

ThinkSystem servers with Intel second-generation Xeon Scalable processors

Lenovo

ES41950

April 2019

Prerequisites

ES41758 – ThinkSystem servers architecture introduction

<https://lenovoedu.lenovo.com/course/view.php?idnumber=ES41758>

ES51757 – Introducing ThinkSystem tools

<https://lenovoedu.lenovo.com/course/view.php?idnumber=ES51757>

Objectives

After completing the course, you will be able to:

- Describe the features of the Intel second-generation Xeon Scalable processors
- Describe the updated ThinkSystem server specifications
- Describe the updated ThinkSystem tool features

Intel second-generation Xeon Scalable processor overview

Features of the new Xeon Scalable processors

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New processor support

From April 2019, Lenovo will begin releasing upgraded ThinkSystem servers with Intel second-generation Xeon Scalable processors.

ThinkSystem

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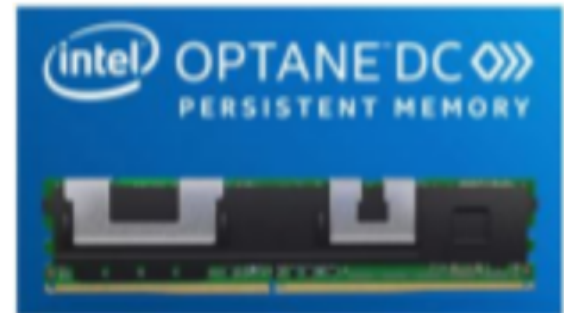


Second-generation Xeon Scalable processor key features

- No new ThinkSystem server machine types have been developed for second-generation Xeon Scalable processors.
- Second-generation Xeon Scalable processor replacement procedures are exactly the same as procedures for first-generation processors.
- The processors support Intel Optane DC persistent memory modules (DCPMMs) (SKU dependent).
- Each processor supports up to 4.5 TB of memory capacity.
- Systems containing a first-generation Xeon Scalable processor can be upgraded with a second-generation processor. Before upgrading the processor, ensure the system has been updated with the April 2019 (or later) versions of XClarity Controller (XCC) and UEFI firmware.

New DIMM and memory module support

- ThinkSystem servers with second-generation Xeon processors support DRAM DIMMs up to 2933 MHz. First-generation Xeon Scalable processors support DRAM DIMMs up to 2666 MHz only.
- ThinkSystem servers with selected second-generation Xeon processors support Intel DCPMMs, new memory modules with a large memory capacity, and support for data storage functionality.
 - Only second-generation Xeon Scalable platinum and gold processors support DCPMMs.
 - First-generation Xeon Scalable processors and second-generation Xeon Scalable bronze and silver processors do not support DCPMMs.
 - For more information about DCPMMs, refer to ES51965 – Introducing the Intel DC persistent memory module <https://lenovoedu.lenovo.com/course/view.php?idnumber=ES51965>.



Intel Xeon Scalable processor naming rules



Comparing processor features

Scroll down for more information.

Feature	Platinum (82xx)	Gold (62xx)	Gold (52xx)	Silver (42xx)	Bronze (32xx)
# of Intel UPI links	3	3	2	2	2
UPI speed	10.4 GT/s	10.4 GT/s	10.4 GT/s	10.4 GT/s	10.4 GT/s
Supported Topologies	3UPI → 2S – 2UPI, 2S – 3UPI, 4S – 2UPI, 4S – 3UPI, 8S – 3UPI	3UPI → 2S – 2UPI, 2S – 3UPI, 4S – 2UPI, 4S – 3UPI	2S – 2UPI, 4S – 2UPI	2S – 2UPI	2S – 2UPI
Node controller support	Yes	Yes	No	No	No
# of memory channels	6	6	6	6	6
DDR4 speed for 1 DPC	2933	2933	2666	2400	2133
DDR4 speed for 2 DPC	2666	2666	2666	2400	2133

* Silver processor 4215 supports DCPMMs

** Gold processor 5222 supports one DPC DDR4 and two 512-bit FMA units

Comparing processor features

Scroll down for more information.

DPC	2000	2000	2000	2400	2100
DCPMM support	Yes	Yes	Yes	No*	No
Memory capacity	1 TB, 2TB, 4.5 TB (SKUs dependent)	1 TB, 2TB, 4.5 TB (SKUs dependent)	1 TB, 2 TB, 4.5 TB (SKUs dependent)	1 TB	1 TB
RAS capability	Advanced	Advanced	Advanced	Standard	Standard
Intel turbo boost technology	Yes	Yes	Yes	Yes	Yes
Intel Hyper-Threading technology	Yes	Yes	Yes	Yes	No
Intel AVX-512 ISA support	Yes	Yes	Yes	Yes	Yes
Intel AVX-512: # of 512b FMA units	2	2	1**	1	1
VNNI support	Yes	Yes	Yes	Yes	Yes
# of PCIe lanes	48	48	48	48	48

* Silver processor 4215 supports DCPMMs

** Gold processor 5222 supports one DPC DDR4 and two 512-bit FMA units

OS support

ThinkSystem servers with second-generation Xeon Scalable processors support the following OSs (system dependent):

- Windows 2016
- Windows 2019
- ESXi 6.5 u2
- ESXi 6.7u1
- SLES 12 SP4
- SLES 15
- RHEL 7.6

For the latest OS support list for each system, refer to the OS Interoperability Guide on Lenovo Press: <https://lenovopress.com/osig>

