

ThinkSystem servers architecture introduction



ES41758

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Prerequisites

Although there are **no specific prerequisites** for this course, you should have some knowledge of high-performance computing (HPC) systems, be familiar with the general administration of a network cluster, and have problem determination and troubleshooting skills.

Objectives

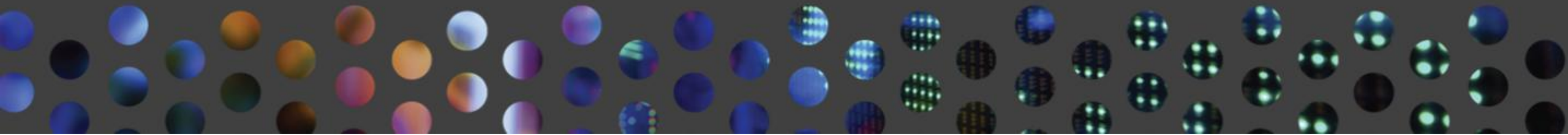
After completing the course, you will be able to:

- Describe the **key components** and **technology** of the **Purley platforms**.
- Identify the **differences** between the **Grantley, Brickland, and Purley platforms**.
- Describe the **different processor levels, features, and configurations**.
- Identify ThinkSystem servers **supported memory** and **storage features**.



➞ ThinkSystem servers overview

Product description and platforms comparisons



ThinkSystem servers general information

The table shows the general information of current ThinkSystem servers.

Naming structure	ThinkSystem servers	Size or number of sockets / form factor	Machine types
Server • ST – Tower • SR – Rack • SN – Blade (node) • SD – Dense	SR530	1U2P / rack	7X07, 7X08
	SD530	2U2P / node	7X21
	ST550	2P / tower	7X09, 7X10
	SR550	2U2P / rack	7X03, 7X04
	SN550	2P / blade	7X16
	SR630	1U2P / rack	7X01, 7X02
	SR650	2U2P / rack	7X05, 7X06
	SR850	2U4P / rack	7X18, 7X19
	SN850	4P / blade	7X15
	SR950	4U4P/8P / rack	7X11, 7X12, 7X13

Building blocks for ThinkSystem servers

The following items are the key characteristics of ThinkSystem servers:

- Mechanical design – CPU install/remove with heat sink (processor heat sink module, PHM)
- Heat sinks (1U/2U and rated for different thermal design power, TDP)
- 1U/2U system rack mechanicals
- Fourteen varieties of RAID adapters
- Storage backplanes with Gen4 mechanical tray for drives
- M.2 single device and M.2 dual device with RAID
- XClarity Controller (ASpeed Pilot4 BMC)
- Intel LOMs (2/4Port 1G, 2/4Port 10GBaseT, 2/4Port 10G SFP+)
- ML2 LOMs (non-Intel choices from System x)

Purley technology

Purley platform provides new technology. Here is the list of the technology that is used by ThinkSystem servers:

- TDP up to 205 W, including usage of DIMM fillers for thermal
- Up to 28 cores, six DDR4 memory channels, 48 PCIe lanes
- Advanced Vector Extensions 512 (AVX-512) for better HPC performance
- BootGuard security core root of trust between PCH and UEFI
- SKUs with integrated Intel Omni Path (100 Gb port)
- Speed Shift Technology (more power state features, C-state/HWP)
- Cache and memory bandwidth monitoring and allocation
- New AES security instructions
- Processor Information ROM (PIROM, similar to VPD) on all CPUs

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