ThinkEdge SE450 datasheet](#).

Why Lenovo for Edge?

Lenovo has the expertise to help you define your IoT Edge Strategy, evaluate your Analytics & AI requirements, and run proofs of concept needed to get started fast.

Lenovo AI innovation centers offer an environment to conduct edge POCs, leverage ready-to-use tools, and access to our experts in AI and edge computing. We offer workshops to help you get started, in-depth strategy engagements, and managed services.

When you are ready to deploy, we have built high-performance AI inference capability into space-efficient servers and automation of deployment and management via Lenovo Open Cloud Automation.

Wherever your edge may be, only Lenovo offers a breadth of purpose-built edge IT solutions that brings industry-leading compute performance, security, and manageability, right where you need it for real-time analytics and AI.

For more information

To learn more about Lenovo for CoSP solutions and validated partner configurations, contact your Lenovo Business Partner or visit: <https://www.lenovo.com/us/en/servers-storage/solutions/edge-computing/>

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 2023. All rights reserved.

This document, LP1567, was created or updated on March 16, 2022.

Send us your comments in one of the following ways:

- Use the online Contact us review form found at:
<https://lenovopress.lenovo.com/LP1567>
- Send your comments in an e-mail to:
comments@lenovopress.com

This document is available online at <https://lenovopress.lenovo.com/LP1567>.

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®

ThinkEdge®

XClarity®

The following terms are trademarks of other companies:

Intel® and Xeon® are trademarks of Intel Corporation or its subsidiaries.

Microsoft® is a trademark of Microsoft Corporation in the United States, other countries, or both.

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