

Lenovo ThinkAgile CP Series Cloud Platform (Xeon SP Gen 1)

Product Guide (withdrawn product)

Lenovo ThinkAgile CP Series is an all-in-one, composable cloud with an integrated application marketplace and end-to-end automation, delivering a turn-key cloud experience in your own data center. ThinkAgile CP Series uses modular compute, storage, and networking components paired with the cloud virtualization software to create pools of IT resources, independently scaling and allocating capacity, and automatically configuring resources to fulfill application requirements.

Due to its software-defined modular architecture, the ThinkAgile CP Series platform can be scaled easily by adding more compute and storage resources independently of each other as your needs grow. Suggested workloads for the ThinkAgile CP Series include web services, virtual desktop infrastructure (VDI), enterprise applications, OLTP and OLAP databases, data analytics, application development, cost-optimized virtualization, containers, and other back-office applications.

The following figure shows the ThinkAgile CP Series hardware components.

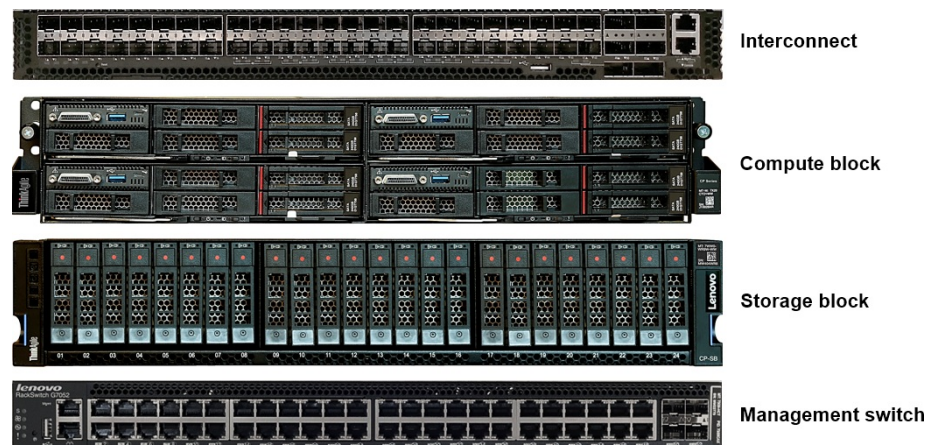


Figure 1. Lenovo ThinkAgile CP Series hardware components

Did you know?

Lenovo professional deployment services are included in ThinkAgile CP Series to get customers up and running quickly. Also included is the ThinkAgile Advantage lifecycle management with a single point of support for the entire ThinkAgile CP platform with the nodes, networking, and software components, for quicker problem determination and minimized downtime.

Lenovo offers additional professional services that can be purchased for the ThinkAgile CP Series deployments, including hardware installation, software deployment, workload migration, cloud assessment and design, and ongoing managed services to help achieve optimal operations and performance.

ThinkAgile CP is designed to minimize downtime with all of the components engineered to work together, and with tested, standardized and automated code updates.

Key features

Lenovo ThinkAgile CP Series offers the following key features:

- Modular and scalable ThinkAgile CP Series configurations of an on-premises cloud platform featuring the first generation of the Intel Xeon Processor Scalable Family that are designed to optimize your workload's performance and provide the IT agility for your business demands.
- Factory-preloaded ready-to-go cloud platform that is delivered with all the infrastructure you need for your workloads: Modular and scalable physical and virtual compute, network, and storage resources, and the cloud software.
- Lenovo deployment services that are included with the platform help get customers up and running quickly.
- The cloud software provides a scalable software-defined infrastructure (SDI) that simplifies cloud deployments with integrated compute, storage, networking, security, and management services that manage application infrastructure and automate and orchestrate workload provisioning.
- Extensive security features, such as data at rest encryption, virtualized network and VM-level firewalls, and two-factor authentication help customers meet the most stringent security requirements.
- Centralized cloud-based management automates discovery, deployment, and configuration of cloud resources, and provides automated, non-disruptive software updates.
- Lenovo ThinkAgile Advantage provides a single point of contact for all support issues and integrates support chat and virtual technical assistance into your management interface.

Components

The ThinkAgile CP Series consists of the following components:

- **CP Interconnect**
Interconnect centralizes connectivity of your on-premises infrastructure to the Cloud Controller and acts as the entry point into your existing network, which connects the Cloud Controller to your environment. The CP Interconnect consists of one or two high-density, ultra-low-latency 10/40 GbE network devices and use specialized cloud software which provides the fabric for your composable environment, automating discovery, onboarding, and device management. Integrated network virtualization secures virtual data center and applications.
- **Compute Blocks**
Compute Block is a modular 2U enclosure that contains up to four nodes, and it delivers processor and memory resources to the cloud. The compute nodes run the cloud hypervisor that combines open KVM-based virtualization software, hardware integration, and automation to orchestrate and deliver an end-to-end compute platform.
- **Storage Blocks**
Storage Block is a 2U storage chassis with up to 24 PCIe NVMe SSDs and two controllers for high availability and redundancy. A storage block runs the cloud software that delivers data storage layer to the cloud. It simplifies storage management, provides enterprise-class storage functionality, and enables linear performance and capacity scaling.
- **Management switch**
The 1 GbE management switch is required to provide out-of-band management for the Interconnect, Compute Blocks, and Storage Blocks. The switch can be supplied by Lenovo (G7052 or NE0152T), or customers may provide their own switch.

- Cloud Controller
Cloud Controller orchestrates and manages the on-premises infrastructure and workloads; however, it resides in the cloud. It automates and orchestrates infrastructure provisioning in real time to achieve complete and secure vertical hardware, software and workload integration. It federates and abstracts all physical hardware into a private cloud service.

Cloud Controller provides a single point of management across an unlimited number of ThinkAgile CP stacks with role-based access control, multi-factor authentication, and secure HTML and RESTful API interfaces.

The following figure shows the port-side view of the ThinkAgile CP Interconnect.

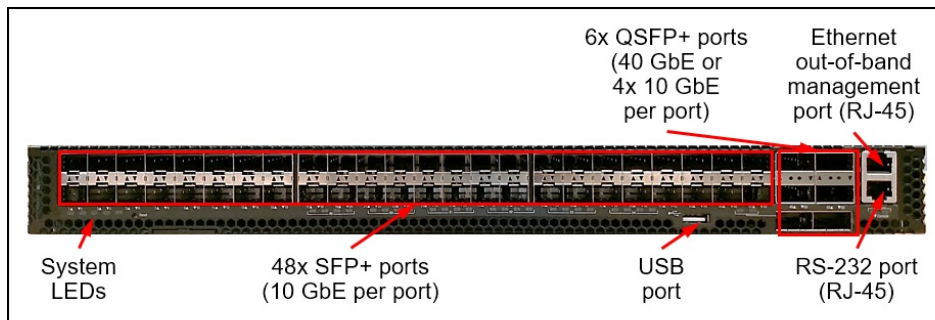


Figure 2. ThinkAgile CP Interconnect port-side view

The following figure shows the non-port-side view of the ThinkAgile CP Interconnect.

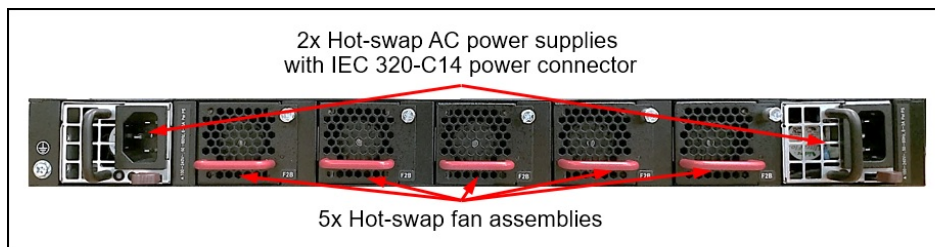


Figure 3. ThinkAgile CP Interconnect non-port-side view

The following figure shows the front view of the ThinkAgile CP Compute Block.

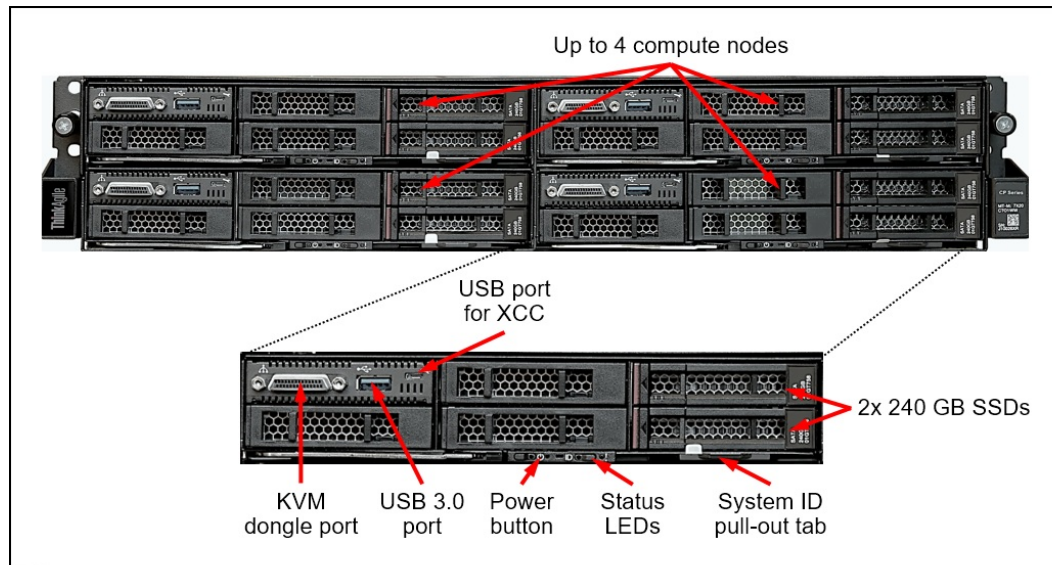


Figure 4. ThinkAgile CP Compute Block front view

The following figure shows the rear view of the ThinkAgile CP Compute Block.

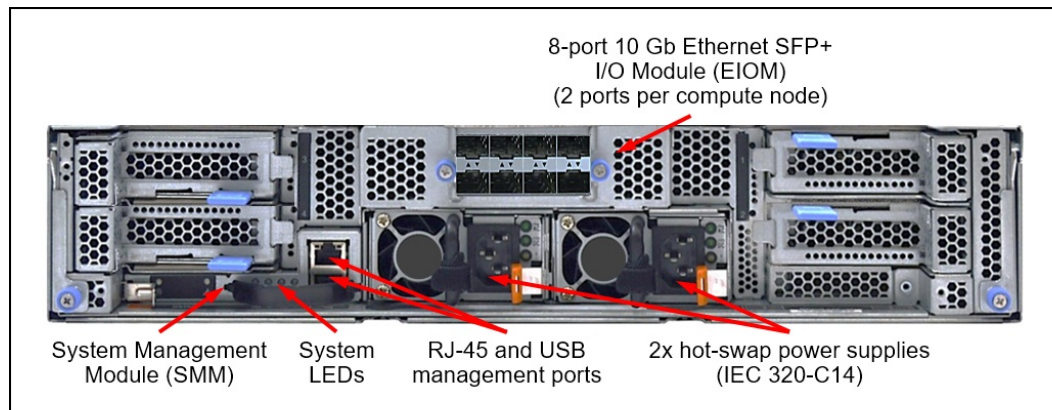


Figure 5. ThinkAgile CP Compute Block rear view

The following figure shows the front view of the ThinkAgile CP Storage Block.

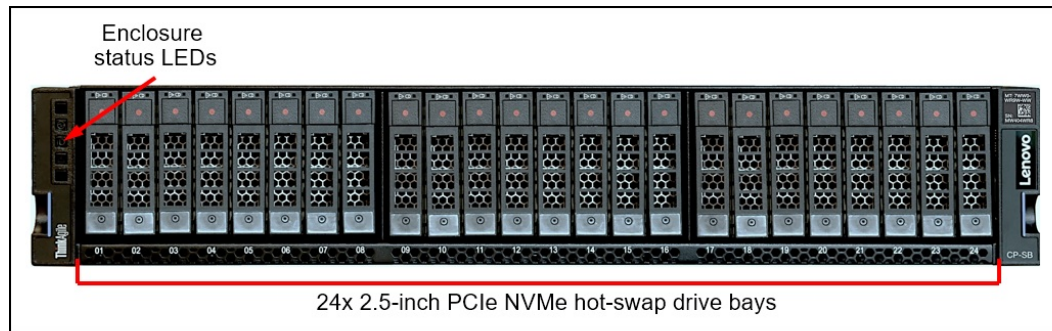


Figure 6. ThinkAgile CP Storage Block front view

The following figure shows the rear view of the ThinkAgile CP Storage Block.

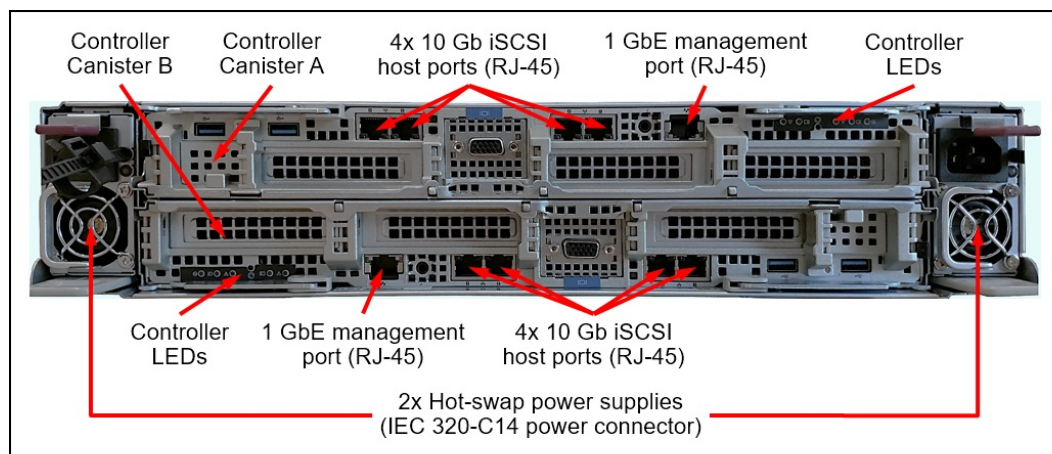


Figure 7. ThinkAgile CP Storage Block rear view

The following figure shows the port-side view of the RackSwitch G7052.

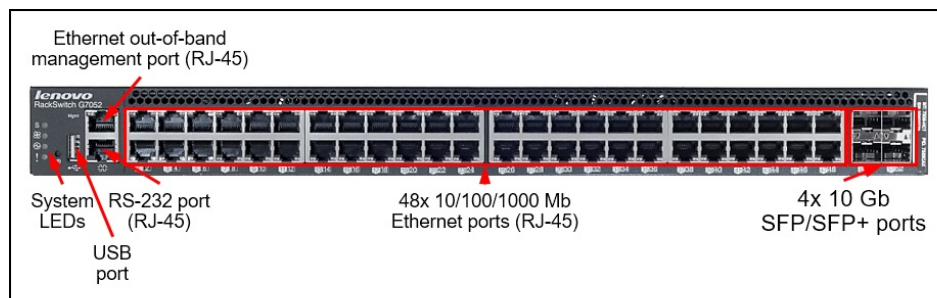


Figure 8. RackSwitch G7052 port-side view

The following figure shows the non-port-side view of the RackSwitch G7052.



Figure 9. RackSwitch G7052 non-port-side view

The following figure shows the port-side view of the NE0152T RackSwitch.

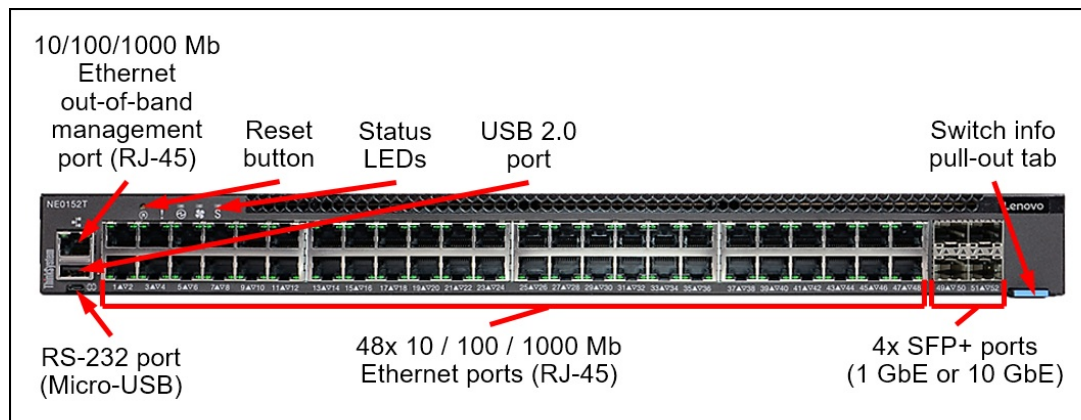


Figure 10. NE0152T RackSwitch port-side view

The following figure shows the non-port-side view of the NE0152T RackSwitch.

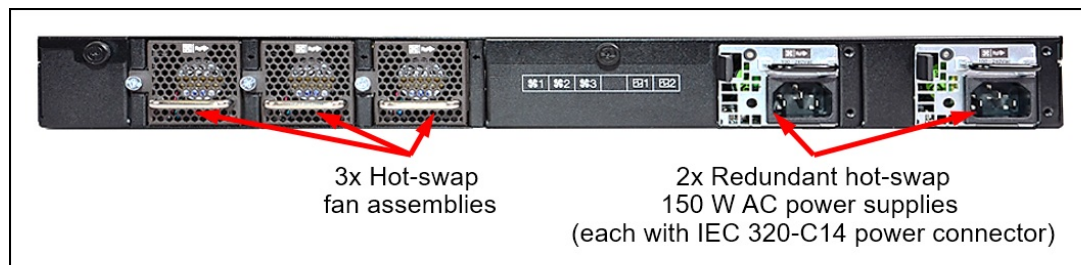


Figure 11. NE0152T RackSwitch non-port-side view

System specifications

The following table lists the system specifications of the ThinkAgile CP Series.

Table 1. ThinkAgile CP Series system specifications

Attribute	Specification	
	CP4000	CP6000
Warranty and support	Three-, four-, or five-year customer-replaceable unit and onsite limited hardware warranty with ThinkAgile Advantage Support and selectable service levels: 9x5 next business day (NBD) parts delivered (base warranty), 9x5 NBD onsite response (Foundation Service), 24x7 coverage with 4-hour onsite response or 24-hour committed repair (select areas), (Essential Service), or 2-hour onsite response or 6-hour committed repair (select areas) (Advanced Service). Also available are YourDrive YourData, Premier Support, and Enterprise Software Support.	
Software	Guardian Edition Software for ThinkAgile CP.	

	Specification	
Attribute	CP4000	CP6000
Interconnect		
Model	CP-I-10 (Initial) / CP-I-10E (Expansion)	CP-I-10
Form factor	1U rack-mount	
Quantity	1-2	2
Data ports	48x 10 GbE SFP+; 6x 40 GbE QSFP+	
Management ports	1x 10/100/1000 Mb Ethernet port (RJ-45); 1x RS-232 port (RJ-45)	
Customer network uplinks	2x 10 GbE SFP+ ports, or 2x QSFP+ ports (40 GbE or 4x 10 GbE per port)	
Software features	Virtual networks (VLAN and VNET), network overlay, network function virtualization (distributed switching, routing, firewall, NAT, and load balancing), micro-segmentation	
Cooling	Five N+1 redundant hot-swap fan assemblies	
Power supplies	Two redundant 400 W AC hot-swap power supplies	
Compute		
Model	Enclosure: CP-CB-10 (Initial) / CP-CB-10E (Expansion) Node: CN-10 (Initial) / CN-10E (Expansion)	
Form factor	2U rack-mount	
Compute block quantity	1	1 - 10
Compute node quantity	2 - 4	2 - 40
Processor	Two Intel Xeon Bronze, Silver, Gold, or Platinum Gen 1 processors	
Memory	16 DIMM slots. Support for RDIMMs, LRDIMMs, or 3DS RDIMMs. ECC, SDDC (for x4-based memory DIMMs), ADDDC (for x4-based memory DIMMs, requires Intel Xeon Gold or Platinum processors), patrol scrubbing, and demand scrubbing memory protection.	
Memory capacity	Up to 512 GB with 8x 64 GB LRDIMMs.	Up to 1536 GB with 12x 128 GB 3DS RDIMMs.
Boot volume	2x 2.5" 240GB Entry SATA 6Gb Hot Swap SSDs in a RAID 1 drive group.	
Network interfaces	<ul style="list-style-type: none">2x 10 GbE SFP+ ports (Intel X722 LOM) connected to the Interconnect with two SFP+ DAC cables.1x 1 GbE dedicated XCC management port (RJ-45) connected to the management network with one UTP Category 5E cable.	
Management features	XClarity Controller (XCC) Enterprise (Pilot 4 chip), proactive platform alerts, light path diagnostics.	
Security features	Power-on password, administrator's password, Trusted Platform Module (TPM) 2.0-ready.	
Video	Matrox G200 with 16 MB memory integrated into the XClarity Controller. Maximum resolution is 1920x1200 at 60 Hz with 32 bits per pixel.	
Cooling	Five hot-swap system fans in the enclosure.	
Power supplies	Two redundant hot-swap 2000 W (200 - 240 V) Platinum power supplies in the enclosure.	
Software	Cloud Software Defined Compute (boot volume factory preload).	
Storage blocks		
Model	CP-SB-S10	CP-SB-D20 (Initial) / CP-SB-D20E (Expansion)
Form factor	2U rack-mount	
Quantity	1	1 - 5*

	Specification	
Attribute	CP4000	CP6000
Controller configuration	Dual active/standby controller configuration	
RAID levels	RAID 5+0 with hot spares (up to 3 drive groups of 8 drives each, each group is RAID-5 [7 drives] + 1 hot spare, RAID 0 spans across drive groups)	
Storage type	PCIe NVMe All Flash	
Drive quantity per block	8, 16, 24	
Raw storage capacity (max per block)	38.4 TB	307.2 TB
Usable storage capacity (max per block)	28.8 TB	230.4 TB
Storage connectivity	8x 10 Gb iSCSI RJ-45 ports (4 ports per controller) connected to the Interconnect with four RJ-45 cables included.	
Management interfaces	2x 1 GbE RJ-45 ports (1 port per controller) connected to the management network with two UTP Category 5E cables included.	
Software features	Thin provisioning, snapshots, compression, deduplication, backup, asynchronous replication.	
Cooling	Redundant cooling with five fans built into each of two hot-swappable controllers or expanders.	
Power supplies	Two redundant hot-swap 2000 W AC power supplies.	
Management network		
Model	G7052 or NE0152T.	
Form factor	1U rack-mount.	
Quantity	0 or 1 (Optional).	
Data ports	48x 1 GbE RJ-45 ports and 4x 10 GbE SFP+ ports.	
Management ports	1x 10/100/1000 Mb Ethernet.	
Software features	<ul style="list-style-type: none">G7052 (Enterprise Networking Operating System [ENOS]): Layer 2 switching, VLANs, VLAN tagging, spanning tree, link aggregation, Hot Links, Link failover, QoS, IP v4/v6 management.NE0152T (Cloud Networking Operating System [CNOS]): Layer 2 and Layer 3 switching, VLANs, VLAN tagging, spanning tree, link aggregation, virtual link aggregation, VRRP, QoS, IP v4/v6 management and routing.	
Cooling	<ul style="list-style-type: none">G7052: Three 2+1 redundant fixed fans.NE0152T: Three N+1 redundant hot-swap fans.	
Power supplies	<ul style="list-style-type: none">G7052: One fixed 90 W AC.NE0152T: Two redundant hot-swap 150 W AC.	

* The maximum quantity of the Storage Blocks depends on the interconnect port availability based on the quantity of the Compute Blocks.

Models

Factory-integrated models of the ThinkAgile CP Series are configured by using the Data Center Solution Configurator (DCSC):

<http://dcsc.lenovo.com>

The configuration process for the ThinkAgile CP Series includes the following selectable components:

- Model:
 - ThinkAgile CP4000 (7Y34CTO3WW)
 - ThinkAgile CP6000 (7Y34CTO4WW)
- Compute Block:
 - Processor model
 - Memory capacity
 - Node quantity
 - CP4000: 2 - 4 (1 block)
 - CP6000: 2 - 40 (1 - 10 blocks)
- Storage Block:
 - Storage Block model (SB-S10 or SB-D20) is derived based on the CP Series model selected
 - Storage capacity
 - Storage Block quantity
 - CP4000: 1
 - CP6000: 1 - 5 (the maximum quantity depends on the Interconnect port availability)
- Interconnect:
 - Interconnect quantity
 - CP4000: 1 - 2
 - CP6000: 2
- Management switch:
 - Customer-provided 1 GbE switch; or
 - RackSwitch G7052; or
 - ThinkSystem NE0152T RackSwitch
- Cloud software licenses:
 - Guardian Edition
 - Per node and per core for Compute Blocks
 - Per node and per capacity for Storage Blocks
- Warranty and support:
 - Three, four, or five years of service coverage
 - 9x5 Next Business Day response with parts delivered (default selection) or onsite response
 - 24x7 4-hour or 2-hour onsite response or 24x7 24-hour or 6-hour committed service repair (available only in select areas)
 - Premier support (optional)
 - YourDrive YourData (optional)
- Services:
 - Lenovo ThinkAgile Advantage services (included): Deployment services and single point of support
 - Basic installation services (optional)
 - Health check (onsite firmware updates from Lenovo) (optional)
 - Managed services (remote monitoring and management by Lenovo managed services team) (optional)

The ThinkAgile CP Series platform is designed for installation in a rack cabinet; the rack cabinet can be purchased from Lenovo (see [Rack cabinets](#)) or provided by the customer. Lenovo deployments services are included; they provide remote preparation and planning, configuring platform components, validating installation, transferring knowledge, and developing post-installation documentation.

Lenovo basic installation services are optional; they provide mounting the components in a rack cabinet, connecting components to network and electrical power, checking and updating firmware, verifying operations, and disposal of the packaging materials within the customer site.

The existing ThinkAgile CP deployments can be expanded up to the maximum number of modules supported by ordering the Compute Block, Compute Node, and Storage Block expansion models.

Interconnect

The ThinkAgile CP Series uses CP-I-10 Interconnect to provide network connectivity and to control on-premises hardware and software. Interconnect decouples control, data and management traffic into different planes.

The CP-I-10 provides 10 GbE SFP+ connections for the Compute Blocks and Storage Blocks, and 10 GbE SFP+ or 40 GbE QSFP+ customer network uplinks. One of the CP-I-10 also provides one 10 GbE SFP+ connection to the management switch. One or two Interconnects can be selected for the CP4000 model, and the CP6000 model requires two Interconnects. A pair of Interconnects provides high availability and redundancy for the on-premises network infrastructure. If the pair of Interconnects is used, they are connected to each other by using two 40 GbE links.

The following figure illustrates the network connectivity topology.

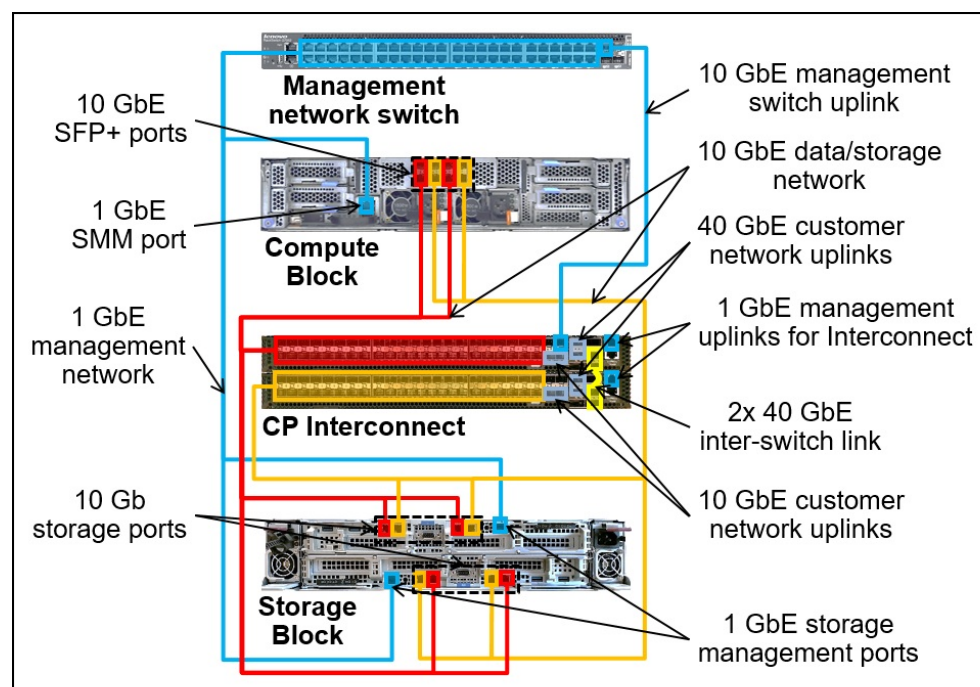


Figure 12. ThinkAgile CP network connectivity topology

Note: When only one Interconnect is deployed with the CP4000 model, all ports on the Compute Block and Storage Block are connected to the same Interconnect network device.

The following table lists the ThinkAgile CP Interconnect model.

Table 2. Interconnect for CP Series

Description	Machine Type/Model	Feature code	CP4000	CP6000
ThinkAgile CP Interconnect (CP-I-10)	7Y67CTO1WW	B2WC	Y	Y
ThinkAgile CP Interconnect (CP-I-10E)	7Y67CTO2WW	B2WC	Y	N

Configuration notes:

- One or two Interconnects are allowed for the CP4000 model; single-Interconnect configurations can be upgraded to dual-Interconnect configurations after the initial deployment by using the Interconnect

Expansion (CP-I-10E).

- Two Interconnects are required for the CP6000 model.
- Either 10 GbE or 40 GbE uplinks can be configured on the Interconnects, but not both types:
 - 2x 10 GbE SFP+ DAC cables per Interconnect; or
 - 2x 10 GbE SFP+ active optical cables per Interconnect; or
 - 2x 40 GbE QSFP+ DAC cables per Interconnect; or
 - 2x 40 GbE QSFP+ DAC breakout cables per Interconnect;
 - 2x 40 GbE QSFP+ active optical cables per Interconnect; or
 - 2x 40 GbE QSFP+ active optical breakout cables per Interconnect; or
 - 2x 40 GbE QSFP+ SR4 transceivers with MPO-MPO cables per Interconnect
- Interconnect port count limits the maximum quantity of Compute Blocks and Storage Blocks, as follows:
 - Each Compute Node requires one 10 GbE SFP+ port (4x 10 GbE SFP+ ports per Compute Block) on each of the Interconnects.
 - Each Storage Block requires four 10 GbE RJ-45 ports on each of the Interconnects.
 - A maximum of 44x 10 GbE SFP+ ports can be used on each of the Interconnects for the combined compute and storage connectivity:
 - Up to 40 Compute Nodes (10x Compute Blocks) and 1x Storage Block
 - Up to 36 Compute Nodes (9x Compute Blocks) and 2x Storage Blocks
 - Up to 32 Compute Nodes (8x Compute Blocks) and 3x Storage Blocks
 - Up to 28 Compute Nodes (7x Compute Blocks) and 4x Storage Blocks
 - Up to 24 Compute Nodes (6x Compute Blocks) and 5x Storage Blocks

The following tables list transceivers and cables that are available for selection for the Interconnect SFP+ and QSFP+ ports.

Table 3. 10 GbE SFP+ transceivers and UTP cables for Storage Block-to-Interconnect links

Description	Feature code	Maximum quantity per Interconnect	Quantity per Storage Block
Lenovo 10GBASE-T SFP+ Transceiver	AVV1	20*	8*
0.75m Green Cat6 Cable	AVFW	20	8
1.0m Green Cat6 Cable	AVFX	20	8
1.25m Green Cat6 Cable	AVFY	20	8
1.5m Green Cat6 Cable	AVFZ	20	8
3m Green Cat6 Cable	AVG0	20	8

* The transceivers are for the SFP+ Interconnect ports.

Table 4. 10 GbE SFP+ DAC cables for Compute Block-to-Interconnect links

Description	Feature code	Maximum quantity per Interconnect	Quantity per Compute Node
0.5m Passive DAC SFP+ Cable	A3RG	40	2
1m Passive DAC SFP+ Cable	A1PH	40	2
1.5m Passive DAC SFP+ Cable	A51N	40	2
2m Passive DAC SFP+ Cable	A51P	40	2
3m Passive DAC SFP+ Cable	A1PJ	40	2
5m Passive DAC SFP+ Cable	A1PK	40	2
7m Passive DAC SFP+ Cable	A3RH	40	2

Table 5. Transceivers and cables for customer network uplinks

Description	Feature code	Maximum quantity per Interconnect
10 GbE SFP+ DAC cables		
1.5m Passive DAC SFP+ Cable	A51N	2
2m Passive DAC SFP+ Cable	A51P	2
3m Passive DAC SFP+ Cable	A1PJ	2
5m Passive DAC SFP+ Cable	A1PK	2
7m Passive DAC SFP+ Cable	A3RH	2
10 GbE SFP+ active optical cables		
Lenovo 3m SFP+ to SFP+ Active Optical Cable	ATYY	2
Lenovo 5m SFP+ to SFP+ Active Optical Cable	ATYZ	2
Lenovo 7m SFP+ to SFP+ Active Optical Cable	ATZ0	2
Lenovo 15m SFP+ to SFP+ Active Optical Cable	ATZ1	2
Lenovo 20m SFP+ to SFP+ Active Optical Cable	ATZ2	2
40 GbE QSFP+ transceivers and optical cables		
Lenovo 40GBASE-SR4 QSFP+ Transceiver	A1DR	2
Lenovo 10m QSFP+ MPO-MPO OM3 MMF Cable	AT2U	2
Lenovo 30m QSFP+ MPO-MPO OM3 MMF Cable	AT2V	2
40 GbE QSFP+ active optical cables		
Lenovo 3m QSFP+ to QSFP+ Active Optical Cable	ATZ3	2
Lenovo 5m QSFP+ to QSFP+ Active Optical Cable	ATZ4	2
Lenovo 7m QSFP+ to QSFP+ Active Optical Cable	ATZ5	2
Lenovo 15m QSFP+ to QSFP+ Active Optical Cable	ATZ6	2
Lenovo 20m QSFP+ to QSFP+ Active Optical Cable	ATZ7	2
40 GbE QSFP+ to 4x10 GbE SFP+ active optical breakout cables		
Lenovo 1m QSFP+ to 4xSFP+ Active Optical Cable	ATZ8	2
Lenovo 3m QSFP+ to 4xSFP+ Active Optical Cable	ATZ9	2
Lenovo 5m QSFP+ to 4xSFP+ Active Optical Cable	ATZA	2
40 GbE QSFP+ direct-attach copper cables		
Lenovo 1m Passive QSFP+ DAC Cable	A1DP	2
Lenovo 3m Passive QSFP+ DAC Cable	A1DQ	2
Lenovo 5m Passive QSFP+ DAC Cable	A2X8	2
Lenovo 7m Passive QSFP+ DAC Cable	A2X9	2
40 GbE QSFP+ to 4x 10 GbE SFP+ breakout cables		
Lenovo 1m Passive QSFP+ to SFP+ Breakout DAC Cable	A1DL	2
Lenovo 3m Passive QSFP+ to SFP+ Breakout DAC Cable	A1DM	2
Lenovo 5m Passive QSFP+ to SFP+ Breakout DAC Cable	A1DN	2

Table 6. 1 GbE UTP cables for management uplinks for Interconnect

Description	Feature code	Quantity per Interconnect
0.75m Blue Cat5e Cable	AVFT	1
1.0m Blue Cat5e Cable	AVFU	1
1.25m Blue Cat5e Cable	AVFV	1
1.5m Blue Cat5e Cable	3802	1
3m Blue Cat5e Cable	3803	1
10m Blue Cat5e Cable	3804	1
25m Blue Cat5e Cable	3805	1

Compute Blocks

The ThinkAgile CP Series uses CP-CB-10 / CP-CB-10E Compute Blocks that provide processing resources to the cloud. Each Compute Block supports up to four CP-CN-10 / CP-CN-10E Compute Nodes.

Product availability: The Compute Nodes featuring the first generation of the Intel Xeon Processor Scalable Family (Xeon SP Gen 1) are withdrawn and no longer available for ordering. For the Compute Nodes featuring the second generation of the Intel Xeon Processor Scalable Family (Xeon SP Gen 2), refer to the following Lenovo Press product guide:

- Lenovo ThinkAgile CP Series Cloud Platform (Xeon SP Gen 2)
<http://lenovopress.com/LP1193>

The following table lists the Compute Blocks and Compute Nodes for ThinkAgile CP Series.

Table 7. Compute Blocks and Compute Nodes for CP Series

Description	Machine Type/Model	Model name
ThinkAgile CP Compute Block CB-10	7X20CTOAWW	CP-CB-10
ThinkAgile CP Compute Block Expansion CB-10	7X20CTOBWW	CP-CB-10E
ThinkAgile CP Compute Node CN-10	7Y65CTO1WW	CP-CN-10
ThinkAgile CP Compute Node Expansion CN-10	7Y65CTO2WW	CP-CN-10E

Configuration notes:

- A maximum of one Compute Block CB-10 is supported for the CP4000 model.
- A maximum of ten Compute Blocks CB-10 is supported for the CP6000 model.
- Each Compute Block CB-10 supports up to four Compute Nodes CN-10.
- The Compute Block Expansion CB-10 and Compute Node Expansion CN-10 are used to add compute capacity to the existing ThinkAgile CP Series deployments up to the maximum number of modules supported (See [Interconnect](#) for details).

Processors

The Compute Node requires two processors of Intel Xeon Processor Scalable Family. The following table lists feature codes of the supported processors.

Table 8. Processor feature codes

Description	Feature code
Intel Xeon Bronze 3106 8C 85W 1.7GHz Processor	AXQW
Intel Xeon Silver 4108 8C 85W 1.8GHz Processor	AXQZ
Intel Xeon Silver 4109T 8C 70W 2.0GHz Processor	AXQV
Intel Xeon Silver 4110 8C 85W 2.1GHz Processor	AXQY
Intel Xeon Silver 4114 10C 85W 2.2GHz Processor	AXQT
Intel Xeon Silver 4114T 10C 85W 2.2GHz Processor	B139
Intel Xeon Silver 4116 12C 85W 2.1GHz Processor	AXNZ
Intel Xeon Silver 4116T 12C 85W 2.1GHz Processor	B138
Intel Xeon Gold 5115 10C 85W 2.4GHz Processor	AXP0
Intel Xeon Gold 5117 14C 105W 2.0GHz Processor	B13A
Intel Xeon Gold 5118 12C 105W 2.3GHz Processor	AX7D
Intel Xeon Gold 5119T 14C 85W 1.9GHz Processor	AX7F
Intel Xeon Gold 5120 14C 105W 2.2GHz Processor	AX7C
Intel Xeon Gold 5120T 14C 105W 2.2GHz Processor	AX7E
Intel Xeon Gold 6126 12C 125W 2.6GHz Processor	AWEX
Intel Xeon Gold 6130 16C 125W 2.1GHz Processor	AX6D
Intel Xeon Gold 6130T 16C 125W 2.1GHz Processor	AX72
Intel Xeon Gold 6132 14C 140W 2.6GHz Processor	AX6U
Intel Xeon Gold 6134 8C 130W 3.2GHz Processor	AX6Y
Intel Xeon Gold 6134M 8C 130W 3.2GHz Processor	AX7A
Intel Xeon Gold 6136 12C 150W 3.0GHz Processor	AX6W
Intel Xeon Gold 6138 20C 125W 2.0GHz Processor	AX6Q
Intel Xeon Gold 6138T 20C 125W 2.0GHz Processor	AX71
Intel Xeon Gold 6140 18C 140W 2.3GHz Processor	AX6R
Intel Xeon Gold 6140M 18C 140W 2.3GHz Processor	AX79
Intel Xeon Gold 6142 16C 150W 2.6GHz Processor	AX6E
Intel Xeon Gold 6142M 16C 150W 2.6GHz Processor	AX78
Intel Xeon Gold 6148 20C 150W 2.4GHz Processor	AWEW
Intel Xeon Gold 6150 18C 165W 2.7GHz Processor	AX6T
Intel Xeon Gold 6152 22C 140W 2.1GHz Processor	AX6P
Intel Xeon Platinum 8153 16C 125W 2.0GHz Processor	AX6L
Intel Xeon Platinum 8158 12C 150W 3.0GHz Processor	AX7B
Intel Xeon Platinum 8160 24C 150W 2.1GHz Processor	AWGJ
Intel Xeon Platinum 8160M 24C 150W 2.1GHz Processor	AX77
Intel Xeon Platinum 8164 26C 150W 2.0GHz Processor	AX6K
Intel Xeon Platinum 8170 26C 165W 2.1GHz Processor	AX6J

Description	Feature code
Intel Xeon Platinum 8170M 26C 165W 2.1GHz Processor	AX76
Intel Xeon Platinum 8176 28C 165W 2.1GHz Processor	AX6H
Intel Xeon Platinum 8176M 28C 165W 2.1GHz Processor	AX75

Memory

The Compute Node supports up to 16 DIMMs. The following rules apply when selecting the memory configuration:

- The Compute Node support RDIMMs, LRDIMMs, or 3DS RDIMMs.
- Mixing different types of memory (RDIMMs, LRDIMMs, and 3DS RDIMMs) is not supported.
- All DIMMs in the appliance must be of the same type and capacity.
- All DIMMs in the appliance operate at the same speed up to 2666 MHz, which is determined by the maximum memory speed supported by the specific processor.
Note: Maximum memory speed can be achieved when Max performance mode is enabled in UEFI.
- 16 DIMMs are supported only with the following processors (the processors not listed below support only up to 12 DIMMs):
 - Intel Xeon Bronze 3106 8C 85W 1.7GHz
 - Intel Xeon Silver 4108 8C 85W 1.8GHz
 - Intel Xeon Silver 4110 8C 85W 2.1GHz
 - Intel Xeon Silver 4114 10C 85W 2.2GHz
 - Intel Xeon Silver 4116 12C 85W 2.1GHz
 - Intel Xeon Gold 5115 10C 85W 2.4GHz
 - Intel Xeon Gold 5118 12C 105W 2.3GHz
 - Intel Xeon Gold 5120 14C 105W 2.2GHz
 - Intel Xeon Gold 6130 16C 125W 2.1GHz
 - Intel Xeon Platinum 8153 16C 125W 2.0GHz

The following memory protection technologies are supported:

- ECC
- SDDC (for x4-based memory DIMMs)
- ADDDC (for x4-based memory DIMMs; Gold and Platinum processors only)
- Patrol scrubbing
- Demand scrubbing

The following table lists memory selection options available for the ThinkAgile CP Compute Nodes.

Table 9. Memory options

Description	Feature code	Quantity	
		CP4000	CP6000
RDIMMs			
ThinkSystem 16GB TruDDR4 2666 MHz (2Rx8 1.2V) RDIMM	AUNC	8, 12, 16	8, 12, 16
ThinkSystem 32GB TruDDR4 2666 MHz (2Rx4 1.2V) RDIMM	AUND	4, 8	4, 12, 16
LRDIMMs			
ThinkSystem 64GB TruDDR4 2666 MHz (4Rx4 1.2V) LRDIMM	AUNE	4, 8	2, 12, 16
3DS RDIMMs			
ThinkSystem 128GB TruDDR4 2666 MHz (8Rx4 1.2V) 3DS RDIMM	AUNF	-	12

Internal storage

Each Compute Node has two 240GB SATA hot-swap SSDs configured in a RAID-1 drive group for high availability to boot the cloud software. The following table lists SSD selection options. Both SSDs in the Compute Node must be of the same model.

Table 10. SSD selection options

Description	Feature code	Quantity
ThinkSystem 2.5" Intel S4510 240GB Entry SATA 6Gb Hot Swap SSD	B498	2
ThinkSystem 2.5" Intel S4500 240GB Entry SATA 6Gb Hot Swap SSD	B0YY	2

Network connectivity

For the management network, the Compute Block uses 1 GbE connectivity with the onboard 1 GbE port on the SMM.

For the data network, the Compute Node provides two-port 10 GbE SFP+ network connectivity with the onboard Intel X722 NIC on the node and an Ethernet I/O Module (EIOM) installed in the Compute Block. For more information, see [Interconnect](#).

Storage Blocks

The Storage Block offers the following features:

- Two controller canisters that operate in an active/passive mode with automatic failover
- 4x 10 Gb connectivity to each of two controllers
- 8, 16, or 24 NVMe SSD drives (3 drive groups of 8 drives each)
- RAID-5 with a hot spare drive within a drive group; RAID-0 across drive groups
- Multipathing
- Thin provisioning
- Deduplication
- Compression
- Data-at-rest encryption
- Snapshots
- Integrated backup
- Asynchronous replication

The following table lists the Storage Blocks for ThinkAgile CP Series.

Table 11. Storage Blocks for CP Series

Description	Machine Type/Model	Feature code	CP4000	CP6000
ThinkAgile CP Storage Block SB-S10	7Y66CTO1WW	B2UB	Y	N
ThinkAgile CP Storage Block SB-D20	7Y66CTO2WW	B2UC	N	Y
ThinkAgile CP Storage Block Expansion SB-D20	7Y66CTO3WW	B2Z1	N	Y

Configuration notes:

- A maximum of one Storage Block SB-S10 is supported for the CP4000 model.
- A maximum of five Storage Blocks SB-D20 is supported for the CP6000 model.
- The Storage Block Expansion SB-D20 is used to add storage capacity to the existing ThinkAgile CP Series deployments up to the maximum number of modules supported (See [Interconnect](#) for details).

The following table lists the drive options for Storage Blocks.

Table 12. Drive options

Description	Feature code		Maximum quantity	SB-S10	SB-D20
	NA*	EMEA, AP**			
Lenovo 2.5" 800GB NVMe Drive (8-pack)	None	B3VH	3	Y	N
Lenovo 2.5" 1.6TB NVMe Drive (8-pack)	B7LU	B3VJ	3	Y	Y
Lenovo 2.5" 3.2TB NVMe Drive (8-pack)	B7LV	B3VK	3	N	Y
Lenovo 2.5" 6.4TB NVMe Drive (8-pack)	B7LW	B3VL	3	N	Y
Lenovo 2.5" 12.8TB NVMe Drive (8-pack)	B7LX	B596	3	N	Y

* NA = North America.

** EMEA = Europe, Middle East, Africa; AP = Asia Pacific.

For the existing deployments, additional drive packs for the Storage Blocks that have not been fully populated with the factory-installed drive packs can be ordered via the CTO base 7Z19CTOBWW, ThinkAgile NVMe Drive Packs Upgrade. For more information on storage capacity-based licensing, refer to [Software](#).

Management switch

The management network switch is a 1 GbE RJ-45 switch that connects SMM management ports on the Compute Blocks and management ports on the Storage Blocks. The management switch also provides one management uplink to the first Interconnect. The management switch can be purchased from Lenovo or provided by the customer.

The following table lists the management switches that are available from Lenovo.

Table 13. Management switches

Description	Machine Type-Model	Feature code	Quantity
RackSwitch G7052 (Rear to Front) for ThinkAgile CP	7159-HCS	B2ZC	1
ThinkSystem NE0152T RackSwitch (Rear to Front) for ThinkAgile CP	7Y81CTO4WW	BAEU	1

The following tables list cables that are available for selection for the management switch.

Table 14. 1 GbE UTP cables for management links to Compute Blocks and Storage Blocks

Description	Feature code	Maximum quantity per switch	Quantity per Compute Block	Quantity per Storage Block
0.75m Blue Cat5e Cable	AVFT	16	1	2
1.0m Blue Cat5e Cable	AVFU	16	1	2
1.25m Blue Cat5e Cable	AVFV	16	1	2
1.5m Blue Cat5e Cable	3802	16	1	2
3m Blue Cat5e Cable	3803	16	1	2
10m Blue Cat5e Cable	3804	16	1	2
25m Blue Cat5e Cable	3805	16	1	2

Table 15. 10 GbE SFP+ cables for management uplink to Interconnect

Description	Feature code	Quantity per switch
10 GbE SFP+ DAC cables		
1.5m Passive DAC SFP+ Cable	A51N	1
2m Passive DAC SFP+ Cable	A51P	1
3m Passive DAC SFP+ Cable	A1PJ	1
5m Passive DAC SFP+ Cable	A1PK	1
7m Passive DAC SFP+ Cable	A3RH	1
10 GbE SFP+ active optical cables		
Lenovo 3m SFP+ to SFP+ Active Optical Cable	ATYY	1
Lenovo 5m SFP+ to SFP+ Active Optical Cable	ATYZ	1
Lenovo 7m SFP+ to SFP+ Active Optical Cable	ATZ0	1
Lenovo 15m SFP+ to SFP+ Active Optical Cable	ATZ1	1
Lenovo 20m SFP+ to SFP+ Active Optical Cable	ATZ2	1

Power cables

The following table lists the power cable options that can be selected for the ThinkAgile CP Series components. Two power cables are required per each Compute Block, Storage Block, Interconnect, and NE0152T management switch. One power cable is required for the G7052 management switch.

Table 16. Power cables

Description	Feature code
Rack power cables	
1.0m, 10A/125-250V, C13 to IEC 320-C14 Rack Power Cable	A4VP
1.5m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable	6201
2.0m, 13A/125V-10A/250V, C13 to IEC 320-C14 Rack Power Cable	6570
2.8m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable	6311
2.8m, 13A/125V-10A/250V, C13 to IEC 320-C14 Rack Power Cable	6400
2.8m, 10A/100-250V, C13 to IEC 320-C20 Rack Power Cable	6204
4.3m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable	6263
4.3m, 13A/125V-10A/250V, C13 to IEC 320-C14 Rack Power Cable	6583
Line cords	
Australia/New Zealand 2.8m, 10A/250V, C13 to AS/NZS 3112 Line Cord	6211
Australia/New Zealand 4.3m, 10A/250V, C13 to AS/NZS 3112 Line Cord	6574
Denmark 2.8m, 10A/250V, C13 to DK2-5a Line Cord	6213
Denmark 4.3m, 10A/250V, C13 to DK2-5a Line Cord	6575
Europe 2.8m, 10A/250V, C13 to CEE7-VII Line Cord	6212
Europe 4.3m, 10A/250V, C13 to CEE7-VII Line Cord	6572
India 2.8m, 10A/250V, C13 to IS 6538 Line Cord	6269
India 4.3m, 10A/250V, C13 to IS 6538 Line Cord	6567
Israel 2.8m, 10A/250V, C13 to SI 32 Line Cord	6218
Israel 4.3m, 10A/250V, C13 to SI 32 Line Cord	6579
Italy 2.8m, 10A/250V, C13 to CEI 23-16 Line Cord	6217
Italy 4.3m, 10A/250V, C13 to CEI 23-16 Line Cord	6493
South Africa 2.8m, 10A/250V, C13 to SABS 164 Line Cord	6214
South Africa 4.3m, 10A/250V, C13 to SABS 164 Line Cord	6576
Switzerland 2.8m, 10A/250V, C13 to SEV 1011-S24507 Line Cord	6216
Switzerland 4.3m, 10A/250V, C13 to SEV 1011-S24507 Line Cord	6578
United Kingdom 2.8m, 10A/250V, C13 to BS 1363/A Line Cord	6215
United Kingdom 4.3m, 10A/250V, C13 to BS 1363/A Line Cord	6577
United States 2.8m, 10A/250V, C13 to NEMA 6-15P Line Cord	A1RF
United States 4.3m, 10A/250V, C13 to NEMA 6-15P Line Cord	6373

Software

The ThinkAgile CP Series components ship with the factory-installed Guardian edition of the cloud software and a Cloud Controller license. The Guardian edition is based on Red Hat Enterprise Linux (RHEL) 7, and it provides stringent security with encryption that is certified for FIPS 140-2, STIG, Common Criteria, and USGv6.

The cloud software offers the following features:

- Cloud controller web-based interface
 - Provides a multi-site management portal for the cloud infrastructure
 - Manages compute, storage, and networking resources in the virtual data centers
 - Automates discovery, deployment, configuration, and composition of cloud resources
 - Provides real-time and historical analytics and monitoring
- Security
 - Manages access to cloud resources with role-based access control
 - Provides two-factor user authentication to prevent unauthorized access
 - Encrypts communications between the cloud controller and the infrastructure
 - Protects cloud resources with Virtual Data Center (VDC) partitioning
 - Supports multi-tenancy with physical and logical resource isolation
 - Secures stored information with data-at-rest encryption
 - Provides network security with micro-segmentation and distributed firewalls
- Compute
 - Provides physical hardware abstraction layer for the processor and memory resources
 - Uses categories and tags to group and allocate compute resources to the applications
 - Manages lifecycle of application instances in a cloud environment
 - Dynamically distributes application instances across the compute nodes
 - Logically isolates compute resources with migration zones and virtual data centers
 - Supports live migration of application instances with zero downtime
 - Manages application instance templates and snapshots
- Storage
 - Provides distributed, all flash scale-out storage for cloud services resources
 - Scales easily by simply adding more storage blocks
 - Manages storage pools and allocates storage resources to the application instances
 - Protects from drive failures with RAID data redundancy and hot-spare drives
 - Provides enterprise-class storage management capabilities:
 - Thin provisioning
 - Cloning
 - Snapshots
 - Integrated backup, recovery, and archiving
 - Asynchronous replication
- Networking
 - Provides network overlay virtualization and network function virtualization
 - Offers traditional bridged VLAN tagging-based networks for use by application instances
 - Enables seamless instance migration across the compute nodes with VNETs
 - Manages virtualized network functions: routers, firewalls, load balancing, NAT, and DHCP

The cloud software is licensed on the per-compute node basis and per-core basis for the Compute Blocks, and per-storage node basis and storage capacity basis per 8-drive pack for the Storage Blocks. The software licenses are available for 3, 4, and 5 years.

The following table lists the cloud software licenses.

Table 17. Cloud Software licenses

Description	Machine Type/Model	Feature code
Cloud Software Guardian for Compute Nodes (per compute node)		
Guardian Ed for ThinkAgile CP Compute Node Subscription 3Yr	7S0WCTO1WW	S2JE
Guardian Ed for ThinkAgile CP Compute Node Subscription 4Yr	7S0WCTO1WW	S2JF
Guardian Ed for ThinkAgile CP Compute Node Subscription 5Yr	7S0WCTO1WW	S2JG
Cloud Software Guardian for Compute Nodes (per processor core)		
Guardian Ed for ThinkAgile CP, Per Core w/3Yr Subscription and Support	7S0WCTO1WW	S2HL
Guardian Ed for ThinkAgile CP, Per Core w/4Yr Subscription and Support	7S0WCTO1WW	S2HM
Guardian Ed for ThinkAgile CP, Per Core w/5Yr Subscription and Support	7S0WCTO1WW	S2HN
Cloud Software Guardian for Storage Nodes (per storage node)		
Guardian Ed for ThinkAgile CP Storage Node Subscription 3Yr	7S0WCTO2WW	S2JK
Guardian Ed for ThinkAgile CP Storage Node Subscription 4Yr	7S0WCTO2WW	S2JL
Guardian Ed for ThinkAgile CP Storage Node Subscription 5Yr	7S0WCTO2WW	S2JM
Cloud Software Guardian for Storage Nodes (per drive pack of the specified capacity)		
Guardian Ed for ThinkAgile CP, Per 6.4 TB w/3Yr Subscription and Support	7S0WCTO2WW	S2HR
Guardian Ed for ThinkAgile CP, Per 6.4 TB w/4Yr Subscription and Support	7S0WCTO2WW	S2HS
Guardian Ed for ThinkAgile CP, Per 6.4 TB w/5Yr Subscription and Support	7S0WCTO2WW	S2HT
Guardian Ed for ThinkAgile CP, Per 12.8 TB w/3Yr Subscription and Support	7S0WCTO2WW	S2HW
Guardian Ed for ThinkAgile CP, Per 12.8 TB w/4Yr Subscription and Support	7S0WCTO2WW	S2HX
Guardian Ed for ThinkAgile CP, Per 12.8 TB w/5Yr Subscription and Support	7S0WCTO2WW	S2HY
Guardian Ed for ThinkAgile CP, Per 25.6 TB w/3Yr Subscription and Support	7S0WCTO2WW	S2J1
Guardian Ed for ThinkAgile CP, Per 25.6 TB w/4Yr Subscription and Support	7S0WCTO2WW	S2J2
Guardian Ed for ThinkAgile CP, Per 25.6 TB w/5Yr Subscription and Support	7S0WCTO2WW	S2J3
Guardian Ed for ThinkAgile CP, Per 51.2 TB w/3Yr Subscription and Support	7S0WCTO2WW	S2J6
Guardian Ed for ThinkAgile CP, Per 51.2 TB w/4Yr Subscription and Support	7S0WCTO2WW	S2J7
Guardian Ed for ThinkAgile CP, Per 51.2 TB w/5Yr Subscription and Support	7S0WCTO2WW	S2J8
Guardian Ed for ThinkAgile CP, Per 102.4 TB w/3Yr Subscription and Support	7S0WCTO2WW	S2JB
Guardian Ed for ThinkAgile CP, Per 102.4 TB w/4Yr Subscription and Support	7S0WCTO2WW	S2JC
Guardian Ed for ThinkAgile CP, Per 102.4 TB w/5Yr Subscription and Support	7S0WCTO2WW	S2JD

Configuration note: The software licenses are derived by the configuration tool based on the following selections:

- Warranty period.
- Quantity of the compute nodes.
- Quantity of the processor cores in the Compute Nodes.
- Quantity of the storage nodes.
- Quantity and capacity of the drive packs in the Storage Blocks.

Warranty and support

The ThinkAgile CP Series models can be configured with a three-, four, or five-year customer-replaceable unit (CRU) and onsite limited (for field-replaceable units [FRUs] only) hardware warranty with 24x7 ThinkAgile Advantage Single Point of Support (Lenovo server hardware and the cloud software) and various levels of coverage with a well-defined scope of services, including service hours, response time, term of service, and service agreement terms and conditions. The Lenovo local support centers perform problem determination and resolution.

The base warranty provides 9x5 Next Business Day response with parts delivered. Lenovo's additional support services provide a sophisticated, unified support structure for a customer's data center, with an experience consistently ranked number one in customer satisfaction worldwide.

The following Lenovo support services are available for selection:

- **Premier Support** provides a Lenovo-owned customer experience and delivers direct access to technicians skilled in hardware, software, and advanced troubleshooting, in addition to the following capabilities:
 - Direct technician-to-technician access through a dedicated phone line.
 - 24x7x365 remote support.
 - Single point of contact service.
 - End to end case management.
 - 3rd Party collaborative software support.
 - Online case tools and live chat support.
 - On-demand remote system analysis.
- **Warranty service level upgrades (Preconfigured Support)** are available to meet the on-site response time targets that match the criticality of customer's systems:
 - 3, 4, or 5 years of service coverage.
 - **Foundation Service:** 9x5 service coverage with next business day onsite response, with optional YourDrive YourData.
 - **Essential Service:** 24x7 service coverage with 4-hour onsite response or 24-hour committed repair (available only in select regions), bundled with YourDrive YourData.
 - **Advanced Service:** 24x7 service coverage with 2-hour onsite response or 6-hour committed repair (available only in select regions), bundled with YourDrive YourData.
- **Managed Services**

Lenovo Managed Services provide continuous 24x7 remote monitoring (plus 24x7 call center availability) and proactive management of a customer's data center using state of the art tools, systems, and practices by a team of highly skilled and experienced Lenovo services professionals.

Quarterly reviews check error logs, verify firmware and operating system device driver levels, and software as needed. Lenovo will also maintain records of latest patches, critical updates, and firmware levels, to ensure customer's systems are providing business value through optimized performance.
- **Technical Account Management (TAM)**

A Lenovo Technical Account Manager helps customers optimize operations of their data centers based on a deep understanding of customer's business. Customers gain direct access to a Lenovo TAM, who serves as their single point of contact to expedite service requests, provide status updates, and furnish reports to track incidents over time. Also, a TAM helps proactively make service recommendations and manage service relationship with Lenovo to make certain that customer's needs are met.

- **Enterprise Software Support**

Lenovo Enterprise Software Support is an additional support service that provides customers with software support on Microsoft, Red Hat, SUSE, and VMWare applications and systems. Around the clock availability for critical problems plus unlimited calls and incidents helps customers address challenges fast, without incremental costs. Support staff can answer troubleshooting and diagnostic questions, address product compatibility and interoperability issues, isolate causes of problems, report defects to software vendors, and more.

- **YourDrive YourData**

Lenovo's YourDrive YourData service is a multi-drive retention offering that ensures that customer's data is always under their control, regardless of the number of drives that are installed in their Lenovo server. In the unlikely event of a drive failure, customers retain possession of their drive while Lenovo replaces the failed drive part. Customer's data stays safely on customer premises, in their hands. The YourDrive YourData service can be purchased in convenient bundles with Foundation, Essential, or Advanced services.

- **Health Check**

Having a trusted partner who can perform regular and detailed health checks is central to maintaining efficiency and ensuring that customer systems and business are always running at their best. Health Check supports Lenovo-branded server, storage, and networking devices, as well as select Lenovo-supported products from other vendors that are sold by Lenovo or a Lenovo-Authorized Reseller.

Some regions might have different warranty terms and conditions than the standard warranty. This is due to local business practices or laws in the specific region. Local service teams can assist in explaining region-specific terms when needed. Examples of region-specific warranty terms are second or longer business day parts delivery or parts-only base warranty.

If warranty terms and conditions include onsite labor for repair or replacement of parts, Lenovo will dispatch a service technician to the customer site to perform the replacement. Onsite labor under base warranty is limited to labor for replacement of parts that have been determined to be field-replaceable units (FRUs). Parts that are determined to be customer-replaceable units (CRUs) do not include onsite labor under base warranty.

If warranty terms include parts-only base warranty, Lenovo is responsible for delivering only replacement parts that are under base warranty (including FRUs) that will be sent to a requested location for self-service. Parts-only service does not include a service technician being dispatched onsite. Parts must be changed at customer's own cost and labor and defective parts must be returned following the instructions supplied with the spare parts.

Lenovo support services are region-specific. Not all support services are available in every region. For information about Lenovo support services that are available in a specific region, refer to the following resources:

- Service part numbers in Data Center Solution Configurator (DCSC):
<http://dcsc.lenovo.com/#/services>
- Lenovo Services Availability Locator
<https://lenovocator.com/>

For service definitions, region-specific details, and service limitations, refer to the following documents:

- Lenovo Statement of Limited Warranty for Infrastructure Solutions Group (ISG) Servers and System Storage
<http://pcsupport.lenovo.com/us/en/solutions/ht503310>
- Lenovo Data Center Services Agreement
<http://support.lenovo.com/us/en/solutions/ht116628>

Installation services

The following Lenovo deployment services are included with the ThinkAgile CP Series to get customers up and running quickly:

- Conducting remote preparation and planning
- Configuring Interconnects
- Configuring management settings
- Configuring the cloud software stack
- Configuring compute blocks
- Configuring storage blocks
- Validating installation
- Transferring knowledge
- Developing post-installation documentation

The following optional Lenovo basic installation services are recommended for the ThinkAgile CP Series:

- Unpacking and inspecting the systems
- Mounting the systems in a rack cabinet
- Connecting the systems to electrical power and network
- Checking and updating firmware to the latest levels
- Verifying operations
- Disposal of the packaging materials (within the customer site)

For more information, refer to the Data Center Deployment Services web page:

<http://www.lenovo.com/us/en/data-center/services/deployment>

Physical specifications

The following table lists the approximate dimensions and weight for the ThinkAgile CP Series components.

Table 18. Approximate dimensions and weight

Component	Height	Width	Depth	Weight
Interconnect	44 mm (1.7 in.)	443 mm (17.4 in.)	473 mm (18.6 in.)	9.5 kg (20.9 lb)
Compute Block	87 mm (3.4 in.)	448 mm (17.6 in.)	834 mm (32.8 in.)	55.0 kg (121.3 lb)
Storage Block	87 mm (3.4 in.)	446 mm (17.6 in.)	850 mm (33.5 in.)	42 kg (92.6 lb)
G7052 Management	44 mm (1.7 in.)	440 mm (17.3 in.)	382 mm (15.0 in.)	6.1 kg (13.5 lb)
NE0152T Management	44 mm (1.7 in.)	438 mm (17.3 in.)	442 mm (17.4 in.)	10 kg (22 lb)

Operating environment

The ThinkAgile CP Series components are supported in the following environment:

- Air temperature: 5 °C - 35 °C (41 °F - 95 °F)
- Humidity: 10% to 80% (non-condensing)
- Power load (rated maximum):
 - CP4000 (fully configured platform): 5510 W
 - CP6000 (fully configured platform): 29000 W
- Heat output (rated maximum):
 - CP4000 (fully configured platform): 21871 BTU/hour
 - CP6000 (fully configured platform): 102016 BTU/hour

The following table lists maximum power load and heat output for the ThinkAgile CP Series components.

Table 19. Rated system power and system heat output

Component	Maximum power load per system (200 - 240 V AC)	System heat output
Interconnect	400 W	1365 BTU/hour
Compute Block	2610 W	8905 BTU/hour
Storage Block	2000 W	6824 BTU/hour
G7052 Management	100 W	3412 BTU/hour
NE0152T Management	77 W	261 BTU/hour

Regulatory compliance

The ThinkAgile CP Series components conform to the following regulations:

- United States FCC Part 15, Class A
- Europe CE Mark (EN55022 Class A, EN60950-1, EN55024, EN61000-3-2, EN61000-3-3)
- Reduction of Hazardous Substances (ROHS)

Rack cabinets

The following table lists the rack cabinets that are offered by Lenovo that can be used with the ThinkAgile CP Series.

Table 20. Rack cabinets

Description	Part number
25U S2 Standard Rack (1000 mm deep; 2 sidewall compartments)	93072RX
25U Static S2 Standard Rack (1000 mm deep; 2 sidewall compartments)	93072PX
42U S2 Standard Rack (1000 mm deep; 6 sidewall compartments)	93074RX
42U 1100mm Enterprise V2 Dynamic Rack (6 sidewall compartments)	93634PX
42U 1100mm Enterprise V2 Dynamic Expansion Rack (6 sidewall compartments)	93634EX
42U 1200mm Deep Dynamic Rack (6 sidewall compartments)	93604PX
42U 1200mm Deep Static Rack (6 sidewall compartments)	93614PX
42U Enterprise Rack (1105 mm deep; 4 sidewall compartments)	93084PX
42U Enterprise Expansion Rack (1105 mm deep; 4 sidewall compartments)	93084EX

For more information, see the list of Product Guides in the Rack Cabinets category:

<http://lenovopress.com/servers/options/racks#rt=product-guide>

Power distribution units

The following table lists the power distribution units (PDUs) that are offered by Lenovo that can be used with the ThinkAgile CP Series.

Table 21. Power distribution units

Description	Part number
0U Basic PDUs	
0U 36 C13/6 C19 24A/200-240V 1 Phase PDU with NEMA L6-30P line cord	00YJ776
0U 36 C13/6 C19 32A/200-240V 1 Phase PDU with IEC60309 332P6 line cord	00YJ777
0U 21 C13/12 C19 32A/200-240V/346-415V 3 Phase PDU with IEC60309 532P6 cord	00YJ778
0U 21 C13/12 C19 48A/200-240V 3 Phase PDU with IEC60309 460P9 line cord	00YJ779
Switched and Monitored PDUs	
0U 20 C13/4 C19 Switched and Monitored 24A/200-240V/1Ph PDU w/ NEMA L6-30P cord	00YJ781
0U 20 C13/4 C19 Switched and Monitored 32A/200-240V/1Ph PDU w/ IEC60309 332P6 cord	00YJ780
0U 18 C13/6 C19 Switched and Monitored 32A/200-240/346-415V/3Ph PDU w/ IEC60309 532P6 cord	00YJ782
0U 12 C13/12 C19 Switched and Monitored 48A/200-240V/3Ph PDU w/ IEC60309 460P9 cord	00YJ783
1U 9 C19/3 C13 Switched and Monitored DPI PDU (without line cord)	46M4002
1U 9 C19/3 C13 Switched and Monitored 60A 3Ph PDU with IEC 309 3P+Gnd cord	46M4003
1U 12 C13 Switched and Monitored DPI PDU (without line cord)	46M4004
1U 12 C13 Switched and Monitored 60A 3 Phase PDU with IEC 309 3P+Gnd line cord	46M4005
Ultra Density Enterprise PDUs (9x IEC 320 C13 + 3x IEC 320 C19 outlets)	
Ultra Density Enterprise C19/C13 PDU Module (without line cord)	71762NX

Description	Part number
Ultra Density Enterprise C19/C13 PDU 60A/208V/3ph with IEC 309 3P+Gnd line cord	71763NU
C13 Enterprise PDUs (12x IEC 320 C13 outlets)	
DPI C13 Enterprise PDU+ (without line cord)	39M2816
DPI Single Phase C13 Enterprise PDU (without line cord)	39Y8941
C19 Enterprise PDUs (6x IEC 320 C19 outlets)	
DPI Single Phase C19 Enterprise PDU (without line cord)	39Y8948
DPI 60A 3 Phase C19 Enterprise PDU with IEC 309 3P+G (208 V) fixed line cord	39Y8923
Front-end PDUs (3x IEC 320 C19 outlets)	
DPI 30amp/250V Front-end PDU with NEMA L6-30P line cord	39Y8939
DPI 32amp/250V Front-end PDU with IEC 309 2P+Gnd line cord	39Y8934
DPI 60amp/250V Front-end PDU with IEC 309 2P+Gnd line cord	39Y8940
DPI 63amp/250V Front-end PDU with IEC 309 2P+Gnd line cord	39Y8935
Universal PDUs (7x IEC 320 C13 outlets)	
DPI Universal 7 C13 PDU (with 2 m IEC 320-C19 to C20 rack power cord)	00YE443
Line cords for PDUs that ship without a line cord	
DPI 30a Line Cord (NEMA L6-30P)	40K9614
DPI 32a Line Cord (IEC 309 P+N+G)	40K9612
DPI 32a Line Cord (IEC 309 3P+N+G)	40K9611
DPI 60a Cord (IEC 309 2P+G)	40K9615
DPI 63a Cord (IEC 309 P+N+G)	40K9613
DPI Australian/NZ 3112 Line Cord (32A)	40K9617
DPI Korean 8305 Line Cord (30A)	40K9618

For more information, see the list of Product Guides in the Power Distribution Units category:
<http://lenovopress.com/servers/options/pdu#rt=product-guide>

Uninterruptible power supply units

The following table lists the uninterruptible power supply (UPS) units that are offered by Lenovo that can be used with the ThinkAgile CP Series.

Table 22. Uninterruptible power supply units

Description	Part number
RT1.5kVA 2U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A outlets)	55941KX
RT2.2kVA 2U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A, 1x C19 16A outlets)	55942KX
RT3kVA 2U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A, 1x C19 16A outlets)	55943KX
RT5kVA 3U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A, 2x C19 16A outlets)	55945KX
RT6kVA 3U Rack or Tower UPS (200-240VAC) (8x IEC 320 C13 10A, 2x C19 16A outlets)	55946KX
RT8kVA 6U Rack or Tower UPS (200-240VAC) (4x IEC 320-C19 16A outlets)	55948KX
RT11kVA 6U Rack or Tower UPS (200-240VAC) (4x IEC 320-C19 16A outlets)	55949KX
RT8kVA 6U 3:1 Phase Rack or Tower UPS (380-415VAC) (4x IEC 320-C19 16A outlets)	55948PX
RT11kVA 6U 3:1 Phase Rack or Tower UPS (380-415VAC) (4x IEC 320-C19 16A outlets)	55949PX

For more information, see the list of Product Guides in the Uninterruptible Power Supply Units category:
<http://lenovopress.com/servers/options/ups#rt=product-guide>

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For your region-specific offers please ask your Lenovo sales representative or your technology provider about the use of Lenovo Financial Services. For more information, see the following Lenovo website:
<http://www.lenovofs.com>

Related publications and links

For more information, see these resources:

- Lenovo ThinkAgile
<http://www.lenovo.com/thinkagile>
- Lenovo Data Center Solution Configurator (DCSC):
<http://dcsc.lenovo.com>
- Lenovo Data Center Support
<http://datacentersupport.lenovo.com>

Related product families

Product families related to this document are the following:

- [Hyperconverged Infrastructure](#)

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