

Personal Systems Reference Lenovo® ThinkStation® Workstations 2008 to 2013 - withdrawn

January 2014 - Version 449 (Western Europe)



ThinkStation S10 (left)
ThinkStation D10 (right)

ThinkStation.



Lenovo ThinkStation E30
with Intel HD Graphics



Lenovo ThinkStation E30
with ThinkVision® L2440p



Lenovo ThinkStation E30



Lenovo ThinkStation E30
with toolless removable side cover



Lenovo ThinkStation E30



Lenovo ThinkStation Graphics Card Option
NVIDIA Quadro NVS450

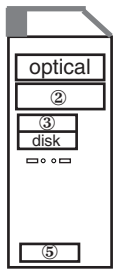
ThinkStation® E30 (7824) - TopSeller (Integrated Graphics)

Personal Systems Reference(PSREF)

Type-model	Slot x bay	Processor	Cores / Threads	Memory DIMMs	ECC	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis Intrusion switch	Graphics adapter(s)	Global	Win7 preload
7824-32G	4x5	Core i3-2100	3.1 2C/4T	2x2GB		1x500GB SATA	No	DVD±RW	Media	None	Intel HD	No	Pro 64
7824-33G	4x5	Core i3-2120	3.3 2C/4T	2x2GB		1x500GB SATA	No	DVD±RW	Media	None	Intel HD	No	Pro 64
7824-36G	4x5	Xeon E3-1225	3.1 4C/4T	2x2GB	ECC	1x500GB SATA	No	DVD±RW	Media	None	Intel HD	No	Pro 64
7824-38G	4x5	Xeon E3-1235	3.2 4C/8T	2x2GB	ECC	1x500GB SATA	No	DVD±RW	Media	None	Intel HD	No	Pro 64
7824-42G	4x5	Xeon E3-1245	3.3 4C/8T	2x2GB	ECC	1x500GB SATA	No	DVD±RW	Media	None	Intel HD	No	Pro 64
7824-43G	4x5	Xeon E3-1235	3.2 4C/8T	2x2GB	ECC	1x1TB SATA	No	DVD±RW	Media	None	Intel HD	No	Pro 64
7824-45G	4x5	Xeon E3-1225	3.1 4C/4T	2x2GB	ECC	1x1TB SATA	No	DVD±RW	Media	None	Intel HD	No	Pro 64
7824-47G	4x5	Xeon E3-1225	3.1 4C/4T	2x2GB		1x500GB SATA	No	DVD±RW	Media	None	Intel HD	No	Pro 64

Processor	<p>Intel® Core™ i3-2100 processor (2C/4T, 3.1GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz)</p> <p>Intel Core i3-2120 processor (2C/4T, 3.3GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz)</p> <p>Intel Xeon® E3-1225 processor (4C/4T, 3.1GHz, 6MB Cache), Turbo Boost 2.0 (up to 3.4GHz), integrated Intel HD Graphics P3000, DDR3 memory controller (up to 1333MHz)</p> <p>Intel Xeon E3-1235 processor (4C/8T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P3000, DDR3 memory controller (up to 1333MHz)</p> <p>Intel Xeon E3-1245 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), integrated Intel HD Graphics P3000, DDR3 memory controller (up to 1333MHz)</p>
Implementation	One LGA1155 socket
Memory	<p>UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;</p> <p><i>ECC model(s):</i> 32GB max</p> <p><i>Non-ECC model(s):</i> 16GB max</p>
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed ECC and non-ECC DIMMs cannot be mixed
Graphics	Intel HD Graphics in processor, uses main memory, one VGA, one DisplayPort™ (see <i>Rear ports</i> section)
Media reader	25-in-1 media reader, internal USB 2.0
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive
Disk(s)	<p><i>Some:</i> 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"</p> <p><i>Some:</i> 1TB, SATA 3.0Gb/s, 7200 rpm, 3.5"</p>
Disk Controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	Six USB 2.0, one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector
Audio	High Definition (HD) Audio, Realtek® ALC662 codec
Speaker	Internal speaker for business audio
Ethernet	One gigabit ethernet on planar, Intel 82579
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	280 watts with variable speed fan, autosensing, 85% PSU, 80 PLUS® Bronze qualified
ThinkVantage®	Supports ThinkVantage technologies
Preload OS	Genuine Windows® 7 Professional 64
Preload Applications	<ul style="list-style-type: none"> Rescue and Recovery Password Manager ThinkVantage Toolbox Norton™ Internet Security (30 days of virus definitions) Adobe Reader® Adobe Flash® Player Skype™ for Windows Microsoft® Office 2010 preloaded; purchase product key to activate Corel® WinDVD (for DVD±RW model(s) only) Corel Burn.Now™ (for DVD±RW model(s) only) Ulead DVD MovieFactory® (for DVD±RW model(s) only)

Tower



- Raven black color; metal case
- 6.9"W x 17.0"D x 16.7"H (with handle)
- 175mm W x 431mm D x 425mm H
- 24.7 lb (11.2kg) max configuration
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Recessed power button

Bay 1: 5.25", 1.6" high, access, for optical
 Bay 2: 5.25", 1.6" high, access, for optical
 Bay 3: 3.5", 1" high, access, for media reader
 Bay 4: 3.5", 1" high, internal, for disk
 Bay 5: 3.5", 1" high, internal, for disk

Slot 1: half-length, full-height, PCIe 2.0 x16 (75w max)
 Slot 2: half-length, full-height, PCIe 2.0 x1
 Slot 3: half-length, full-height, 32-bit PCI 2.3
 Slot 4: half-length, full-height, 32-bit PCI 2.3

Intel AMT
 Intel AMT supported on model(s) with Xeon processor

SECURITY

- Security chip (see information on left)
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- Serial port I/O control
- USB port disablement (front or all)
- Chassis intrusion switch available on selected model(s)

GREENGUARD® certified
 RoHS-compliant
 EPEAT™ Gold rating

LIMITED WARRANTY¹

- 3-year parts and labor
- Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)
- Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html
- Onsite service upgrade options (in eligible locations)⁷
- Post warranty maintenance services
- For more information find the Lenovo support phone number in your country at <http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107>

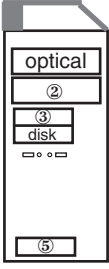
See footnotes for important warranty information
 EMEA model(s) announced April 19, 2011
 EMEA model(s) withdrawn effective October 2012

ThinkStation® E30 (7824) - TopSeller (Integrated Graphics) - Dec 2011 Personal Systems Reference(PSREF)

Type-model	Slot x bay	Processor	Cores / Threads	Memory DIMMs	ECC	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis Intrusion switch	1394 adptr	Graphics adapter(s)	Global	Win7 preload
7824-C9G	4x5	Xeon E3-1235	3.2 4C/8T	2x2GB	ECC	2x500GB SATA	No	DVD±RW	Media	None	None	Intel HD	No	Pro 64
7824-D2G	4x5	Xeon E3-1225	3.1 4C/4T	2x2GB	ECC	2x500GB SATA	No	DVD±RW	Media	None	None	Intel HD	No	Pro 64

Processor	Intel® Xeon® E3-1225 processor (4C/4T, 3.1GHz, 6MB Cache) , Turbo Boost 2.0 (up to 3.4GHz), integrated Intel HD Graphics P3000, DDR3 memory controller (up to 1333MHz) Intel Xeon E3-1235 processor (4C/8T, 3.2GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P3000, DDR3 memory controller (up to 1333MHz)
Implementation	One LGA1155 socket
Memory	UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC , four 240-pin DIMM sockets; <i>ECC model(s):</i> 32GB max <i>Non-ECC model(s):</i> 16GB max
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed ECC and non-ECC DIMMs cannot be mixed
Graphics	Intel HD Graphics in processor, uses main memory, one VGA, one DisplayPort™ (see <i>Rear ports</i> section)
Media reader	25-in-1 media reader, internal USB 2.0
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive
Disk(s)	500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"
Disk Controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	Six USB 2.0, one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector
IEEE 1394 adptr	None
Audio	High Definition (HD) Audio, Realtek® ALC662 codec
Speaker	Internal speaker for business audio
Ethernet	One gigabit ethernet on planar, Intel 82579
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	280 watts with variable speed fan, autosensing, 85% PSU, 80 PLUS® Bronze qualified
ThinkVantage®	Supports ThinkVantage technologies
Preload OS	Genuine Windows® 7 Professional 64
Preload Applications	<ul style="list-style-type: none"> Rescue and Recovery Password Manager ThinkVantage Toolbox Norton™ Internet Security (30 days of virus definitions) Adobe Reader® Adobe Flash® Player Skype™ for Windows Microsoft® Office 2010 preloaded; purchase product key to activate Corel® WinDVD (for DVD±RW model(s) only) Corel Burn.Now™ (for DVD±RW model(s) only) Ulead DVD MovieFactory® (for DVD±RW model(s) only)

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- Illuminated front icons
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 Bay 3: 3.5", 1" high, access, for media reader
 Bay 4: 3.5", 1" high, internal, for disk
 Bay 5: 3.5", 1" high, internal, for disk

Slot 1: half-length, full-height, PCIe 2.0 x16 (75w max)
 Slot 2: half-length, full-height, PCIe 2.0 x1
 Slot 3: half-length, full-height, 32-bit PCI 2.3
 Slot 4: half-length, full-height, 32-bit PCI 2.3

Intel AMT
 Intel AMT supported on model(s) with Xeon processor

SECURITY

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- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- Serial port I/O control
- USB port disablement (front or all)
- Chassis intrusion switch available on selected model(s)

GREENGUARD® certified
 RoHS-compliant
 EPEAT™ Gold rating

LIMITED WARRANTY¹

- ↪ 3-year parts and labor
- ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)
- ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html
 - Onsite service upgrade options (in eligible locations)⁷
 - Post warranty maintenance services
- ↪ For more information find the Lenovo support phone number in your country at <http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107>

See footnotes for important warranty information
 EMEA model(s) announced December 6, 2011
 EMEA model(s) withdrawn effective October 2012

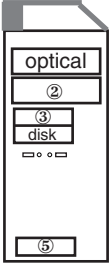
ThinkStation® E30 (7824) - TopSeller (Discrete Graphics)

Personal Systems Reference(PSREF)

Type-model	Slot x bay	Processor	Cores / Threads	Memory DIMMs	ECC	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis Intrusion switch	Graphics adapter(s)	Global	Win7 preload
7824-34G	4x5	Xeon E3-1220	3.1 4C/4T	2x2GB	ECC	1x500GB SATA	No	DVD±RW	Media	None		No	Pro 64
7824-35G	4x5	Xeon E3-1220	3.1 4C/4T	2x2GB	ECC	1x500GB SATA	No	DVD±RW	Media	None	Quadro 600	No	Pro 64
7824-37G	4x5	Xeon E3-1230	3.2 4C/8T	2x2GB	ECC	1x500GB SATA	No	DVD±RW	Media	None		No	Pro 64
7824-39G	4x5	Xeon E3-1270	3.4 4C/8T	2x2GB	ECC	1x1TB SATA	No	DVD±RW	Media	None		No	Pro 64
7824-41G	4x5	Xeon E3-1270	3.4 4C/8T	2x2GB	ECC	1x500GB SATA	No	DVD±RW	Media	None	Quadro 2000	No	Pro 64
7824-44G	4x5	Xeon E3-1220	3.1 4C/4T	2x2GB	ECC	1x1TB SATA	No	DVD±RW	Media	None		No	Pro 64
7824-46G	4x5	Xeon E3-1220	3.1 4C/4T	2x2GB	ECC	1x500GB SATA	No	DVD±RW	Media	None		No	Pro 64
7824-48G	4x5	Xeon E3-1280	3.5 4C/8T	2x2GB	ECC	1x160GB SSD	No	DVD±RW	Media	None	Quadro 2000	No	Pro 64

Processor	<p>Intel® Xeon® E3-1220 processor (4C/4T, 3.1GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.4GHz), DDR3 memory controller (up to 1333MHz)</p> <p>Intel Xeon E3-1230 processor (4C/8T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), DDR3 memory controller (up to 1333MHz)</p> <p>Intel Xeon E3-1270 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), DDR3 memory controller (up to 1333MHz)</p> <p>Intel Xeon E3-1280 processor (4C/8T, 3.5GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1333MHz)</p> <p>One LGA1155 socket</p>
Implementation	One LGA1155 socket
Memory	<p>UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;</p> <p><i>ECC model(s):</i> 32GB max</p> <p><i>Non-ECC model(s):</i> 16GB max</p>
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed ECC and non-ECC DIMMs cannot be mixed
Graphics	<p><i>Some:</i> NVIDIA® Quadro® 600, PCIe x16 adapter, 1GB, one DisplayPort™, one dual-link DVI-I, 40W</p> <p><i>Some:</i> NVIDIA Quadro 2000, PCIe x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I, 62W</p>
Media reader	25-in-1 media reader, internal USB 2.0
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive
Disk(s)	<p><i>Some:</i> 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"</p> <p><i>Some:</i> 1TB, SATA 3.0Gb/s, 7200 rpm, 3.5"</p> <p><i>Some:</i> 160GB Solid State Drive (SSD), SATA 3.0Gb/s, 2.5"</p>
Disk Controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	Six USB 2.0, one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
Audio	High Definition (HD) Audio, Realtek® ALC662 codec
Speaker	Internal speaker for business audio
Ethernet	One gigabit ethernet on planar, Intel 82579
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	280 watts with variable speed fan, autosensing, 85% PSU, 80 PLUS® Bronze qualified
ThinkVantage®	Supports ThinkVantage technologies
Preload OS	Genuine Windows® 7 Professional 64
Preload Applications	<ul style="list-style-type: none"> Rescue and Recovery Password Manager ThinkVantage Toolbox Norton™ Internet Security (30 days of virus definitions) Adobe Reader® Adobe Flash® Player Skype™ for Windows Microsoft® Office 2010 preloaded; purchase product key to activate Corel® WinDVD (for DVD±RW model(s) only) Corel Burn.Now™ (for DVD±RW model(s) only) Ulead DVD MovieFactory® (for DVD±RW model(s) only)

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 Bay 5: 3.5", 1" high, internal, for disk

Slot 1: half-length, full-height, PCIe 2.0 x16 (75w max)
 Slot 2: half-length, full-height, PCIe 2.0 x1
 Slot 3: half-length, full-height, 32-bit PCI 2.3
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Intel AMT

Intel AMT supported on model(s) with Xeon processor

SECURITY

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- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- Serial port I/O control
- USB port disablement (front or all)
- Chassis intrusion switch available on selected model(s)

GREENGUARD® certified
 RoHS-compliant
 EPEAT™ Gold rating

LIMITED WARRANTY¹

- 3-year parts and labor
- Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)
- Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html
 - Onsite service upgrade options (in eligible locations)⁷
 - Post warranty maintenance services
- For more information find the Lenovo support phone number in your country at <http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107>

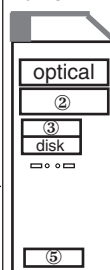
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 EMEA model(s) announced April 19, 2011
 EMEA model(s) withdrawn effective October 2012

Type-model	Slot x bay	Processor	Cores / Threads	Memory DIMMs	ECC	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis Intrusion switch	Graphics adapter(s)	Global	Win7 preload	
7824-A4G	4x5	Xeon E3-1220	3.1 4C/4T	1x4GB		1x250GB SATA	No	DVD±RW	Media	None	No	Quadro 2000	No	Pro 64
7824-A1G	4x5	Xeon E3-1230	3.2 4C/8T	1x4GB		1x250GB SATA	No	DVD±RW	Media	None	No	Quadro 600	No	Pro 64
7824-A2G	4x5	Xeon E3-1240	3.3 4C/8T	1x4GB	ECC	1x250GB SATA	No	DVD±RW	Media	None	No	Quadro 2000	No	Pro 64
7824-A3G	4x5	Xeon E3-1270	3.4 4C/8T	1x4GB	ECC	1x500GB SATA	No	DVD±RW	Media	None	No	Quadro 2000	No	Pro 64

- True workstation-level performance at incredibly low price point
- High Reliability with Independent Software Vendors (ISV) certified applications and ECC memory support
- These small and medium business (SMB) models are part of the EMEA TopSeller™ Program
- These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)

Processor	<p>Intel® Xeon® E3-1220 processor (4C/4T, 3.1GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.4GHz), DDR3 memory controller (up to 1333MHz)</p> <p>Intel Xeon E3-1230 processor (4C/8T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), DDR3 memory controller (up to 1333MHz)</p> <p>Intel Xeon E3-1240 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1333MHz)</p> <p>Intel Xeon E3-1270 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), DDR3 memory controller (up to 1333MHz)</p>
Implementation	One LGA1155 socket
Memory	<p>UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;</p> <p><i>ECC model(s):</i> 32GB max</p> <p><i>Non-ECC model(s):</i> 16GB max</p>
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed • ECC and non-ECC DIMMs cannot be mixed
Graphics	<p><i>Some:</i> NVIDIA® Quadro® 600, PCIe x16 adapter, 1GB, one DisplayPort™, one dual-link DVI-I, 40W</p> <p><i>Some:</i> NVIDIA Quadro 2000, PCIe x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I, 62W</p>
Media reader	25-in-1 media reader, internal USB 2.0
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive
Disk(s)	<p><i>Some:</i> 250GB, SATA 3.0Gb/s, 7200 rpm, 3.5"</p> <p><i>Some:</i> 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"</p>
Disk Controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	Six USB 2.0, one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
Audio	High Definition (HD) Audio, Realtek® ALC662 codec
Speaker	Internal speaker for business audio
Ethernet	One gigabit ethernet on planar, Intel 82579
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	280 watts with variable speed fan, autosensing, 85% PSU, 80 PLUS® Bronze qualified
ThinkVantage®	Supports ThinkVantage technologies
Preload OS	Genuine Windows® 7 Professional 64
Preload Applications	<ul style="list-style-type: none"> • Rescue and Recovery • Password Manager • ThinkVantage Toolbox • Norton™ Internet Security (30 days of virus definitions) • Adobe Reader® • Adobe Flash® Player • Skype™ for Windows • Microsoft® Office 2010 preloaded; purchase product key to activate • Corel® WinDVD (for DVD±RW model(s) only) • Corel Burn.Now™ (for DVD±RW model(s) only) • Ulead DVD MovieFactory® (for DVD±RW model(s) only)

Tower



- Raven black color; metal case
- 6.9"W x 17.0"D x 16.7"H (with handle)
- 175mm W x 431mm D x 425mm H
- 24.7 lb (11.2kg) max configuration
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Recessed power button

Bay 1: 5.25", 1.6" high, access, for optical
 Bay 2: 5.25", 1.6" high, access, for optical
 Bay 3: 3.5", 1" high, access, for media reader
 Bay 4: 3.5", 1" high, internal, for disk
 Bay 5: 3.5", 1" high, internal, for disk

Slot 1: half-length, full-height, PCIe 2.0 x16 (75w max)
 Slot 2: half-length, full-height, PCIe 2.0 x1
 Slot 3: half-length, full-height, 32-bit PCI 2.3
 Slot 4: half-length, full-height, 32-bit PCI 2.3

Intel AMT

Intel AMT supported on model(s) with Xeon processor

SECURITY

- Security chip (see information on left)
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- Serial port I/O control
- USB port disablement (front or all)
- Chassis intrusion switch available on selected model(s)

GREENGUARD® certified
 RoHS-compliant
 EPEAT™ Gold rating

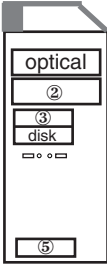
LIMITED WARRANTY¹

- ↪ 3-year parts and labor
- ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)
- ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html
 - Onsite service upgrade options (in eligible locations)⁷
 - Post warranty maintenance services
- ↪ For more information find the Lenovo support phone number in your country at <http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107>

See footnotes for important warranty information
 EMEA model(s) announced May 17, 2011
 EMEA model(s) withdrawn effective October 2012

Type-model	Slot x bay	Processor	Cores / Threads	Memory DIMMs	ECC	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis Intrusion switch	1394 adptr	Graphics adapter(s)	Global	Win7 preload
7824-A7G	4x5	Core i3-2130	3.4 2C/4T	2x2GB	ECC	1x1TB SATA	No	DVD±RW	Media	None	None	Intel HD	No	Pro 64
7824-A8G	4x5	Core i5-2400	3.1 4C/4T	2x2GB		1x1TB SATA	No	DVD±RW	Media	None	None	Intel HD	No	Pro 64
7824-A9G	4x5	Core i5-2500	3.3 4C/4T	2x2GB		1x1TB SATA	No	DVD±RW	Media	None	None	Intel HD	No	Pro 64
7824-B1G	4x5	Core i7-2600	3.4 4C/8T	2x2GB		1x1TB SATA	No	DVD±RW	Media	None	None	Intel HD	No	Pro 64

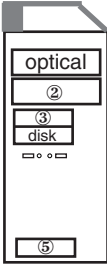
- True workstation-level performance at incredibly low price point
- High Reliability with Independent Software Vendors (ISV) certified applications and ECC memory support
- These small and medium business (SMB) models are part of the EMEA TopSeller™ Program
- These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)

Processor	<p>Intel® Core™ i3-2130 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz)</p> <p>Intel Core i5-2400 processor (4C/4T, 3.1GHz, 6MB Cache), integrated Intel HD Graphics 2000, Turbo Boost 2.0 (up to 3.4GHz), DDR3 memory controller (up to 1333MHz)</p> <p>Intel Core i5-2500 processor (4C/4T, 3.3GHz, 6MB Cache), integrated Intel HD Graphics 2000, Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1333MHz)</p> <p>Intel Core i7-2600 processor (4C/8T, 3.4GHz, 8MB Cache), integrated Intel HD Graphics 2000, Turbo Boost 2.0 (up to 3.8GHz), DDR3 memory controller (up to 1333MHz)</p>	<p>Tower</p>  <ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 17.0"D x 16.7"H (with handle) • 175mm W x 431mm D x 425mm H • 24.7 lb (11.2kg) max configuration • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Recessed power button
Implementation	One LGA1155 socket	
Memory	<p>UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;</p> <p><i>ECC model(s):</i> 32GB max</p> <p><i>Non-ECC model(s):</i> 16GB max</p>	<p>Bay 1: 5.25", 1.6" high, access, for optical</p> <p>Bay 2: 5.25", 1.6" high, access, for optical</p> <p>Bay 3: 3.5", 1" high, access, for media reader</p> <p>Bay 4: 3.5", 1" high, internal, for disk</p> <p>Bay 5: 3.5", 1" high, internal, for disk</p>
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed • ECC and non-ECC DIMMs cannot be mixed 	<p>Slot 1: half-length, full-height, PCIe 2.0 x16 (75w max)</p> <p>Slot 2: half-length, full-height, PCIe 2.0 x1</p> <p>Slot 3: half-length, full-height, 32-bit PCI 2.3</p> <p>Slot 4: half-length, full-height, 32-bit PCI 2.3</p>
Graphics	Intel HD Graphics in processor, uses main memory, one VGA, one DisplayPort™ (see <i>Rear ports section</i>)	<p>Intel AMT</p> <p>Intel AMT supported on model(s) with Xeon processor</p>
Media reader	25-in-1 media reader, internal USB 2.0	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	<p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • Serial port I/O control • USB port disablement (front or all) • Chassis intrusion switch available on selected model(s)
Disk(s)	1TB, SATA 3.0Gb/s, 7200 rpm, 3.5"	
Disk Controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors	<p>GREENGUARD® certified</p> <p>RoHS-compliant</p> <p>EPEAT™ Gold rating</p>
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	<p>LIMITED WARRANTY¹</p> <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107
Rear ports	Six USB 2.0, one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) <i>Intel HD models:</i> one analog VGA DB-15 connector, one DisplayPort connector	
IEEE 1394 adptr	None	<p>Keyboard Preferred Pro USB Keyboard (USB connector), 104-key, black</p> <p>Mouse Optical Wheel Mouse (USB connector), black</p> <p>Power supply 280 watts with variable speed fan, autosensing, 85% PSU, 80 PLUS® Bronze qualified</p>
Audio	High Definition (HD) Audio, Realtek® ALC662 codec	
Speaker	Internal speaker for business audio	<p>ThinkVantage® Supports ThinkVantage technologies</p> <p>Preload OS Genuine Windows® 7 Professional 64</p> <p>Preload Applications</p> <ul style="list-style-type: none"> • Rescue and Recovery • Password Manager • ThinkVantage Toolbox • Norton™ Internet Security (30 days of virus definitions) • Adobe Reader® • Adobe Flash™ Player • Skype™ for Windows • Microsoft® Office 2010 preloaded; purchase product key to activate • Corel® WinDVD (for DVD±RW model(s) only) • Corel Burn.Now™ (for DVD±RW model(s) only) • Ulead DVD MovieFactory® (for DVD±RW model(s) only)
Ethernet	One gigabit ethernet on planar, Intel 82579	
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant	

See footnotes for important warranty information
 EMEA model(s) announced October 4, 2011
 EMEA model(s) withdrawn effective October 2012

Type-model	Slot x bay	Processor	Cores / Threads	Memory DIMMs	ECC	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis Intrusion switch	1394 adptr	Graphics adapter(s)	Global	Win7 preload
7824-C8G	4x5	Xeon E3-1270	3.4 4C/8T	2x2GB	ECC	2x500GB SATA	No	DVD±RW	Media	None	None		No	Pro 64
7824-D1G	4x5	Xeon E3-1220	3.1 4C/4T	2x2GB	ECC	2x500GB SATA	No	DVD±RW	Media	None	None		No	Pro 64
7824-D5G	4x5	Core i3-2130	3.4 2C/4T	2x2GB	ECC	2x500GB SATA	No	DVD±RW	Media	None	None	Intel HD	No	Pro 64
7824-D6G	4x5	Core i5-2400	3.1 4C/4T	2x2GB		2x500GB SATA	No	DVD±RW	Media	None	None	Intel HD	No	Pro 64
7824-D7G	4x5	Core i5-2500	3.3 4C/4T	2x2GB		2x500GB SATA	No	DVD±RW	Media	None	None	Intel HD	No	Pro 64
7824-D8G	4x5	Core i7-2600	3.4 4C/8T	2x2GB		2x500GB SATA	No	DVD±RW	Media	None	None	Intel HD	No	Pro 64

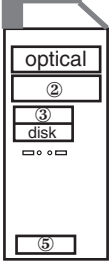
- These small and medium business (SMB) models are part of the EMEA TopSeller™ Program
- These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)

Processor	<p>Intel® Core™ i3-2130 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz)</p> <p>Intel Core i5-2400 processor (4C/4T, 3.1GHz, 6MB Cache), integrated Intel HD Graphics 2000, Turbo Boost 2.0 (up to 3.4GHz), DDR3 memory controller (up to 1333MHz)</p> <p>Intel Core i5-2500 processor (4C/4T, 3.3GHz, 6MB Cache), integrated Intel HD Graphics 2000, Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1333MHz)</p> <p>Intel Core i7-2600 processor (4C/8T, 3.4GHz, 8MB Cache), integrated Intel HD Graphics 2000, Turbo Boost 2.0 (up to 3.8GHz), DDR3 memory controller (up to 1333MHz)</p> <p>Intel Xeon® E3-1220 processor (4C/4T, 3.1GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.4GHz), DDR3 memory controller (up to 1333MHz)</p> <p>Intel Xeon E3-1270 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), DDR3 memory controller (up to 1333MHz)</p>	<p>Tower</p>  <ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 17.0"D x 16.7"H (with handle) • 175mm W x 431mm D x 425mm H • 24.7 lb (11.2kg) max configuration • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Recessed power button <p>Bay 1: 5.25", 1.6" high, access, for optical Bay 2: 5.25", 1.6" high, access, for optical Bay 3: 3.5", 1" high, access, for media reader Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk</p> <p>Slot 1: half-length, full-height, PCIe 2.0 x16 (75w max) Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI 2.3 Slot 4: half-length, full-height, 32-bit PCI 2.3</p>
Implementation	One LGA1155 socket	
Memory	<p>UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;</p> <p><i>ECC model(s):</i> 32GB max</p> <p><i>Non-ECC model(s):</i> 16GB max</p>	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed • ECC and non-ECC DIMMs cannot be mixed 	
Graphics	<i>Some: Intel HD Graphics</i> in processor, uses main memory, one VGA, one DisplayPort™ (see <i>Rear ports section</i>)	
Media reader	25-in-1 media reader, internal USB 2.0	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Disk(s)	500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"	
Disk Controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors	
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Six USB 2.0, one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, ine-out, mic-in) <i>Intel HD models:</i> one analog VGA DB-15 connector, one DisplayPort connector	
IEEE 1394 adptr	None	
Audio	High Definition (HD) Audio, Realtek® ALC662 codec	
Speaker	Internal speaker for business audio	
Ethernet	One gigabit ethernet on planar, Intel 82579	
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant	<p>Intel AMT</p> <p>Intel AMT supported on model(s) with Xeon processor</p> <p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • Serial port I/O control • USB port disablement (front or all) • <i>Chassis intrusion switch available on selected model(s)</i> <p>GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating</p> <p>LIMITED WARRANTY¹</p> <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Power supply	280 watts with variable speed fan, autosensing, 85% PSU, 80 PLUS® Bronze qualified	
ThinkVantage®	Supports ThinkVantage technologies	
Preload OS	Genuine Windows® 7 Professional 64	
Preload Applications (only some listed)	<ul style="list-style-type: none"> • Rescue and Recovery • ThinkVantage Toolbox • Norton™ Internet Security (30 days of virus definitions) • Skype™ for Windows • Microsoft® Office 2010 preloaded; purchase product key to activate • Corel® WinDVD (for DVD±RW model(s) only) • Corel Burn.Now™ (for DVD±RW model(s) only) • Ulead DVD MovieFactory® (for DVD±RW model(s) only) 	

See footnotes for important warranty information
 EMEA model(s) announced December 6, 2011
 EMEA model(s) withdrawn effective October 2012

Type-model	Slot x bay	Processor	Cores / Threads	Memory DIMMs	ECC	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis Intrusion switch	1394 adptr	Graphics adapter(s)	Global	Win7 preload
7824-C2G	4x5	Xeon E3-1235	3.2 4C/8T	2x2GB	ECC	1x160GB SSD	No	DVD±RW	Media	None	None	Intel HD	No	Pro 64
7824-C3G	4x5	Core i5-2500	3.3 4C/4T	2x2GB		1x160GB SSD	No	DVD±RW	Media	None	None	Intel HD	No	Pro 64

- These small and medium business (SMB) models are part of the EMEA TopSeller™ Program
- These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)

Processor	<p>Intel® Core™ i5-2500 processor (4C/4T, 3.3GHz, 6MB Cache), integrated Intel HD Graphics 2000, Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1333MHz)</p> <p>Intel Xeon® E3-1235 processor (4C/8T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P3000, DDR3 memory controller (up to 1333MHz)</p>	<p>Tower</p>  <ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 17.0"D x 16.7"H (with handle) • 175mm W x 431mm D x 425mm H • 24.7 lb (11.2kg) max configuration • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Recessed power button <p>Bay 1: 5.25", 1.6" high, access, for optical Bay 2: 5.25", 1.6" high, access, for optical Bay 3: 3.5", 1" high, access, for media reader Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk</p> <p>Slot 1: half-length, full-height, PCIe 2.0 x16 (75w max) Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI 2.3 Slot 4: half-length, full-height, 32-bit PCI 2.3</p>
Implementation	One LGA1155 socket	
Memory	<p>UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;</p> <p><i>ECC model(s):</i> 32GB max <i>Non-ECC model(s):</i> 16GB max</p> <ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed • ECC and non-ECC DIMMs cannot be mixed 	
Additional memory disclaimers		
Graphics	Intel HD Graphics in processor, uses main memory, one VGA, one DisplayPort™ (see <i>Rear ports section</i>)	
Media reader	25-in-1 media reader, internal USB 2.0	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Disk(s)	160GB Solid State Drive (SSD), SATA 3.0Gb/s, 2.5"	
Disk Controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors	
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Six USB 2.0, one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, ine-out, mic-in) <i>Intel HD models:</i> one analog VGA DB-15 connector, one DisplayPort connector	
IEEE 1394 adptr	None	
Audio	High Definition (HD) Audio, Realtek® ALC662 codec	
Speaker	Internal speaker for business audio	
Ethernet	One gigabit ethernet on planar, Intel 82579	
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Power supply	280 watts with variable speed fan, autosensing, 85% PSU, 80 PLUS® Bronze qualified	
ThinkVantage®	Supports ThinkVantage technologies	
Preload OS	Genuine Windows® 7 Professional 64	
Preload Applications	<ul style="list-style-type: none"> • Rescue and Recovery • Password Manager • ThinkVantage Toolbox • Norton™ Internet Security (30 days of virus definitions) • Adobe Reader® • Adobe Flash® Player • Skype™ for Windows • Microsoft® Office 2010 preloaded; purchase product key to activate • Corel® WinDVD (for DVD±RW model(s) only) • Corel Burn.Now™ (for DVD±RW model(s) only) • Ulead DVD MovieFactory® (for DVD±RW model(s) only) 	
	<p>Intel AMT</p> <p>Intel AMT supported on model(s) with Xeon processor</p> <p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • Serial port I/O control • USB port disablement (front or all) • Chassis intrusion switch available on selected model(s) <p>GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating</p> <p>LIMITED WARRANTY¹</p> <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107 	

See footnotes for important warranty information
 EMEA model(s) announced December 13, 2011
 EMEA model(s) withdrawn effective October 2012

ThinkStation® E30 (7783) - Integrated Graphics - withdrawn

Personal Systems Reference (PSREF)

Type-model	Slot x bay	Processor	Cores / Threads	Memory DIMMs	ECC	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	Global	Win7 preload
7783-27G	4x5	Xeon E3-1245	3.3 4C/8T	2x2GB	ECC	1x1TB SATA	No	DVD±RW	Media	None	Intel HD	No	Pro 64
7783-28G	4x5	Xeon E3-1275	3.4 4C/8T	2x2GB	ECC	1x1TB SATA	No	DVD±RW	Media	None	Intel HD	No	Pro 64
7783-29G	4x5	Xeon E3-1275	3.4 4C/8T	2x2GB	ECC	1x300GB SATA	No	DVD±RW	Media	None	Intel HD	No	Pro 64

- True workstation-level performance at incredibly low price point
- High Reliability with Independent Software Vendors (ISV) certified applications and ECC memory support
- These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)

Processor	<p>Intel® Xeon® E3-1245 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), integrated Intel HD Graphics P3000, DDR3 memory controller (up to 1333MHz)</p> <p>Intel Xeon E3-1275 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P3000, DDR3 memory controller (up to 1333MHz)</p>	<p>Tower</p> <ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 17.0"D x 16.7"H (with handle) • 175mm W x 431mm D x 425mm H • 24.7 lb (11.2kg) max configuration • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Recessed power button <p>Bay 1: 5.25", 1.6" high, access, for optical Bay 2: 5.25", 1.6" high, access, for optical Bay 3: 3.5", 1" high, access, for media reader Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk</p> <p>Slot 1: half-length, full-height, PCIe 2.0 x16 (75w max) Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI 2.3 Slot 4: half-length, full-height, 32-bit PCI 2.3</p>
Implementation	One LGA1155 socket	
Memory	<p>UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;</p> <p><i>ECC model(s):</i> 32GB max <i>Non-ECC model(s):</i> 16GB max</p>	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed • ECC and non-ECC DIMMs cannot be mixed 	
Graphics	Intel HD Graphics in processor, uses main memory, one VGA, one DisplayPort™ (see <i>Rear ports</i> section)	
Media reader	25-in-1 media reader, internal USB 2.0	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Disk(s)	<p><i>Some:</i> 300GB, SATA 6.0Gb/s, 10000 rpm, 2.5"</p> <p><i>Some:</i> 1TB, SATA 3.0Gb/s, 7200 rpm, 3.5"</p>	
Disk Controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors	
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Six USB 2.0, one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector	
Audio	High Definition (HD) Audio, Realtek® ALC662 codec	
Speaker	Internal speaker for business audio	
Ethernet	One gigabit ethernet on planar, Intel 82579	
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Power supply	280 watts with variable speed fan, autosensing, 85% PSU, 80 PLUS® Bronze qualified	
ThinkVantage®	Supports ThinkVantage technologies	
Preload OS	Genuine Windows® 7 Professional 64	
Preload Applications	<ul style="list-style-type: none"> • Rescue and Recovery • Password Manager • ThinkVantage Toolbox • Norton™ Internet Security (30 days of virus definitions) • Adobe Reader® • Adobe Flash® Player • Skype™ for Windows • Microsoft® Office 2010 preloaded; purchase product key to activate • Corel® WinDVD (for DVD±RW model(s) only) • Corel Burn.Now™ (for DVD±RW model(s) only) • Ulead DVD MovieFactory® (for DVD±RW model(s) only) 	
	<p>Intel AMT</p> <p>Intel AMT supported on model(s) with Xeon processor</p> <p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • Serial port I/O control • USB port disablement (front or all) • Chassis intrusion switch available on selected model(s) <p>GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating</p> <p>LIMITED WARRANTY¹</p> <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107 	

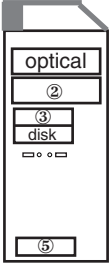
See footnotes for important warranty information
 EMEA model(s) announced April 19, 2011
 EMEA model(s) withdrawn effective October 2012

ThinkStation® E30 (7783) - Integrated Graphics (December 2011)

Personal Systems Reference(PSREF)

Type-model	Slot x bay	Processor	Cores / Threads	Memory DIMMs	ECC	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	1394 adptr	Graphics adapter(s)	Global	Win7 preload
7783-B9G	4x5	Xeon E3-1245	3.3 4C/8T	2x2GB	ECC	2x500GB SATA	No	DVD±RW	Media	None	None	Intel HD	No	Pro 64
7783-C1G	4x5	Xeon E3-1275	3.4 4C/8T	2x2GB	ECC	2x500GB SATA	No	DVD±RW	Media	None	None	Intel HD	No	Pro 64

- True workstation-level performance at incredibly low price point
- High Reliability with Independent Software Vendors (ISV) certified applications and ECC memory support
- These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)

Processor	<p>Intel® Xeon® E3-1245 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), integrated Intel HD Graphics P3000, DDR3 memory controller (up to 1333MHz)</p> <p>Intel Xeon E3-1275 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P3000, DDR3 memory controller (up to 1333MHz)</p>	<p>Tower</p>  <ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 17.0"D x 16.7"H (with handle) • 175mm W x 431mm D x 425mm H • 24.7 lb (11.2kg) max configuration • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Recessed power button <p>Bay 1: 5.25", 1.6" high, access, for optical Bay 2: 5.25", 1.6" high, access, for optical Bay 3: 3.5", 1" high, access, for media reader Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk</p> <p>Slot 1: half-length, full-height, PCIe 2.0 x16 (75w max) Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI 2.3 Slot 4: half-length, full-height, 32-bit PCI 2.3</p>
Implementation	One LGA1155 socket	
Memory	<p>UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;</p> <p><i>ECC model(s):</i> 32GB max <i>Non-ECC model(s):</i> 16GB max</p>	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed • ECC and non-ECC DIMMs cannot be mixed 	
Graphics	Intel HD Graphics in processor, uses main memory, one VGA, one DisplayPort™ (see <i>Rear ports</i> section)	
Media reader	25-in-1 media reader, internal USB 2.0	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Disk(s)	500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"	
Disk Controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors	
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Six USB 2.0, one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector	
IEEE 1394 adptr	None	
Audio	High Definition (HD) Audio, Realtek® ALC662 codec	
Speaker	Internal speaker for business audio	
Ethernet	One gigabit ethernet on planar, Intel 82579	
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Power supply	280 watts with variable speed fan, autosensing, 85% PSU, 80 PLUS® Bronze qualified	
ThinkVantage®	Supports ThinkVantage technologies	
Preload OS	Genuine Windows® 7 Professional 64	
Preload Applications	<ul style="list-style-type: none"> • Rescue and Recovery • Password Manager • ThinkVantage Toolbox • Norton™ Internet Security (30 days of virus definitions) • Adobe Reader® • Adobe Flash® Player • Skype™ for Windows • Microsoft® Office 2010 preloaded; purchase product key to activate • Corel® WinDVD (for DVD±RW model(s) only) • Corel Burn.Now™ (for DVD±RW model(s) only) • Ulead DVD MovieFactory® (for DVD±RW model(s) only) 	
	<p>Intel AMT</p> <p>Intel AMT supported on model(s) with Xeon processor</p> <p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • Serial port I/O control • USB port disablement (front or all) • Chassis intrusion switch available on selected model(s) <p>GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating</p> <p>LIMITED WARRANTY¹</p> <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107 	

See footnotes for important warranty information
 EMEA model(s) announced December 6, 2011
 EMEA model(s) withdrawn effective October 2012

ThinkStation® E30 (7783) - Discrete Graphics - withdrawn

Personal Systems Reference(PSREF)

Type-model	Slot x bay	Processor	Cores / Threads	Memory DIMMs	ECC	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis Intrusion switch	Graphics adapter(s)	Global	Win7 preload
7783-25G	4x5	Xeon E3-1230	3.2 4C/8T	2x2GB	ECC	1x500GB SATA	No	DVD±RW	Media	None	Quadro 600	No	Pro 64
7783-26G	4x5	Xeon E3-1270	3.4 4C/8T	2x2GB	ECC	1x500GB SATA	No	DVD±RW	Media	None	Quadro 2000	No	Pro 64

- True workstation-level performance at incredibly low price point
- High Reliability with Independent Software Vendors (ISV) certified applications and ECC memory support
- These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)

Processor	Intel® Xeon® E3-1230 processor (4C/8T, 3.2GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.6GHz), DDR3 memory controller (up to 1333MHz) Intel Xeon E3-1270 processor (4C/8T, 3.4GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.8GHz), DDR3 memory controller (up to 1333MHz)
Implementation	One LGA1155 socket
Memory	UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC , four 240-pin DIMM sockets; <i>ECC model(s):</i> 32GB max <i>Non-ECC model(s):</i> 16GB max
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed • ECC and non-ECC DIMMs cannot be mixed
Graphics	<i>Some:</i> NVIDIA® Quadro® 600 , PCIe x16 adapter, 1GB, one DisplayPort™, one dual-link DVI-I, 40W <i>Some:</i> NVIDIA Quadro 2000 , PCIe x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I, 62W
Media reader	25-in-1 media reader, internal USB 2.0
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive
Disk(s)	500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"
Disk Controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	Six USB 2.0, one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, ine-out, mic-in)
Audio	High Definition (HD) Audio, Realtek® ALC662 codec
Speaker	Internal speaker for business audio
Ethernet	One gigabit ethernet on planar, Intel 82579
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	280 watts with variable speed fan, autosensing, 85% PSU, 80 PLUS® Bronze qualified

Tower

- Raven black color; metal case
- 6.9"W x 17.0"D x 16.7"H (with handle)
- 175mm W x 431mm D x 425mm H
- 24.7 lb (11.2kg) max configuration
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Recessed power button

Bay 1: 5.25", 1.6" high, access, for optical
 Bay 2: 5.25", 1.6" high, access, for optical
 Bay 3: 3.5", 1" high, access, for media reader
 Bay 4: 3.5", 1" high, internal, for disk
 Bay 5: 3.5", 1" high, internal, for disk

Slot 1: half-length, full-height, PCIe 2.0 x16 (75w max)
 Slot 2: half-length, full-height, PCIe 2.0 x1
 Slot 3: half-length, full-height, 32-bit PCI 2.3
 Slot 4: half-length, full-height, 32-bit PCI 2.3

Intel AMT

Intel AMT supported on model(s) with Xeon processor

SECURITY

- Security chip (see information on left)
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- Serial port I/O control
- USB port disablement (front or all)
- Chassis intrusion switch available on selected model(s)

GREENGUARD® certified
 RoHS-compliant
 EPEAT™ Gold rating

LIMITED WARRANTY¹

- ↪ 3-year parts and labor
- ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)
- ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html
 - Onsite service upgrade options (in eligible locations)⁷
 - Post warranty maintenance services
- ↪ For more information find the Lenovo support phone number in your country at <http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107>

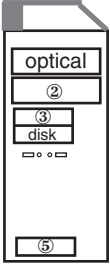
See footnotes for important warranty information
 EMEA model(s) announced April 19, 2011
 EMEA model(s) withdrawn effective October 2012

ThinkStation® E30 (7783) - Discrete Graphics (May 2011)

Personal Systems Reference(PSREF)

Type-model	Slot x bay	Processor	Cores / Threads	Memory DIMMs	ECC	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis Intrusion switch	Graphics adapter(s)	Global	Win7 preload
7783-92G	4x5	Xeon E3-1230	3.2 4C/8T	4x2GB	ECC	1x500GB SATA	No	DVD±RW	None	None	Quadro 600	Global	Pro 64

- True workstation-level performance at incredibly low price point
- High Reliability with Independent Software Vendors (ISV) certified applications and ECC memory support
- This system is Microsoft® Office 2010 Product Key Ready (O10PKR)

Processor	Intel® Xeon® E3-1230 processor (4C/8T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), DDR3 memory controller (up to 1333MHz) One LGA1155 socket	Tower  <ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 17.0"D x 16.7"H (with handle) • 175mm W x 431mm D x 425mm H • 24.7 lb (11.2kg) max configuration • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Recessed power button
Implementation	One LGA1155 socket	
Memory	UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC , four 240-pin DIMM sockets; <i>ECC model(s):</i> 32GB max <i>Non-ECC model(s):</i> 16GB max	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed • ECC and non-ECC DIMMs cannot be mixed 	
Graphics	NVIDIA® Quadro® 600 , PCIe x16 adapter, 1GB, one DisplayPort™, one dual-link DVI-I, 40W	
Media reader	None	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Disk(s)	500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"	
Disk Controller	Serial ATA, SATA 3.0Gb/s and SATA 6.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA 6.0Gb/s connectors, two SATA 3.0Gb/s connectors	
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Six USB 2.0, one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)	
Audio	High Definition (HD) Audio, Realtek® ALC662 codec	
Speaker	Internal speaker for business audio	
Ethernet	One gigabit ethernet on planar, Intel 82579	
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Power supply	280 watts with variable speed fan, autosensing, 85% PSU, 80 PLUS® Bronze qualified	
ThinkVantage®	Supports ThinkVantage technologies	
Preload OS	Genuine Windows® 7 Professional 64	
Preload Applications	<ul style="list-style-type: none"> • Rescue and Recovery • Password Manager • ThinkVantage Toolbox • Norton™ Internet Security (30 days of virus definitions) • Adobe Reader® • Adobe Flash® Player • Skype™ for Windows • Microsoft® Office 2010 preloaded; purchase product key to activate • Corel® WinDVD (for DVD±RW model(s) only) • Corel Burn.Now™ (for DVD±RW model(s) only) • Ulead DVD MovieFactory® (for DVD±RW model(s) only) 	
	<p>Intel AMT</p> <p>Intel AMT supported on model(s) with Xeon processor</p> <p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • Serial port I/O control • USB port disablement (front or all) • Chassis intrusion switch available on selected model(s) <p>GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating</p> <p>LIMITED WARRANTY¹</p> <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107 	

See footnotes for important warranty information
EMEA model(s) announced May 17, 2011
EMEA model(s) withdrawn effective October 2012

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ThinkStation



Lenovo ThinkStation E31 Tower



Lenovo ThinkStation E31 SFF



Lenovo ThinkStation E31 Tower



Lenovo ThinkStation E31 SFF



Lenovo ThinkStation E31 Tower



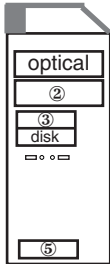
Lenovo ThinkStation E31 SFF

Type-model	Processor	Memory (MHz/ECC)	Memory DIMMs	Pre-conf RAID	Hard drive(s)	Media reader	SATA optical	Graphics adapter(s)	1394 adptr	Global	Chassis intrusion switch	PS/2 rear I/O	Win7 preload
2555-11G Xeon E3-1225V2	1600MHz ECC	2x2GB	No	1x1TB SATA	Media	DVD±RW	Intel HD P4000	No	No	No	No	No	Pro 64
2555-12G Xeon E3-1225V2	1600MHz ECC	2x2GB	No	1x256GB SSD	Media	DVD±RW	Intel HD P4000	No	No	No	No	No	Pro 64
2555-13G Xeon E3-1245V2	1600MHz ECC	2x2GB	No	1x2TB SATA	Media	DVD±RW	Intel HD P4000	No	No	Switch	No	No	Pro 64
2555-14G Xeon E3-1220V2	1600MHz ECC	2x2GB	No	1x1TB SATA	Media	DVD±RW	Quadro 600	No	No	Switch	No	No	Pro 64
2555-15G Xeon E3-1240V2	1600MHz ECC	2x2GB	No	1x2TB SATA	Media	DVD±RW	Quadro 2000	No	No	Switch	No	No	Pro 64
2555-16G Xeon E3-1245V2	1600MHz ECC	2x4GB	No	1x2TB SATA	Media	DVD±RW	Intel HD P4000	No	No	Switch	No	No	Pro 64
2555-17G Xeon E3-1275V2	1600MHz ECC	2x4GB	No	1x2TB SATA	Media	DVD±RW	Intel HD P4000	No	No	Switch	No	No	Pro 64
2555-18G Xeon E3-1290V2	1600MHz ECC	2x4GB	No	1x2TB SATA	Media	DVD±RW	Intel HD P4000	No	No	Switch	No	No	Pro 64

Processor	<p>Intel® Xeon® E3-1220V2 processor (4C/4T, 3.1GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.5GHz), DDR3 memory controller (up to 1600MHz)</p> <p>Intel Xeon E3-1225V2 processor (4C/4T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)</p> <p>Intel Xeon E3-1240V2 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), DDR3 memory controller (up to 1600MHz)</p> <p>Intel Xeon E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)</p> <p>Intel Xeon E3-1275V2 processor (4C/8T, 3.5GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.9GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)</p> <p>Intel Xeon E3-1290V2 processor (4C/8T, 3.7GHz, 8MB Cache), Turbo Boost 2.0 (up to 4.1GHz), DDR3 memory controller (up to 1600MHz)</p>
Implementation	One LGA1155 socket
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC , four 240-pin DIMM sockets;
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs Mixing of ECC and non-ECC memory is not supported
Graphics	<p>Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display;</p> <p><i>Xeon E3-1225V2/1245V2/1275V2:</i> Intel HD Graphics P4000</p> <p><i>Core i3-2120/2130:</i> Intel HD Graphics 2000</p> <p><i>Pentium/Celeron:</i> Intel HD Graphics</p> <p>(connector information please see Rear ports section)</p> <p>Some: NVIDIA® Quadro® 600, PCIe x16 adapter, 1GB, one DisplayPort™, one dual-link DVI-I, 40W</p> <p>Some: NVIDIA Quadro 2000, PCIe x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I, 62W</p>
Media reader	Media: 29-in-1 Media card reader, internal USB 2.0
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive
Hard drive(s)	<p>250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5"</p> <p>150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5"</p> <p>128GB/180GB/256GB SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"</p>
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset
Onboard SAS	None
Chipset	Intel C216 Chipset
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector
	(Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i3-2120/2130, Pentium, and Celeron processors)
	PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable
IEEE 1394 adptr	No onboard 1394 ports;
	1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear
Audio Speaker	High Definition (HD) Audio, Realtek® ALC662 codec
Ethernet	Internal speaker for business audio
Security chip	One onboard gigabit ethernet, Intel 82579
Keyboard	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant
Mouse	Preferred Pro USB Keyboard (USB connector), 104-key, black
Power supply	Optical Wheel Mouse (USB connector), black
	280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified
Limited Warranty	3-year parts and labor

<p>Tower</p>	<ul style="list-style-type: none"> Raven black color; metal case 6.9"W x 17.0"D x 16.7"H (with handle) 175mm W x 431mm D x 425mm H 27.56 lb (12.5kg) max configuration 25-liter Removable handle on top front Toolless side cover removal Toolless disk and optical drive removal Toolless adapter retention Illuminated front icons Recessed power button
<p>Bay 1: 5.25", 1.6" high, access, for optical</p> <p>Bay 2: 5.25", 1.6" high, access, open</p> <p>Bay 3: 3.5", 1" high, access, for media reader</p> <p>Bay 4: 3.5", 1" high, internal, for disk</p> <p>Bay 5: 3.5", 1" high, internal, for disk</p>	
<p>Slot 1: half-length, full-height, PCIe* x16 (75w max, near CPU)</p> <p>* PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon models</p> <p>Slot 2: half-length, full-height, PCIe 2.0 x1</p> <p>Slot 3: half-length, full-height, 32-bit PCI 2.3</p> <p>Slot 4: half-length, full-height, 32-bit PCI 2.3</p>	
<p>Intel AMT</p> <p>Intel AMT supported on model(s) with Xeon processor</p>	
<p>Preloaded operating system²⁰</p> <ul style="list-style-type: none"> Windows® 7 Professional 64 	
<p>Preloaded applications⁵ (only some listed)</p> <ul style="list-style-type: none"> Rescue and Recovery® Norton® Internet Security (30 days of virus definitions) Adobe® Reader® Microsoft® Office 2013 preloaded; purchase product key to activate Corel® WinDVD® (DVD±RW model(s)) Ulead® DVD MovieFactory® (DVD±RW model(s)) 	
<p>SECURITY</p> <ul style="list-style-type: none"> Security chip (see information on left) Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) Power-on password Administrator password Boot sequence control Boot without keyboard, mouse Serial port I/O control USB port disablement (front or all/individual) Chassis intrusion switch available on selected model(s) 	
<p>ISV certifications</p> <p>Please visit www.lenovo.com/support/ISV</p>	
<p>GREENGUARD® certified</p> <p>RoHS-compliant</p> <p>EPEAT™ Gold rating</p> <p>ENERGY STAR 5.2-compliant</p>	

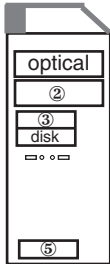
Type-model	Processor	Memory (MHz/ECC)	Memory DIMMs	Pre-conf RAID	Hard drive(s)	Media reader	SATA optical	Graphics adapter(s)	1394 adptr	Global	Chassis intrusion switch	PS/2 rear I/O	Win7 preload
2555-19G Pentium G860		1600MHz ECC	2x2GB	No	1x500GB SATA	Media	DVD±RW	Intel HD	No	No	Switch	No	Pro 64
2555-21G Xeon E3-1230V2		1600MHz ECC	2x2GB	No	1x500GB SATA	Media	DVD±RW	Intel HD	No	No	Switch	No	Pro 64
2555-28G Core i3-2130		1600MHz Non-ECC	2x2GB	No	1x1TB SATA	Media	DVD±RW	Intel HD 2000	No	No	Switch	No	Pro 64
2555-29G Core i3-2120		1600MHz Non-ECC	2x2GB	No	1x1TB SATA	Media	DVD±RW	Intel HD 2000	No	No	Switch	No	Pro 64

Processor	<p>Intel® Pentium® G860 processor (2C/2T, 3.0GHz, 3MB Cache), integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz)</p> <p>Intel Core™ i3-2120 processor (2C/4T, 3.3GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz)</p> <p>Intel Core i3-2130 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz)</p> <p>Intel Xeon® E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz)</p>	<p>Tower</p>  <ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 17.0"D x 16.7"H (with handle) • 175mm W x 431mm D x 425mm H • 27.56 lb (12.5kg) max configuration • 25-liter • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Recessed power button <p>Bay 1: 5.25", 1.6" high, access, for optical Bay 2: 5.25", 1.6" high, access, open Bay 3: 3.5", 1" high, access, for media reader Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk</p> <p>Slot 1: half-length, full-height, PCIe* x16 (75w max, near CPU) * PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon models</p> <p>Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI 2.3 Slot 4: half-length, full-height, 32-bit PCI 2.3</p>
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC , four 240-pin DIMM sockets;	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs • Mixing of ECC and non-ECC memory is not supported 	
Graphics	Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; Xeon E3-1225V2/1245V2/1275V2: Intel HD Graphics P4000 Core i3-2120/2130: Intel HD Graphics 2000 Pentium/Celeron: Intel HD Graphics (connector information please see Rear ports section)	
Media reader	Media: 29-in-1 Media card reader, internal USB 2.0	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Hard drive(s)	250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5" 150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5" 128GB/180GB/256GB SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"	
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset	
Onboard SAS	None	
Chipset	Intel C216 Chipset	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i3-2120/2130, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable	
IEEE 1394 adptr	No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear	
Audio	High Definition (HD) Audio, Realtek® ALC662 codec	
Speaker	Internal speaker for business audio	
Ethernet	One onboard gigabit ethernet, Intel 82579	
Security chip	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Power supply	280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified	
Limited Warranty	3-year parts and labor	
		<p>Intel AMT</p> <p>Intel AMT supported on model(s) with Xeon processor</p> <p>Preloaded operating system²⁰</p> <ul style="list-style-type: none"> • Windows® 7 Professional 64 <p>Preloaded applications⁵ (only some listed)</p> <ul style="list-style-type: none"> • Rescue and Recovery® • Norton® Internet Security (30 days of virus definitions) • Adobe® Reader® • Microsoft® Office 2013 preloaded; purchase product key to activate • Corel® WinDVD® (DVD±RW model(s)) • Ulead® DVD MovieFactory® (DVD±RW model(s)) <p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • Serial port I/O control • USB port disablement (front or all/individual) • Chassis intrusion switch available on selected model(s) <p>ISV certifications</p> <p>Please visit www.lenovo.com/support/ISV</p> <p>GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant</p>

ThinkStation® E31 Tower (2555) - TopSeller (June 5, 2012)

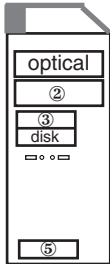
Personal Systems Reference (PSREF)

Type-model	Processor	Memory (MHz/ECC)	Memory DIMMs	Pre-conf RAID	Hard drive(s)	Media reader	SATA optical	Graphics adapter(s)	1394 adptr	Global	Chassis intrusion switch	PS/2 rear I/O	Win7 preload
2555-22G	Core i7-3770	1600MHz Non-ECC	2x2GB	No	1x2TB SATA	Media	DVD±RW	Intel HD 4000	No	No	No	No	Pro 64
2555-23G	Core i7-3770	1600MHz Non-ECC	2x4GB	No	1x1TB SATA	Media	DVD±RW	Intel HD 4000	No	No	Switch	No	Pro 64
2555-24G	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x256GB SSD	Media	DVD±RW	Intel HD 4000	No	No	Switch	No	Pro 64
2555-25G	Core i5-3450	1600MHz Non-ECC	1x4GB	No	1x1TB SATA	Media	DVD±RW	Intel HD 2500	No	No	Switch	No	Pro 64
2555-26G	Core i5-3550	1600MHz Non-ECC	1x4GB	No	1x1TB SATA	Media	DVD±RW	Intel HD 2500	No	No	No	No	Pro 64
2555-27G	Core i5-3550	1600MHz Non-ECC	2x2GB	No	1x2TB SATA	Media	DVD±RW	Intel HD 2500	No	No	Switch	No	Pro 64

Processor	<p>Intel® Core™ i5-3450 processor (4C/4T, 3.1GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.5GHz), DDR3 memory controller (up to 1600MHz)</p> <p>Intel Core i5-3550 processor (4C/4T, 3.3GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz)</p> <p>Intel Core i7-3770 processor (4C/8T, 3.4GHz, 8MB Cache), integrated Intel HD Graphics 4000, Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz)</p> <p>One LGA1155 socket</p>	<p>Tower</p>  <ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 17.0"D x 16.7"H (with handle) • 175mm W x 431mm D x 425mm H • 27.56 lb (12.5kg) max configuration • 25-liter • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Recessed power button
Implementation	One LGA1155 socket	
Memory	<p>32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;</p>	<p>Bay 1: 5.25", 1.6" high, access, for optical</p> <p>Bay 2: 5.25", 1.6" high, access, open</p> <p>Bay 3: 3.5", 1" high, access, for media reader</p> <p>Bay 4: 3.5", 1" high, internal, for disk</p> <p>Bay 5: 3.5", 1" high, internal, for disk</p>
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs • Mixing of ECC and non-ECC memory is not supported 	<p>Slot 1: half-length, full-height, PCIe* x16 (75w max, near CPU)</p> <p>* PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon/Core i5/Core i7 models</p>
Graphics	<p>Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display;</p> <p>Xeon E3-1225V2/1245V2/1275V2: Intel HD Graphics P4000</p> <p>Core i7-3770: Intel HD Graphics 4000</p> <p>Core i5-3450/3470/3550: Intel HD Graphics 2500</p> <p>Core i3-2120/2130: Intel HD Graphics 2000</p> <p>Pentium/Celeron: Intel HD Graphics</p> <p>(connector information please see Rear ports section)</p>	<p>Slot 2: half-length, full-height, PCIe 2.0 x1</p> <p>Slot 3: half-length, full-height, 32-bit PCI 2.3</p> <p>Slot 4: half-length, full-height, 32-bit PCI 2.3</p>
Media reader	Media: 29-in-1 Media card reader, internal USB 2.0	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Hard drive(s)	<p>250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5"</p> <p>150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5"</p> <p>128GB/180GB/256GB SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"</p>	
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset	
Onboard SAS	None	
Chipset	Intel C216 Chipset	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector	
IEEE 1394 adptr	No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear	
Audio	High Definition (HD) Audio, Realtek® ALC662 codec	
Speaker	Internal speaker for business audio	
Ethernet	One onboard gigabit ethernet, Intel 82579	
Security chip	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Power supply	280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified	
Limited Warranty	3-year parts and labor	
		<p>Intel AMT</p> <p>Intel AMT supported on model(s) with Xeon processor</p> <p>Preloaded operating system²⁰</p> <ul style="list-style-type: none"> • Windows® 7 Professional 64 • Preloaded applications⁵ (only some listed) • Rescue and Recovery® • Norton® Internet Security (30 days of virus definitions) • Adobe® Reader® • Microsoft® Office 2013 preloaded; purchase product key to activate • Corel® WinDVD® (DVD±RW model(s)) • Ulead® DVD MovieFactory® (DVD±RW model(s)) <p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • Serial port I/O control • USB port disablement (front or all/individual) • Chassis intrusion switch available on selected model(s) <p>ISV certifications</p> <p>Please visit www.lenovo.com/support/ISV</p> <p>GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant</p>

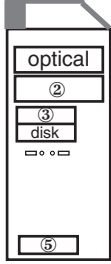
See footnotes for important warranty information
EMEA model(s) announced June 5, 2012

Type-model	Processor	Memory (MHz/ECC)	Memory DIMMs	Pre-conf RAID	Hard drive(s)	Media reader	SATA optical	Graphics adapter(s)	1394 adptr	Global	Chassis intrusion switch	PS/2 rear I/O	Win7 preload
2555-AJG	Xeon E3-1245V2	1600MHz ECC	1x4GB	No	1x1TB SATA	Media	DVD±RW	Intel HD P4000	No	No	No	No	Pro 64
2555-AGK	Xeon E3-1220V2	1600MHz ECC	1x4GB	No	1x1TB SATA	Media	DVD±RW	Quadro 600	No	No	No	No	Pro 64

Processor	<p>Intel® Xeon® E3-1220V2 processor (4C/4T, 3.1GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.5GHz), DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)</p>	<p>Tower</p>  <ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 17.0"D x 16.7"H (with handle) • 175mm W x 431mm D x 425mm H • 27.56 lb (12.5kg) max configuration • 25-liter • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Recessed power button <p>Bay 1: 5.25", 1.6" high, access, for optical Bay 2: 5.25", 1.6" high, access, open Bay 3: 3.5", 1" high, access, for media reader Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk</p> <p>Slot 1: half-length, full-height, PCIe* x16 (75w max, near CPU) * PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon models Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI 2.3 Slot 4: half-length, full-height, 32-bit PCI 2.3</p>
Implementation	One LGA1155 socket	
Memory	<p>32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;</p>	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs • Mixing of ECC and non-ECC memory is not supported 	
Graphics	<p>Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display;</p> <p>Xeon E3-1225V2/1245V2/1275V2: Intel HD Graphics P4000 Core i7-3770: Intel HD Graphics 4000 Core i5-3450/3470/3550: Intel HD Graphics 2500 Core i3-3220/3240: Intel HD Graphics 2500 Core i3-2120/2130: Intel HD Graphics 2000 Pentium/Celeron: Intel HD Graphics</p> <p>(connector information please see Rear ports section)</p> <p>Some: NVIDIA® Quadro® 600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 40W</p>	
Media reader	Media: 29-in-1 Media card reader, internal USB 2.0	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Hard drive(s)	<p>250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5"</p> <p>150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5"</p> <p>128GB/180GB/256GB SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"</p>	
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset	
Onboard SAS	None	
Chipset	Intel C216 Chipset	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i7-3770, Core i5-3450/3550, Core i3-2120/2130, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable	
IEEE 1394 adptr	No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear	
Audio	High Definition (HD) Audio, Realtek® ALC662 codec	
Speaker	Internal speaker for business audio	
Ethernet	One onboard gigabit ethernet, Intel 82579	
Security chip	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Power supply	280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified	
Limited Warranty	3-year parts and labor	
		<p>Intel AMT</p> <p>Intel AMT supported on model(s) with Xeon processor</p> <p>Preloaded operating system²⁰</p> <ul style="list-style-type: none"> • Windows® 7 Professional 64 • Preloaded applications⁵ (only some listed) • Rescue and Recovery® • Norton® Internet Security (30 days of virus definitions) • Adobe® Reader® • Microsoft® Office 2013 preloaded; purchase product key to activate • Corel® WinDVD® (DVD±RW model(s)) • Ulead® DVD MovieFactory® (DVD±RW model(s)) <p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • Serial port I/O control • USB port disablement (front or all/individual) • Chassis intrusion switch available on selected model(s) <p>ISV certifications</p> <p>Please visit www.lenovo.com/support/ISV</p> <p>GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant</p>

Type-model	Processor	Memory (MHz/ECC)	Memory DIMMs	Pre-conf RAID	Hard drive(s)	29-in-1 reader	SATA optical	Graphics adapter(s)	1394 adptr	1394 Global	Chassis intrusion switch	PS/2 rear I/O	Preload OS
2555-CPG	Core i3-3240	1600MHz ECC	1x4GB	No	1x1TB SATA	29-in-1	DVD±RW	Intel HD 2500	No	No	Switch	No	Win7 Pro64
2555-CQG	Core i3-3240	1600MHz ECC	1x4GB	No	1x1TB SATA	29-in-1	DVD±RW	Intel HD 2500	No	No	Switch	No	Win8 Pro64
2555-CRG	Core i5-3470	1600MHz Non-ECC	1x4GB	No	1x1TB SATA	29-in-1	DVD±RW	Intel HD 2500	No	No	Switch	No	Win7 Pro64
2555-CSG	Core i5-3470	1600MHz Non-ECC	1x4GB	No	1x1TB SATA	29-in-1	DVD±RW	Intel HD 2500	No	No	Switch	No	Win8 Pro64
2555-CTG	Core i5-3550	1600MHz Non-ECC	1x4GB	No	1x1TB SATA	29-in-1	DVD±RW	Intel HD 2500	No	No	Switch	No	Win8 Pro64
2555-CUG	Xeon E3-1220V2	1600MHz ECC	1x4GB	No	1x1TB SATA	29-in-1	DVD±RW	NVS 310	No	No	Switch	No	Win7 Pro64(DG)*
2555-CVG	Xeon E3-1220V2	1600MHz ECC	1x4GB	No	1x1TB SATA	29-in-1	DVD±RW	NVS 510	No	No	Switch	No	Win7 Pro64(DG)
2555-CWG	Xeon E3-1230V2	1600MHz Non-ECC	1x4GB	No	1x1TB SATA	29-in-1	DVD±RW	NVS 510	No	No	Switch	No	Win7 Pro64(DG)

* Win7 Pro64(DG) = Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit

Processor	<p>Intel® Core™ i3-3240 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz)</p> <p>Intel Core i5-3470 processor (4C/4T, 3.2GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.6GHz), DDR3 memory controller (up to 1600MHz)</p> <p>Intel Core i5-3550 processor (4C/4T, 3.3GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz)</p> <p>Intel Xeon® E3-1220V2 processor (4C/4T, 3.1GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.5GHz), DDR3 memory controller (up to 1600MHz)</p> <p>Intel Xeon E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz)</p>	<p>Tower</p>  <ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 17.0"D x 16.7"H (with handle) • 175mm W x 431mm D x 425mm H • 27.56 lb (12.5kg) max configuration • 25-liter • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Recessed power button <p>Bay 1: 5.25", 1.6" high, access, for optical Bay 2: 5.25", 1.6" high, access, open Bay 3: 3.5", 1" high, access, for media reader Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk</p> <p>Slot 1: half-length, full-height, PCIe* x16 (75w max, near CPU) * PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon/Core i5/Core i7 models</p> <p>Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI 2.3 Slot 4: half-length, full-height, 32-bit PCI 2.3</p>
Implementation	One LGA1155 socket	
Memory	<p>32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;</p>	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs • Mixing of ECC and non-ECC memory is not supported 	
Graphics	<p>Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; (connector information please see Rear ports section)</p> <p>Some: NVIDIA® NVS™ 310, PCIe x16 adapter, 512MB, DMS59 to dual DisplayPort™, 19.5W</p> <p>Some: NVIDIA NVS 510, PCIe x16 adapter, 2GB, four mini DisplayPort to four DisplayPort, 35W</p>	
Media reader	29-in-1 media card reader on selected models, internal USB 2.0	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Hard drive(s)	<p>250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5"</p> <p>150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5"</p> <p>128GB/180GB/256GB SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"</p>	
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset	
Onboard SAS	None	
Chipset	Intel C216 Chipset	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors)	
IEEE 1394 adptr	No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear	
Audio	High Definition (HD) Audio, Realtek® ALC662 codec	
Speaker	Internal speaker for business audio	
Ethernet	One onboard gigabit ethernet, Intel 82579	
Security chip	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Power supply	280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified	
Limited Warranty	3-year parts and labor	
Eco-Label and environmental certifications	<p>GREENGUARD® certified</p> <p>RoHS-compliant</p> <p>EPEAT™ Gold rating</p> <p>ENERGY STAR 5.2-compliant</p>	
ISV certifications	See the latest list of ISV certifications at www.lenovo.com/support/ISV	
	<p>Intel AMT</p> <p>Intel AMT supported on model(s) with Xeon processor</p> <p>Preloaded operating system²⁰</p> <p>Some: Windows® 7 Professional 64</p> <p>Some: Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit</p> <p>Some: Windows 8 Pro 64-bit</p> <p>Preloaded applications⁵ (only some listed)</p> <p>-Windows 7 models</p> <ul style="list-style-type: none"> • Rescue and Recovery® • Norton™ Internet Security (30 days of virus definitions) • Adobe® Reader® • Microsoft® Office 2013 preloaded; purchase product key to activate • Corel® WinDVD® (DVD±RW model(s)) • Ulead® DVD MovieFactory® (DVD±RW model(s)) <p>-Windows 8 models</p> <ul style="list-style-type: none"> • Intel AppUp® • Evernote® • Norton Internet Security (30 days of virus definitions) • Norton Studio • Skype™ • Microsoft Office 2013 preloaded; purchase product key to activate • Cyberlink Power2Go (DVD±RW model(s)) • Cyberlink PowerProducer (DVD±RW model(s)) <p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • Serial port I/O control • USB port disablement (front or all/individual) • Chassis intrusion switch available on selected model(s) 	

See footnotes for important warranty information
 EMEA model(s) announced January 15, 2013

Type-model	Processor	Memory (MHz/ECC)	Memory DIMMs	Pre-conf RAID	Media Hard drive(s)	SATA reader	SATA optical	Graphics adapter(s)	1394 adptr	1394 Global	Chassis intrusion switch	PS/2 rear I/O	Preload OS
2555-CYG	Xeon E3-1245V2	1600MHz Non-ECC	1x4GB	No	1x1TB SATA	29-in-1	DVD±RW	Quadro 410	No	No	Switch	No	Win7 Pro64(DG)*
2555-CZG	Xeon E3-1245V2	1600MHz Non-ECC	1x4GB	No	1x1TB SATA	29-in-1	DVD±RW	NVS 510	No	No	Switch	No	Win7 Pro64(DG)
2555-D1G	Core i3-3225	1600MHz ECC	1x4GB	No	1x1TB SATA	29-in-1	DVD±RW	NVS 310	No	No	Switch	No	Win7 Pro64(DG)
2555-D2G	Core i5-3330	1600MHz Non-ECC	1x4GB	No	1x1TB SATA	29-in-1	DVD±RW	NVS 510	No	No	Switch	No	Win7 Pro64(DG)
2555-D3G	Xeon E3-1225V2	1600MHz Non-ECC	1x4GB	No	1x1TB SATA	29-in-1	DVD±RW	NVS 310	No	No	Switch	No	Win7 Pro64(DG)
2555-D4G	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x1TB SATA	29-in-1	DVD±RW	Quadro 410	No	No	Switch	No	Win7 Pro64(DG)
2555-D5G	Core i5-3470	1600MHz Non-ECC	1x4GB	No	1x1TB SATA	29-in-1	DVD±RW	Quadro 410	No	No	Switch	No	Win7 Pro64(DG)
2555-D6G	Xeon E3-1220V2	1600MHz Non-ECC	1x4GB	No	1x1TB SATA	29-in-1	DVD±RW	Quadro 410	No	No	Switch	No	Win7 Pro64(DG)

* Win7 Pro64(DG) = Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit

Processor	<p>Intel® Core™ i3-3225 processor (2C/4T, 3.3GHz, 3MB Cache), integrated Intel HD Graphics 4000, DDR3 memory controller (up to 1600MHz)</p> <p>Intel Core i5-3330 processor (4C/4T, 3.0GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.2GHz), DDR3 memory controller (up to 1600MHz)</p> <p>Intel Core i5-3470 processor (4C/4T, 3.2GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.6GHz), DDR3 memory controller (up to 1600MHz)</p> <p>Intel Core i7-3770 processor (4C/8T, 3.4GHz, 8MB Cache), integrated Intel HD Graphics 4000, Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz)</p> <p>Intel Xeon® E3-1220V2 processor (4C/4T, 3.1GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.5GHz), DDR3 memory controller (up to 1600MHz)</p> <p>Intel® Xeon® E3-1225V2 processor (4C/4T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)</p> <p>Intel Xeon E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)</p>
Implementation	One LGA1155 socket
Memory	<p>32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;</p> <p>Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs</p> <p>Mixing of ECC and non-ECC memory is not supported</p>
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs Mixing of ECC and non-ECC memory is not supported
Graphics	<p>Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; (connector information please see Rear ports section)</p> <p>Some: NVIDIA® NVS™ 310, PCIe x16 adapter, 512MB, DMS59 to dual DisplayPort™, 19.5W</p> <p>Some: NVIDIA NVS 510, PCIe x16 adapter, 2GB, four mini DisplayPort to four DisplayPort, 35W</p> <p>Some: NVIDIA Quadro® 410, PCIe x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 38W</p>
Media reader	29-in-1 media card reader on selected models, internal USB 2.0
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive
Hard drive(s)	<p>250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5"</p> <p>150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5"</p> <p>128GB/180GB/256GB SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"</p>
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset
Chipset	Intel C216 Chipset
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors)
IEEE 1394 adptr	No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear
Audio Speaker	High Definition (HD) Audio, Realtek® ALC662 codec
Ethernet	Internal speaker for business audio
Security chip	One onboard gigabit ethernet, Intel 82579
Keyboard	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant
Mouse	Preferred Pro USB Keyboard (USB connector), 104-key, black
Power supply	Optical Wheel Mouse (USB connector), black
Limited Warranty	280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified
Eco-Label and environmental certifications	3-year parts and labor
ISV certifications	GREENGUARD® certified, RoHS-compliant, EPEAT™ Gold rating, ENERGY STAR 5.2-compliant
	See the latest list of ISV certifications at www.lenovo.com/support/ISV

<p>Tower</p>	<ul style="list-style-type: none"> Raven black color; metal case 6.9"W x 17.0"D x 16.7"H (with handle) 175mm W x 431mm D x 425mm H 27.56 lb (12.5kg) max configuration 25-liter Removable handle on top front Toolless side cover removal Toolless disk and optical drive removal Toolless adapter retention Illuminated front icons Recessed power button
<p>Bay 1: 5.25", 1.6" high, access, for optical</p> <p>Bay 2: 5.25", 1.6" high, access, open</p> <p>Bay 3: 3.5", 1" high, access, for media reader</p> <p>Bay 4: 3.5", 1" high, internal, for disk</p> <p>Bay 5: 3.5", 1" high, internal, for disk</p>	<p>Slot 1: half-length, full-height, PCIe* x16 (75w max, near CPU)</p> <p>* PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon/Core i5/Core i7 models</p> <p>Slot 2: half-length, full-height, PCIe 2.0 x1</p> <p>Slot 3: half-length, full-height, 32-bit PCI 2.3</p> <p>Slot 4: half-length, full-height, 32-bit PCI 2.3</p>
Intel AMT	
Intel AMT supported on model(s) with Xeon processor	
Preloaded operating system²⁰	
<ul style="list-style-type: none"> Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit 	
Preloaded applications⁵ (only some listed)	
<ul style="list-style-type: none"> Rescue and Recovery® Norton™ Internet Security (30 days of virus definitions) Adobe® Reader® Microsoft® Office 2013 preloaded; purchase product key to activate Corel® WinDVD® (DVD±RW model(s)) Ulead® DVD MovieFactory® (DVD±RW model(s)) 	
SECURITY	
<ul style="list-style-type: none"> Security chip (see information on left) Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) Power-on password Administrator password Boot sequence control Boot without keyboard, mouse Serial port I/O control USB port disablement (front or all/individual) Chassis intrusion switch available on selected model(s) 	

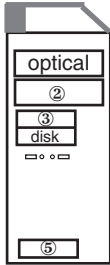
ThinkStation® E31 Tower (2555) - TopSeller (March 2013)

Personal Systems Reference (PSREF)

Type-model ¹	Processor	Memory (MHz/ECC)	Memory DIMMs	Pre-conf RAID	Drive(s)	Media reader	SATA optical	Graphics adapter(s)	1394 adptr	PS/2 rear I/O	Chassis intrusion switch	Preload OS ²
2555-DBG	Xeon E3-1245V2	1600MHz Non-ECC	2x4GB	No	1x500GB 3.5" SATA	Media	Blu-ray	Intel HD P4000	No	No	Switch	Win7 Pro64
2555-DCG	Xeon E3-1245V2	1600MHz Non-ECC	2x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Intel HD P4000	No	No	Switch	Win7 Pro64
2555-DDG	Xeon E3-1245V2	1600MHz Non-ECC	2x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Intel HD P4000	No	No	Switch	Win7 Pro64(DG)
2555-DEG	Xeon E3-1245V2	1600MHz Non-ECC	2x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro 600	No	No	Switch	Win7 Pro64
2555-DFG	Xeon E3-1245V2	1600MHz Non-ECC	2x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro K600	No	No	Switch	Win7 Pro64
2555-DGG	Xeon E3-1245V2	1600MHz Non-ECC	2x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro K600	No	No	Switch	Win7 Pro64(DG)

1 Model in italics shows that this is a Global Model

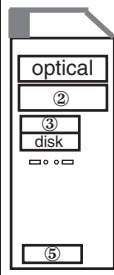
2 Win7 Pro64(DG) = Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit

Processor	Intel® Xeon® E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)		<ul style="list-style-type: none"> Raven black color; metal case 6.9"W x 17.0"D x 16.7"H (with handle) 175mm W x 431mm D x 425mm H 27.56 lb (12.5kg) max configuration 25-liter Removable handle on top front Toolless side cover removal Toolless disk and optical drive removal Toolless adapter retention Illuminated front icons Recessed power button
Implementation	One LGA1155 socket		
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;	Bay 1: 5.25", 1.6" high, access, for optical	<ul style="list-style-type: none"> Slot 1: half-length, full-height, PCIe* x16 (75w max, near CPU) * PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon/Core i5/Core i7 models Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI 2.3 Slot 4: half-length, full-height, 32-bit PCI 2.3
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs Mixing of ECC and non-ECC memory is not supported 	Bay 2: 5.25", 1.6" high, access, open	
Graphics	<p>Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; (detailed graphics model name please see Processor section, connector information please see Rear ports section)</p> <p>Some: NVIDIA® Quadro® 600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 40W</p> <p>Some: NVIDIA Quadro K600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W</p>	Bay 3: 3.5", 1" high, access, for media reader	<p>Intel AMT</p> <p>Intel AMT supported on model(s) with Xeon processor</p> <p>Preloaded operating system²⁰</p> <p>Some: Windows® 7 Professional 64</p> <p>Some: Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit</p> <p>Some: Windows 8 Pro 64-bit</p> <p>Preloaded applications⁵ (only some listed)</p> <p>-Windows 7 models</p> <ul style="list-style-type: none"> Rescue and Recovery® Norton™ Internet Security (30 days of virus definitions) Adobe® Reader® Microsoft® Office 2013 preloaded; purchase product key to activate Core™ WinDVD® (DVD±RW model(s)) Ulead® DVD MovieFactory® (DVD±RW model(s)) <p>-Windows 8 models</p> <ul style="list-style-type: none"> Evernote® Norton Internet Security (30 days of virus definitions) Norton Studio Skype™ Microsoft Office 2013 preloaded; purchase product key to activate Cyberlink Power2Go (DVD±RW model(s)) Cyberlink PowerProducer (DVD±RW model(s)) <p>SECURITY</p> <ul style="list-style-type: none"> Security chip (see information on left) Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) Power-on password Administrator password Boot sequence control Boot without keyboard, mouse Serial port I/O control USB port disablement (front or all/individual) Chassis intrusion switch available on selected model(s)
Media reader	29-in-1 Media card reader in selected models, internal USB 2.0	Bay 4: 3.5", 1" high, internal, for disk	
Optical	DVD, DVD±RW, or Blu-ray, depending on model		
Drive(s)	<p>3.5" SATA: SATA 6.0Gb/s, 7200 rpm, 3.5"</p> <p>2.5" SATA: SATA 6.0Gb/s, 10000 rpm, 2.5"</p> <p>SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"</p>		
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset		
Onboard SAS	None		
Chipset	Intel C216 Chipset		
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)		
Rear ports	Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector		
	(Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors)		
	PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable		
IEEE 1394 adptr	No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear		
Audio	High Definition (HD) Audio, Realtek® ALC662 codec		
Speaker	Internal speaker for business audio		
Ethernet	One onboard gigabit ethernet, Intel 82579		
Security chip	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant		
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black		
Mouse	Optical Wheel Mouse (USB connector), black		
Power supply	280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified		
Eco-Label and environmental certifications	GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant		
ISV certifications	See the latest list of ISV certifications at www.lenovo.com/support/ISV		
ThinkVantage	Supports ThinkVantage® technologies		
Limited Warranty	3-year parts and labor		

Type-model	Processor	Memory (MHz/ECC)	Memory DIMMs	Pre-conf RAID	Hard drive(s)	Media reader	SATA optical	Graphics adapter(s)	1394 adptr	Global	Chassis intrusion switch	PS/2 rear I/O	Win7 preload
2552-12G Xeon E3-1245V2	E3-1245V2	1600MHz ECC	2x4GB	No	1x1TB SATA		DVD±RW	Quadro 2000	No	No	No	PS/2	Pro 64
2552-34G Xeon E3-1275V2	E3-1275V2	1600MHz ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 2000	No	No	No	PS/2	Pro 64

Processor	Intel® Xeon® E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1275V2 processor (4C/8T, 3.5GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.9GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)
Implementation	One LGA1155 socket
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC , four 240-pin DIMM sockets;
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs Mixing of ECC and non-ECC memory is not supported
Graphics	NVIDIA® Quadro® 2000 , PCIe x16 adapter, 1GB, two DisplayPort™, one dual-link DVI-I, 62W
Media reader	Media: 29-in-1 Media card reader, internal USB 2.0
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive
Hard drive(s)	250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5" 150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5" 128GB/180GB/256GB SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset
Onboard SAS	None
Chipset	Intel C216 Chipset
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i3-2120/2130, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable
IEEE 1394 adptr	No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear
Audio	High Definition (HD) Audio, Realtek® ALC662 codec
Speaker	Internal speaker for business audio
Ethernet	One onboard gigabit ethernet, Intel 82579
Security chip	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified
Limited Warranty	3-year parts and labor

Tower



- Raven black color; metal case
- 6.9"W x 17.0"D x 16.7"H (with handle)
- 175mm W x 431mm D x 425mm H
- 27.56 lb (12.5kg) max configuration
- 25-liter
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Recessed power button

Bay 1: 5.25", 1.6" high, access, for optical
 Bay 2: 5.25", 1.6" high, access, open
 Bay 3: 3.5", 1" high, access, for media reader
 Bay 4: 3.5", 1" high, internal, for disk
 Bay 5: 3.5", 1" high, internal, for disk

Slot 1: half-length, full-height, PCIe* x16
 (75w max, near CPU)
 * PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon models
 Slot 2: half-length, full-height, PCIe 2.0 x1
 Slot 3: half-length, full-height, 32-bit PCI 2.3
 Slot 4: half-length, full-height, 32-bit PCI 2.3

Intel AMT
 Intel AMT supported on model(s) with Xeon processor

Preloaded operating system²⁰

- Windows® 7 Professional 64

Preloaded applications⁵ (only some listed)

- Rescue and Recovery®
- Norton® Internet Security (30 days of virus definitions)
- Adobe® Reader®
- Microsoft® Office 2013 preloaded; purchase product key to activate
- Corel® WinDVD® (DVD±RW model(s))
- Ulead® DVD MovieFactory® (DVD±RW model(s))

SECURITY

- Security chip (see information on left)
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- Serial port I/O control
- USB port disablement (front or all/individual)
- Chassis intrusion switch available on selected model(s)

ISV certifications
 Please visit www.lenovo.com/support/ISV

GREENGUARD® certified
 RoHS-compliant
 EPEAT™ Gold rating
 ENERGY STAR 5.2-compliant

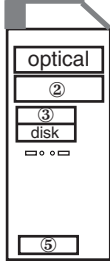
See footnotes for important warranty information
 EMEA model(s) announced May 15, 2012

ThinkStation® E31 Tower (2553) - GMP

Personal Systems Reference (PSREF)

Type-model	Processor	Memory (MHz/ECC)	Memory DIMMs	Pre-conf RAID	Disk(s)	Media reader	SATA optical	Graphics adapter(s)	1394 adptr	Global	Chassis intrusion switch	PS/2 rear I/O	Win7 preload
2553-11G Xeon E3-1240V2		1600MHz ECC	2x2GB	No	1x1TB SATA	Media	DVD±RW	Quadro 600	No	Global		PS/2	Pro 64
2553-12G Xeon E3-1225V2		1600MHz ECC	2x2GB	No	1x1TB SATA	Media	DVD±RW	Quadro 600	No	Global	Switch		Pro 64
2553-13G Xeon E3-1270V2		1600MHz ECC	2x2GB	No	1x2TB SATA	Media	DVD±RW	Quadro 2000	No	Global			Pro 64
2553-14G Xeon E3-1275V2		1600MHz ECC	2x2GB	No	1x256GB SSD	Media	DVD±RW	Intel HD P4000	No	Global	Switch		Pro 64
2553-15G Xeon E3-1290V2		1600MHz ECC	2x2GB	No	1x256GB SSD	Media	DVD±RW	Quadro 2000	No	Global	Switch		Pro 64
2553-18G Core i3-2130		1600MHz ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 400	No	Global	Switch	PS/2	Pro 64
2553-21G Xeon E3-1245V2		1600MHz ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 600	No	Global	Switch	PS/2	Pro 64

- Part of the Global Models Plus (GMP) program with limited onsite service 3-year limited warranty

Processor	<p>Intel® Core™ i3-2130 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz)</p> <p>Intel Xeon® E3-1225V2 processor (4C/4T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)</p> <p>Intel Xeon E3-1240V2 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), DDR3 memory controller (up to 1600MHz)</p> <p>Intel Xeon E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)</p> <p>Intel Xeon E3-1270V2 processor (4C/8T, 3.5GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz)</p> <p>Intel Xeon E3-1275V2 processor (4C/8T, 3.5GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.9GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)</p> <p>Intel Xeon E3-1290V2 processor (4C/8T, 3.7GHz, 8MB Cache), Turbo Boost 2.0 (up to 4.1GHz), DDR3 memory controller (up to 1600MHz)</p>	<p>Tower</p>  <ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 17.0"D x 16.7"H (with handle) • 175mm W x 431mm D x 425mm H • 27.56 lb (12.5kg) max configuration • 25-liter • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Recessed power button
Implementation	One LGA1155 socket	<p>Bay 1: 5.25", 1.6" high, access, for optical</p> <p>Bay 2: 5.25", 1.6" high, access, open</p> <p>Bay 3: 3.5", 1" high, access, for media reader</p> <p>Bay 4: 3.5", 1" high, internal, for disk</p> <p>Bay 5: 3.5", 1" high, internal, for disk</p>
Memory	<p>32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;</p> <ul style="list-style-type: none"> • Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs • Mixing of ECC and non-ECC memory is not supported 	<p>Slot 1: half-length, full-height, PCIe* x16 (75w max, near CPU)</p> <p>* PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon models</p> <p>Slot 2: half-length, full-height, PCIe 2.0 x1</p> <p>Slot 3: half-length, full-height, 32-bit PCI 2.3</p> <p>Slot 4: half-length, full-height, 32-bit PCI 2.3</p>
Additional memory disclaimers		
Graphics	<p><i>Some:</i> Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display;</p> <p><i>Xeon E3-1225V2/1245V2/1275V2:</i> Intel HD Graphics P4000</p> <p><i>Core i3-2120/2130:</i> Intel HD Graphics 2000</p> <p><i>Pentium/Celeron:</i> Intel HD Graphics (connector information please see Rear ports section)</p> <p><i>Some:</i> NVIDIA® Quadro® 400, PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 32W</p> <p><i>Some:</i> NVIDIA Quadro 600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 40W</p> <p><i>Some:</i> NVIDIA Quadro 2000, PCIe x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I, 62W</p>	<p>Intel AMT</p> <p>Intel AMT supported on model(s) with Xeon processor</p>
Media reader	<i>Media:</i> 29-in-1 Media card reader, internal USB 2.0	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Disk(s)	<p>250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5"</p> <p>150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5"</p> <p>128GB/180GB/256GB SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"</p>	
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset	
Onboard SAS	None	
Chipset	Intel C216 Chipset	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i3-2120/2130, Pentium, and Celeron processors)	
IEEE 1394 adptr	No onboard 1394 ports; <i>1394 models:</i> additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear	
Audio Speaker	High Definition (HD) Audio, Realtek® ALC662 codec	
Ethernet	Internal speaker for business audio	
Security chip	One onboard gigabit ethernet, Intel 82579	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Power supply	280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified	
Limited Warranty	3-year parts and labor	
		<p>Preloaded operating system²⁰</p> <ul style="list-style-type: none"> • Windows® 7 Professional 64 <p>Preloaded applications⁵ (only some listed)</p> <ul style="list-style-type: none"> • Rescue and Recovery® • Norton® Internet Security (30 days of virus definitions) • Adobe® Reader® • Microsoft® Office 2013 preloaded; purchase product key to activate • Corel® WinDVD® (DVD±RW model(s)) • Ulead® DVD MovieFactory® (DVD±RW model(s)) <p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • Serial port I/O control • USB port disablement (front or all/individual) • Chassis intrusion switch available on selected model(s) <p>ISV certifications</p> <p>Please visit www.lenovo.com/support/ISV</p> <p>GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant</p>

See footnotes for important warranty information
EMEA model(s) announced May 15 (18G/21G) or June 26 (11G/12G/13G/14G/15G), 2012

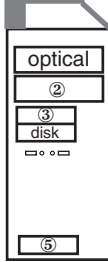
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(G-DEM1-4) July 2012

ThinkStation® E31 Tower (2553) - GMP II

Personal Systems Reference (PSREF)

Type-model	Processor	Memory (MHz/ECC)	Memory DIMMs	Pre-conf RAID	Disk(s)	Media reader	SATA optical	Graphics adapter(s)	1394 adptr	Global	Chassis intrusion switch	PS/2 rear I/O	Win7 preload
2553-16G Core i7-3770		1600MHz Non-ECC	1x4GB	No	180GB SSD+1TB SATA	Media	DVD±RW	Intel HD 4000	No	Global	Switch		Pro 64
2553-17G Xeon E3-1225V2		1600MHz ECC	1x4GB	No	1x500GB SATA		DVD±RW	Intel HD P4000	No	Global	Switch		Pro 64
2553-19G Core i7-3770		1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 2000	No	Global	Switch	PS/2	Pro 64

- Part of the Global Models Plus (GMP) program with limited onsite service 3-year limited warranty

Processor	<p>Intel® Core™ i7-3770 processor (4C/8T, 3.4GHz, 8MB Cache), integrated Intel HD Graphics 4000, Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz)</p> <p>Intel Xeon® E3-1225V2 processor (4C/4T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)</p>	<p>Tower</p>  <ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 17.0"D x 16.7"H (with handle) • 175mm W x 431mm D x 425mm H • 27.56 lb (12.5kg) max configuration • 25-liter • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Recessed power button <p>Bay 1: 5.25", 1.6" high, access, for optical Bay 2: 5.25", 1.6" high, access, open Bay 3: 3.5", 1" high, access, for media reader Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk</p> <p>Slot 1: half-length, full-height, PCIe* x16 (75w max, near CPU) * PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon/Core i5/Core i7 models</p> <p>Slot 2: half-length, full-height, PCIe 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI 2.3 Slot 4: half-length, full-height, 32-bit PCI 2.3</p>
Implementation	One LGA1155 socket	
Memory	<p>32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;</p> <p>• Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs</p> <p>• Mixing of ECC and non-ECC memory is not supported</p>	
Additional memory disclaimers		
Graphics	<p>Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display;</p> <p>Xeon E3-1225V2/1245V2/1275V2: Intel HD Graphics P4000 Core i7-3770: Intel HD Graphics 4000 Core i5-3450/3470/3550: Intel HD Graphics 2500 Core i3-2120/2130: Intel HD Graphics 2000 Pentium/Celeron: Intel HD Graphics</p> <p>(connector information please see Rear ports section)</p> <p>Some: NVIDIA® Quadro® 2000, PCIe x16 adapter, 1GB, two DisplayPort™, one dual-link DVI-I, 62W</p>	
Media reader	Media: 29-in-1 Media card reader, internal USB 2.0	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Disk(s)	<p>250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5"</p> <p>150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5"</p> <p>128GB/180GB/256GB SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"</p>	
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset	
Onboard SAS	None	
Chipset	Intel C216 Chipset	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	<p>Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector</p> <p>(Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i7-3770, Core i5-3450/3550, Core i3-2120/2130, Pentium, and Celeron processors)</p> <p>PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable</p>	
IEEE 1394 adptr	<p>No onboard 1394 ports;</p> <p>1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear</p>	
Audio	High Definition (HD) Audio, Realtek® ALC662 codec	
Speaker	Internal speaker for business audio	
Ethernet	One onboard gigabit ethernet, Intel 82579	
Security chip	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Power supply	280 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified	
Limited Warranty	3-year parts and labor	
	<p>Intel AMT</p> <p>Intel AMT supported on model(s) with Xeon processor</p> <p>Preloaded operating system²⁰</p> <ul style="list-style-type: none"> • Windows® 7 Professional 64 <p>Preloaded applications⁵ (only some listed)</p> <ul style="list-style-type: none"> • Rescue and Recovery® • Norton® Internet Security (30 days of virus definitions) • Adobe® Reader® • Microsoft® Office 2013 preloaded; purchase product key to activate • Corel® WinDVD® (DVD±RW model(s)) • Ulead® DVD MovieFactory® (DVD±RW model(s)) <p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • Serial port I/O control • USB port disablement (front or all/individual) • Chassis intrusion switch available on selected model(s) <p>ISV certifications</p> <p>Please visit www.lenovo.com/support/ISV</p> <p>GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant</p>	

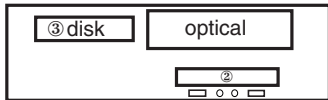
See footnotes for important warranty information
 EMEA model(s) announced June 5 (19G) or June 26 (16G/17G), 2012

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ThinkStation® E31 SFF (3695) - TopSeller

Personal Systems Reference (PSREF)

Type-model	Processor	Memory (MHz/ECC)	Memory Pre-conf DIMMs	RAID	Hard drive(s)	Media reader	SATA optical	2nd Disk bay	Graphics adapter(s)	1394 adptr	Global	Chassis intrusion switch	PS/2 rear I/O	Vertical stand	Win7 preload
3695-A1G	Xeon E3-1225V2	1600MHz ECC	2x2GB	No	1x1TB SATA	Media DVD±RW		No	Intel HD P4000	No	No	No	No	No	Pro 64
3695-A2G	Xeon E3-1245V2	1600MHz ECC	2x2GB	No	1x1TB SATA	Media DVD±RW		No	Intel HD P4000	No	No	No	No	No	Pro 64
3695-A8G	Xeon E3-1230V2	1600MHz ECC	2x2GB	No	1x1TB SATA	Media DVD±RW		No	Quadro 600	No	No	No	No	No	Pro 64
3695-B1G	Xeon E3-1225V2	1600MHz ECC	2x2GB	No	1x128GB SSD	Media DVD±RW		No	Intel HD P4000	No	No	No	No	No	Pro 64
3695-B2G	Pentium G860	1600MHz Non-ECC	2x2GB	No	1x500GB SATA	Media DVD±RW		No	Intel HD	No	No	No	No	No	Pro 64
3695-B3G	Xeon E3-1245V2	1600MHz ECC	2x2GB	No	1x2TB SATA	Media DVD±RW		No	Intel HD P4000	No	No	No	No	No	Pro 64

Processor	<p>Intel® Pentium® G860 processor (2C/2T, 3.0GHz, 3MB Cache), integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz)</p> <p>Intel Xeon® E3-1225V2 processor (4C/4T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)</p> <p>Intel Xeon E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz)</p> <p>Intel Xeon E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)</p>	<p>Small Desktop</p>  <ul style="list-style-type: none"> • Raven black color; metal case • 13.35"W x 15.0"D x 3.93"H • 339mm W x 381.1mm D x 99.7mm H • 16.53 lb (7.5kg) max configuration • 11-liter • Toolless top cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Recessed power button <p>Bay 1: 5.25", 1.6" high, access, for optical/2nd disk Bay 2: 3.5", 0.5" high, access, for media reader Bay 3: 3.5", 1" high, internal, for disk</p> <p>Slot 1: Low Profile, PCIe* x16 (45w max, near CPU) * PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon models</p> <p>Slot 2: Low Profile, PCIe 2.0 x1 Slot 3: Low Profile, 32-bit PCI 2.3 Slot 4: Low Profile, 32-bit PCI 2.3</p>
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC , four 240-pin DIMM sockets;	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs • Mixing of ECC and non-ECC memory is not supported 	
Graphics	<p>Some: Intel HD Graphics in processor, uses main memory, can work along with discrete graphics to support multi-display;</p> <p>Xeon E3-1225V2/1245V2/1275V2: Intel HD Graphics P4000 Core i3-2120/2130: Intel HD Graphics 2000 Pentium/Celeron: Intel HD Graphics (connector information please see Rear ports section)</p> <p>Some: NVIDIA® Quadro® 600, PCIe x16 adapter, 1GB, one DisplayPort™, one dual-link DVI-I, 40W</p>	
Media reader	Media: 29-in-1 Media card reader, slim, internal USB 2.0	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Hard drive(s)	<p>250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5"</p> <p>150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5"</p> <p>128GB/180GB/256GB SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"</p>	
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID only work on models with 2nd disk bay)	
Onboard SAS	None	
Chipset	Intel C216 Chipset	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i3-2120/2130, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable	
IEEE 1394 adptr	No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear	
Audio Speaker	High Definition (HD) Audio, Realtek® ALC662 codec	
Ethernet	Internal speaker for business audio	
Security chip	One onboard gigabit ethernet, Intel 82579	
Keyboard	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant	
Mouse	Optical mouse	
Vertical Stand	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Power supply	Optical Wheel Mouse (USB connector), black Some: Vertical stand with retractable tongue for vertical orientation	
Limited Warranty	240 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified	
	3-year parts and labor	
	<p>Intel AMT</p> <p>Intel AMT supported on model(s) with Xeon processor</p> <p>Preloaded operating system²⁰</p> <ul style="list-style-type: none"> • Windows® 7 Professional 64 <p>Preloaded applications⁵ (only some listed)</p> <ul style="list-style-type: none"> • Rescue and Recovery® • Norton® Internet Security (30 days of virus definitions) • Adobe® Reader® • Microsoft® Office 2013 preloaded; purchase product key to activate • Corel® WinDVD® (DVD±RW model(s)) • Ulead® DVD MovieFactory® (DVD±RW model(s)) <p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • Serial port I/O control • USB port disablement (front or all/individual) • Chassis intrusion switch available on selected model(s) <p>ISV certifications</p> <p>Please visit www.lenovo.com/support/ISV</p> <p>GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant</p>	

See footnotes for important warranty information
 EMEA model(s) announced May 15, 2012

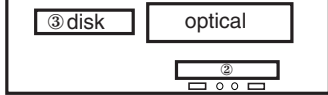
Type-model	Processor	Memory (MHz/ECC)	Memory Pre-conf DIMMs	RAID	Hard drive(s)	Media reader	SATA optical	2nd Disk bay	Graphics adapter(s)	1394 adptr	Global	Chassis intrusion switch	PS/2 rear I/O	Vertical stand	Win7 preload
3695-A3G	Core i5-3450	1600MHz Non-ECC	2x2GB	No	1x1TB SATA	Media DVD±RW		No	Intel HD 2500	No	No	No	No	No	Pro 64
3695-A4G	Core i5-3550	1600MHz Non-ECC	2x2GB	No	1x1TB SATA	Media DVD±RW		No	Intel HD 2500	No	No	No	No	No	Pro 64
3695-A5G	Core i5-3550	1600MHz Non-ECC	2x2GB	No	1x256GB SSD	Media DVD±RW		No	Intel HD 2500	No	No	No	No	No	Pro 64
3695-A6G	Core i7-3770	1600MHz Non-ECC	2x2GB	No	1x256GB SSD	Media DVD±RW		No	Intel HD 4000	No	No	No	No	No	Pro 64
3695-A7G	Core i7-3770	1600MHz Non-ECC	2x2GB	No	1x1TB SATA	Media DVD±RW		No	Intel HD 4000	No	No	No	No	No	Pro 64

Processor	<p>Intel® Core™ i5-3450 processor (4C/4T, 3.1GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.5GHz), DDR3 memory controller (up to 1600MHz)</p> <p>Intel Core i5-3550 processor (4C/4T, 3.3GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz)</p> <p>Intel Core i7-3770 processor (4C/8T, 3.4GHz, 8MB Cache), integrated Intel HD Graphics 4000, Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz)</p> <p>One LGA1155 socket</p>	<p>Small Desktop</p> <ul style="list-style-type: none"> • Raven black color; metal case • 13.35"W x 15.0"D x 3.93"H • 339mm W x 381.1mm D x 99.7mm H • 16.53 lb (7.5kg) max configuration • 11-liter • Toolless top cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Recessed power button <p>Bay 1: 5.25", 1.6" high, access, for optical/2nd disk Bay 2: 3.5", 0.5" high, access, for media reader Bay 3: 3.5", 1" high, internal, for disk</p> <p>Slot 1: Low Profile, PCIe* x16 (45w max, near CPU) * PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon/Core i5/Core i7 models</p> <p>Slot 2: Low Profile, PCIe 2.0 x1 Slot 3: Low Profile, 32-bit PCI 2.3 Slot 4: Low Profile, 32-bit PCI 2.3</p> <p>Intel AMT Intel AMT supported on model(s) with Xeon processor</p> <p>Preloaded operating system²⁰</p> <ul style="list-style-type: none"> • Windows® 7 Professional 64 • Preloaded applications⁵ (only some listed) • Rescue and Recovery® • Norton® Internet Security (30 days of virus definitions) • Adobe® Reader® • Microsoft® Office 2013 preloaded; purchase product key to activate • Core!® WinDVD® (DVD±RW model(s)) • Ulead® DVD MovieFactory® (DVD±RW model(s)) <p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • Serial port I/O control • USB port disablement (front or all/individual) • Chassis intrusion switch available on selected model(s) <p>ISV certifications Please visit www.lenovo.com/support/ISV</p> <p>GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant</p>
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs • Mixing of ECC and non-ECC memory is not supported 	
Graphics	<p>Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display;</p> <p>Xeon E3-1225V2/1245V2/1275V2: Intel HD Graphics P4000 Core i7-3770: Intel HD Graphics 4000 Core i3-3450/3470/3550: Intel HD Graphics 2500 Core i3-2120/2130: Intel HD Graphics 2000 Pentium/Celeron: Intel HD Graphics (connector information please see Rear ports section)</p>	
Media reader	Media: 29-in-1 Media card reader, slim, internal USB 2.0	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Hard drive(s)	<p>250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5"</p> <p>150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5"</p> <p>128GB/180GB/256GB SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"</p>	
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID only work on models with 2nd disk bay)	
Onboard SAS	None	
Chipset	Intel C216 Chipset	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i7-3770, Core i5-3450/3550, Core i3-2120/2130, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable	
IEEE 1394 adptr	No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear	
Audio	High Definition (HD) Audio, Realtek® ALC662 codec	
Speaker	Internal speaker for business audio	
Ethernet	One onboard gigabit ethernet, Intel 82579	
Security chip	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Vertical Stand	Some: Vertical stand with retractable tongue for vertical orientation	
Power supply	240 watts with variable speed fan, autosenensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified	
Limited Warranty	3-year parts and labor	

ThinkStation® E31 SFF (3695) - TopSeller (July 2012)

Personal Systems Reference (PSREF)

Type-model	Processor	Memory (MHz/ECC)	Memory DIMMs	Pre-conf RAID	Disk(s)	Media reader	SATA optical	2nd Disk bay	Graphics adapter(s)	1394 adptr	Global	Chassis intrusion switch	PS/2 rear I/O	Vertical stand	Win7 preload
3695-L9G	Core i3-2130	1600MHz ECC	1x2GB	No	1x500GB SATA	Media	DVD±RW	No	Intel HD 2000	No	No	Switch	No	Stand	Pro 64
3695-M1G	Core i3-2130	1600MHz ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	No	Intel HD 2000	No	No	Switch	No	Stand	Pro 64
3695-M2G	Core i3-2130	1600MHz ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	No	NVS 300	No	No	Switch	No	Stand	Pro 64
3695-M3G	Core i3-2120	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	No	Intel HD 2000	No	No	Switch	No	Stand	Pro 64
3695-M4G	Core i3-2120	1600MHz ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	No	Quadro 400	No	No	Switch	No	Stand	Pro 64

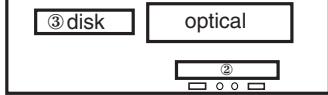
Processor	Intel® Core™ i3-2120 processor (2C/4T, 3.3GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) Intel Core i3-2130 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz)	Small Desktop  <ul style="list-style-type: none"> Raven black color; metal case 13.35"W x 15.0"D x 3.93"H 339mm W x 381.1mm D x 99.7mm H 16.53 lb (7.5kg) max configuration 11-liter Toolless top cover removal Toolless disk and optical drive removal Toolless adapter retention Recessed power button
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;	<p>Bay 1: 5.25", 1.6" high, access, for optical/2nd disk</p> <p>Bay 2: 3.5", 0.5" high, access, for media reader</p> <p>Bay 3: 3.5", 1" high, internal, for disk</p>
Additional memory disclaimers	<ul style="list-style-type: none"> Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs Mixing of ECC and non-ECC memory is not supported 	
Graphics	<p><i>Some:</i> Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display;</p> <p><i>Xeon E3-1225V2/1245V2/1275V2:</i> Intel HD Graphics P4000</p> <p><i>Core i7-3770:</i> Intel HD Graphics 4000</p> <p><i>Core i5-3450/3470/3550:</i> Intel HD Graphics 2500</p> <p><i>Core i3-2120/2130:</i> Intel HD Graphics 2000</p> <p><i>Pentium/Celeron:</i> Intel HD Graphics</p> <p>(connector information please see Rear ports section)</p> <p><i>Some:</i> NVIDIA® Quadro® NVS 300, PCIe x16 adapter, 512MB, DMS59 to dual single-link DVI-I, 17.5W</p> <p><i>Some:</i> NVIDIA Quadro 400, PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 32W</p>	<p>Slot 1: Low Profile, PCIe* x16 (45w max, near CPU)</p> <p>* PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon models</p> <p>Slot 2: Low Profile, PCIe 2.0 x1</p> <p>Slot 3: Low Profile, 32-bit PCI 2.3</p> <p>Slot 4: Low Profile, 32-bit PCI 2.3</p>
Media reader	<i>Media:</i> 29-in-1 Media card reader, slim, internal USB 2.0	<p>Intel AMT supported on model(s) with Xeon processor</p> <p>Preloaded operating system²⁰</p> <ul style="list-style-type: none"> Windows® 7 Professional 64 <p>Preloaded applications⁵ (only some listed)</p> <ul style="list-style-type: none"> Rescue and Recovery® Norton® Internet Security (30 days of virus definitions) Adobe® Reader® Microsoft® Office 2013 preloaded; purchase product key to activate Corel® WinDVD® (DVD±RW model(s)) Ulead® DVD MovieFactory® (DVD±RW model(s)) <p>SECURITY</p> <ul style="list-style-type: none"> Security chip (see information on left) Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) Power-on password Administrator password Boot sequence control Boot without keyboard, mouse Serial port I/O control USB port disablement (front or all/individual) Chassis intrusion switch available on selected model(s) <p>ISV certifications</p> <p>Please visit www.lenovo.com/support/ISV</p> <p>GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant</p>
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Disk(s)	<p><i>250GB/500GB/1TB/2TB/3TB SATA:</i> SATA 6.0Gb/s, 7200 rpm, 3.5"</p> <p><i>150GB/300GB/600GB SATA:</i> SATA 6.0Gb/s, 10000 rpm, 2.5"</p> <p><i>128GB/180GB/256GB SSD:</i> Solid State Drive, SATA 6.0Gb/s, 2.5"</p>	
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID only work on models with 2nd disk bay)	
Onboard SAS	None	
Chipset	Intel C216 Chipset	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i7-3770, Core i5-3450/3550, Core i3-2120/2130, Pentium, and Celeron processors)	
IEEE 1394 adptr	No onboard 1394 ports; <i>1394 models:</i> additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear	
Audio	High Definition (HD) Audio, Realtek® ALC662 codec	
Speaker	Internal speaker for business audio	
Ethernet	Onboard gigabit ethernet, Intel 82579	
Security chip	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Vertical Stand	<i>Some:</i> Vertical stand with retractable tongue for vertical orientation	
Power supply	240 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified	
Limited Warranty	3-year parts and labor	

See footnotes for important warranty information
EMEA model(s) announced July 17, 2012

ThinkStation® E31 SFF (3695) - TopSeller (August 2012)

Personal Systems Reference (PSREF)

Type-model	Processor	Memory (MHz/ECC)	Memory DIMMs	Pre-conf RAID	Disk(s)	Media reader	SATA optical	2nd Disk bay	Graphics adapter(s)	1394 adptr	Global	Chassis intrusion switch	PS/2 rear I/O	Vertical stand	Win7 preload
3695-A9G	Xeon E3-1230V2	1600MHz ECC	2x2GB	No	1x1TB SATA	Media DVD±RW	DVD±RW	No	Quadro 410	No	No	Switch	No	Stand	Pro 64
3695-N2G	Core i5-3470	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media DVD±RW	DVD±RW	No	Intel HD 2500	No	No		No	Stand	Pro 64
3695-N3G	Xeon E3-1230V2	1600MHz ECC	1x4GB	No	1x500GB SATA	Media DVD±RW	DVD±RW	No		No	No		No	Stand	Pro 64

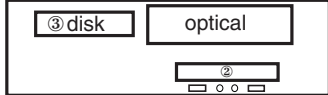
Processor	Intel® Core™ i5-3470 processor (4C/4T, 3.2GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.6GHz), DDR3 memory controller (up to 1600MHz) Intel Xeon® E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz)	Small Desktop  <ul style="list-style-type: none"> • Raven black color; metal case • 13.35"W x 15.0"D x 3.93"H • 339mm W x 381.1mm D x 99.7mm H • 16.53 lb (7.5kg) max configuration • 11-liter • Toolless top cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Recessed power button
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;	<p>Bay 1: 5.25", 1.6" high, access, for optical/2nd disk</p> <p>Bay 2: 3.5", 0.5" high, access, for media reader</p> <p>Bay 3: 3.5", 1" high, internal, for disk</p> <p>Slot 1: Low Profile, PCIe* x16 (45w max, near CPU) * PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon/Core i5/Core i7 models</p> <p>Slot 2: Low Profile, PCIe 2.0 x1</p> <p>Slot 3: Low Profile, 32-bit PCI 2.3</p> <p>Slot 4: Low Profile, 32-bit PCI 2.3</p>
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs • Mixing of ECC and non-ECC memory is not supported 	
Graphics	<i>Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display;</i> <i>Xeon E3-1225V2/1245V2/1275V2:</i> Intel HD Graphics P4000 <i>Core i7-3770:</i> Intel HD Graphics 4000 <i>Core i5-3450/3470/3550:</i> Intel HD Graphics 2500 <i>Core i3-2120/2130:</i> Intel HD Graphics 2000 <i>Pentium/Celeron:</i> Intel HD Graphics <i>(connector information please see Rear ports section)</i> <i>Some: NVIDIA® Quadro® 410, PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 38W</i>	
Media reader	<i>Media:</i> 29-in-1 Media card reader, slim, internal USB 2.0	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Disk(s)	<i>250GB/500GB/1TB/2TB/3TB SATA:</i> SATA 6.0Gb/s, 7200 rpm, 3.5" <i>150GB/300GB/600GB SATA:</i> SATA 6.0Gb/s, 10000 rpm, 2.5" <i>128GB/180GB/256GB SSD:</i> Solid State Drive, SATA 6.0Gb/s, 2.5"	
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID only work on models with 2nd disk bay)	
Onboard SAS	None	
Chipset	Intel C216 Chipset	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i7-3770, Core i5-3450/3550, Core i3-2120/2130, Pentium, and Celeron processors) <i>PS/2 models:</i> additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable	
IEEE 1394 adptr	No onboard 1394 ports; <i>1394 models:</i> additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear	
Audio	High Definition (HD) Audio, Realtek® ALC662 codec	
Speaker	Internal speaker for business audio	
Ethernet	One onboard gigabit ethernet, Intel 82579	
Security chip	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Vertical Stand	<i>Some:</i> Vertical stand with retractable tongue for vertical orientation	
Power supply	240 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified	
Limited Warranty	3-year parts and labor	
		<p align="center">Intel AMT</p> <p>Intel AMT supported on model(s) with Xeon processor</p> <p align="center">Preloaded operating system²⁰</p> <ul style="list-style-type: none"> • Windows® 7 Professional 64 <p align="center">Preloaded applications⁵ (only some listed)</p> <ul style="list-style-type: none"> • Rescue and Recovery® • Norton® Internet Security (30 days of virus definitions) • Adobe® Reader® • Microsoft® Office 2013 preloaded; purchase product key to activate • Corel® WinDVD® (DVD±RW model(s)) • Ulead® DVD MovieFactory® (DVD±RW model(s)) <p align="center">SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • Serial port I/O control • USB port disablement (front or all/individual) • Chassis intrusion switch available on selected model(s) <p align="center">ISV certifications</p> <p>Please visit www.lenovo.com/support/ISV</p> <p>GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant</p>

See footnotes for important warranty information
EMEA model(s) announced August 7 or August 14, 2012

ThinkStation® E31 SFF (3695) - TopSeller (September 2012)

Personal Systems Reference (PSREF)

Type-model	Processor	Memory (MHz/ECC)	Memory Pre-conf DIMMs	RAID	Disk(s)	Media reader	SATA optical	2nd Disk bay	Graphics adapter(s)	1394 adptr	Global	Chassis intrusion switch	PS/2 rear I/O	Vertical stand	Win7 preload
3695-NQG	Core i3-3220	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media DVD±RW	DVD±RW	No	Intel HD 2500	No	No	No	No	Stand	Pro 64
3695-NRG	Core i3-3220	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media DVD±RW	DVD±RW	No	NVS 310	No	No	No	No	Stand	Pro 64
3695-NSG	Core i3-3240	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media DVD±RW	DVD±RW	No	Quadro 410	No	No	No	No	Stand	Pro 64
3695-NTG	Core i3-3240	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media DVD±RW	DVD±RW	No	Intel HD 2500	No	No	No	No	Stand	Pro 64

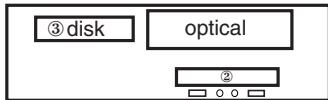
Processor	Intel® Core™ i3-3220 processor (2C/4T, 3.3GHz, 3MB Cache), integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz) Intel Core i3-3240 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz) One LGA1155 socket	Small Desktop  <ul style="list-style-type: none"> • Raven black color; metal case • 13.35"W x 15.0"D x 3.93"H • 339mm W x 381.1mm D x 99.7mm H • 16.53 lb (7.5kg) max configuration • 11-liter • Toolless top cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Recessed power button
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;	<ul style="list-style-type: none"> • Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs • Mixing of ECC and non-ECC memory is not supported
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs • Mixing of ECC and non-ECC memory is not supported 	
Graphics	<i>Some:</i> Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; <i>Xeon E3-1225V2/1245V2/1275V2:</i> Intel HD Graphics P4000 <i>Core i7-3770:</i> Intel HD Graphics 4000 <i>Core i5-3450/3470/3550:</i> Intel HD Graphics 2500 <i>Core i3-3220/3240:</i> Intel HD Graphics 2500 <i>Core i3-2120/2130:</i> Intel HD Graphics 2000 <i>Pentium/Celeron:</i> Intel HD Graphics <i>(connector information please see Rear ports section)</i> <i>Some:</i> NVIDIA® Quadro® 410, PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 38W <i>Some:</i> NVIDIA Quadro NVS 310, PCIe x16 adapter, 512MB, DMS59 to dual DisplayPort, 19.5W	<ul style="list-style-type: none"> • Raven black color; metal case • 13.35"W x 15.0"D x 3.93"H • 339mm W x 381.1mm D x 99.7mm H • 16.53 lb (7.5kg) max configuration • 11-liter • Toolless top cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Recessed power button
Media reader	<i>Media:</i> 29-in-1 Media card reader, slim, internal USB 2.0 Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	Bay 1: 5.25", 1.6" high, access, for optical/2nd disk Bay 2: 3.5", 0.5" high, access, for media reader Bay 3: 3.5", 1" high, internal, for disk
Disk(s)	<i>250GB/500GB/1TB/2TB/3TB SATA:</i> SATA 6.0Gb/s, 7200 rpm, 3.5" <i>150GB/300GB/600GB SATA:</i> SATA 6.0Gb/s, 10000 rpm, 2.5" <i>128GB/180GB/256GB SSD:</i> Solid State Drive, SATA 6.0Gb/s, 2.5"	
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID only work on models with 2nd disk bay)	Slot 1: Low Profile, PCIe* x16 (45w max, near CPU) <i>* PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon models</i> Slot 2: Low Profile, PCIe 2.0 x1 Slot 3: Low Profile, 32-bit PCI 2.3 Slot 4: Low Profile, 32-bit PCI 2.3
Onboard SAS	None	
Chipset	Intel C216 Chipset	Intel AMT Intel AMT supported on model(s) with Xeon processor
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i7-3770, Core i5-3450/3550, Core i3-2120/2130, Pentium, and Celeron processors) <i>PS/2 models:</i> additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable	Preloaded operating system²⁰ <ul style="list-style-type: none"> • Windows® 7 Professional 64 Preloaded applications⁵ (only some listed) <ul style="list-style-type: none"> • Rescue and Recovery® • Norton® Internet Security (30 days of virus definitions) • Adobe® Reader® • Microsoft® Office 2013 preloaded; purchase product key to activate • Corel® WinDVD® (DVD±RW model(s)) • Ulead® DVD MovieFactory® (DVD±RW model(s))
IEEE 1394 adptr	No onboard 1394 ports; <i>1394 models:</i> additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear	
Audio	High Definition (HD) Audio, Realtek® ALC662 codec	SECURITY <ul style="list-style-type: none"> • Security chip (see information on left) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • Serial port I/O control • USB port disablement (front or all/individual) • Chassis intrusion switch available on selected model(s)
Speaker	Internal speaker for business audio	
Ethernet	One onboard gigabit ethernet, Intel 82579	ISV certifications Please visit www.lenovo.com/support/ISV
Security chip	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant
Mouse	Optical Wheel Mouse (USB connector), black	
Vertical Stand	<i>Some:</i> Vertical stand with retractable tongue for vertical orientation	Limited Warranty 3-year parts and labor
Power supply	240 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified	

See footnotes for important warranty information
EMEA model(s) announced September 18, 2012

ThinkStation® E31 SFF (3695) - TopSeller (November 2012)

Personal Systems Reference (PSREF)

Type-model	Processor	Memory (MHz/ECC)	Memory Pre-conf DIMMs	RAID	Disk(s)	Media reader	SATA optical	2nd Disk bay	Graphics adapter(s)	1394 adptr	Global	Chassis intrusion switch	PS/2 rear I/O	Vertical stand	Preload OS
3695-PCG	Core i3-3220	1600MHz ECC	1x4GB	No	1x500GB SATA	Media DVD±RW	No	No	Intel HD 2500	No	No	No	No	Stand	Win8 Pro64
3695-PDG	Core i3-3220	1600MHz ECC	1x4GB	No	1x500GB SATA	Media DVD±RW	No	No	NVS 310	No	No	No	No	Stand	Win8 Pro64
3695-PEG	Core i3-3240	1600MHz ECC	1x4GB	No	1x500GB SATA	Media DVD±RW	No	No	Quadro 410	No	No	No	No	Stand	Win8 Pro64
3695-PFG	Core i3-3240	1600MHz ECC	1x4GB	No	1x500GB SATA	Media DVD±RW	No	No	Intel HD 2500	No	No	No	No	Stand	Win8 Pro64

Processor	Intel® Core™ i3-3220 processor (2C/4T, 3.3GHz, 3MB Cache), integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz) Intel Core i3-3240 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz) One LGA1155 socket	Small Desktop  <ul style="list-style-type: none"> • Raven black color; metal case • 13.35"W x 15.0"D x 3.93"H • 339mm W x 381.1mm D x 99.7mm H • 16.53 lb (7.5kg) max configuration • 11-liter • Toolless top cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Recessed power button <p>Bay 1: 5.25", 1.6" high, access, for optical/2nd disk Bay 2: 3.5", 0.5" high, access, for media reader Bay 3: 3.5", 1" high, internal, for disk</p> <p>Slot 1: Low Profile, PCIe* x16 (45w max, near CPU) * PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon models Slot 2: Low Profile, PCIe 2.0 x1 Slot 3: Low Profile, 32-bit PCI 2.3 Slot 4: Low Profile, 32-bit PCI 2.3</p>
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs • Mixing of ECC and non-ECC memory is not supported 	
Graphics	Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; <i>Xeon E3-1225V2/1245V2/1275V2:</i> Intel HD Graphics P4000 <i>Core i7-3770:</i> Intel HD Graphics 4000 <i>Core i5-3450/3470/3550:</i> Intel HD Graphics 2500 <i>Core i3-3220/3240:</i> Intel HD Graphics 2500 <i>Core i3-2120/2130:</i> Intel HD Graphics 2000 Pentium/Celeron: Intel HD Graphics (connector information please see Rear ports section) Some: NVIDIA® Quadro® NVS 310, PCIe x16 adapter, 512MB, DMS59 to dual DisplayPort™, 19.5W Some: NVIDIA Quadro 410, PCIe x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 38W	
Media reader	<i>Media:</i> 29-in-1 Media card reader, slim, internal USB 2.0	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Disk(s)	250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5" 150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5" 128GB/180GB/256GB SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"	
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID only work on models with 2nd disk bay)	
Onboard SAS	None	
Chipset	Intel C216 Chipset	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i7-3770, Core i5-3450/3550, Core i3-2120/2130/3220/3240, Pentium, and Celeron processors) <i>PS/2 models:</i> additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable	
IEEE 1394 adptr	No onboard 1394 ports; <i>1394 models:</i> additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear	
Audio	High Definition (HD) Audio, Realtek® ALC662 codec	
Speaker	Internal speaker for business audio	
Ethernet	One onboard gigabit ethernet, Intel 82579	
Security chip	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Vertical Stand	Some: Vertical stand with retractable tongue for vertical orientation	
Power supply	240 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified	
Limited Warranty	3-year parts and labor	
Eco-Label and environmental certifications	GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant	
ISV certifications	See the latest list of ISV certifications at www.lenovo.com/support/ISV	
		<p align="center">Intel AMT</p> <p>Intel AMT supported on model(s) with Xeon processor</p> <p align="center">Preloaded operating system²⁰</p> <p>Some: Windows® 7 Professional 64 Some: Windows 8 Pro 64-bit</p> <p align="center">Preloaded applications⁵ (only some listed)</p> <p>-Windows 7 models</p> <ul style="list-style-type: none"> • Rescue and Recovery® • Norton™ Internet Security (30 days of virus definitions) • Adobe® Reader® • Microsoft® Office 2013 preloaded; purchase product key to activate • Core!® WinDVD® (DVD±RW model(s)) • Ulead® DVD MovieFactory® (DVD±RW model(s)) <p>-Windows 8 models</p> <ul style="list-style-type: none"> • Intel AppUp® • Evernote® • Norton Internet Security (30 days of virus definitions) • Norton Studio • Skype™ • Microsoft Office 2013 preloaded; purchase product key to activate • Cyberlink Power2Go (DVD±RW model(s)) • Cyberlink PowerProducer (DVD±RW model(s)) <p align="center">SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • Serial port I/O control • USB port disablement (front or all/individual) • Chassis intrusion switch available on selected model(s)

See footnotes for important warranty information
 EMEA model(s) announced November 27, 2012

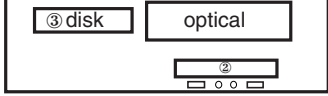
ThinkStation® E31 SFF (3695) - TopSeller (March 2013)

Personal Systems Reference (PSREF)

Type-model ¹	Processor	Memory (MHz/ECC)	Memory DIMMs	Pre-conf RAID	SATA drive(s)	2nd drive bay	Media reader	SATA optical	Graphics adapter(s)	1394 adptr	Chassis intrusion switch	Vertical stand	Preload OS ²
3695-R9G	Xeon E3-1245V2	1600MHz Non-ECC	2x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Intel HD P4000	No	Switch	Stand	Win7 Pro64
3695-RAG	Xeon E3-1245V2	1600MHz Non-ECC	2x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Intel HD P4000	No	Switch	Stand	Win7 Pro64(DG)
3695-RBG	Xeon E3-1245V2	1600MHz Non-ECC	2x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Quadro K600	No	Switch	Stand	Win7 Pro64(DG)
3695-RCG	Xeon E3-1245V2	1600MHz Non-ECC	2x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Quadro 600	No	Switch	Stand	Win7 Pro64
3695-RDG	Core i3-3210	1600MHz Non-ECC	2x2GB	No	1x500GB 3.5"	No	Media	DVD±RW	Intel HD 2500	No	Switch	Stand	Win7 Pro64
3695-REG	Core i3-3210	1600MHz Non-ECC	2x2GB	No	1x500GB 3.5"	No	Media	DVD±RW	Intel HD 2500	No	Switch	Stand	Win7 Pro64(DG)

¹ Model in italics shows that this is a Global Model

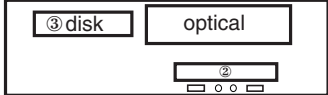
² Win7 Pro64(DG) = Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit

Processor	Intel® Core™ i3-3210 processor (2C/4T, 3.2GHz, 3MB Cache) , integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz) Intel Xeon® E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)	
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC , four 240-pin DIMM sockets;	<p>Small Desktop</p> <ul style="list-style-type: none"> • Raven black color; metal case • 13.35"W x 15.0"D x 3.93"H • 339mm W x 381.1mm D x 99.7mm H • 16.53 lb (7.5kg) max configuration • 11-liter • Toolless top cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Recessed power button <p>Bay 1: 5.25", 1.6" high, access, for optical/2nd disk Bay 2: 3.5", 0.5" high, access, for media reader Bay 3: 3.5", 1" high, internal, for disk</p> <p>Slot 1: Low Profile, PCIe* x16 (45w max, near CPU) * PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon models Slot 2: Low Profile, PCIe 2.0 x1 Slot 3: Low Profile, 32-bit PCI 2.3 Slot 4: Low Profile, 32-bit PCI 2.3</p> <p>Preloaded operating system²⁰ Some: Windows® 7 Professional 64 Some: Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit Some: Windows 8 Pro 64-bit</p> <p>Preloaded applications⁵ (only some listed)</p> <p>-Windows 7 models</p> <ul style="list-style-type: none"> • Rescue and Recovery® • Norton™ Internet Security (30 days of virus definitions) • Adobe® Reader® • Microsoft® Office 2013 preloaded; purchase product key to activate • Corel® WinDVD® (DVD±RW model(s)) • Ulead® DVD MovieFactory® (DVD±RW model(s)) <p>-Windows 8 models</p> <ul style="list-style-type: none"> • Evernote® • Norton Internet Security (30 days of virus definitions) • Norton Studio • Skype™ • Microsoft Office 2013 preloaded; purchase product key to activate • Cyberlink Power2Go (DVD±RW model(s)) • Cyberlink PowerProducer (DVD±RW model(s)) <p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • Serial port I/O control • USB port disablement (front or all/individual) • Chassis intrusion switch available on selected model(s)
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs • Mixing of ECC and non-ECC memory is not supported 	
Graphics	Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; (detailed graphics model name please see Processor section, connector information please see Rear ports section) Some: NVIDIA® Quadro® 600 , PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 40W Some: NVIDIA Quadro K600 , PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W	
Media reader	Media: 29-in-1 Media card reader, slim, internal USB 2.0	
Optical	DVD, slim DVD, DVD±RW, slim DVD±RW, or Blu-ray, depending on model	
SATA drive(s)	3.5": SATA 6.0Gb/s, 7200 rpm, 3.5" 2.5": SATA 6.0Gb/s, 10000 rpm, 2.5" SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"	
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID can work on models with 2nd drive bay only)	
Onboard SAS	None	
Chipset	Intel C216 Chipset	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors)	
IEEE 1394 adptr	No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear	
Audio	High Definition (HD) Audio, Realtek® ALC662 codec	
Speaker	Internal speaker for business audio	
Ethernet	One onboard gigabit ethernet, Intel 82579	
Security chip	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Vertical Stand	Some: Vertical stand with retractable tongue for vertical orientation	
Power supply	240 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified	
Limited Warranty	3-year parts and labor	
Eco-Label and environmental certifications	GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant	
ISV certifications	See the latest list of ISV certifications at www.lenovo.com/support/ISV	
Intel AMT	Intel AMT supported on model(s) with Xeon processor	

See footnotes for important warranty information
 EMEA model(s) announced March 19, 2013

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 (G-ROC7-1) March 2013

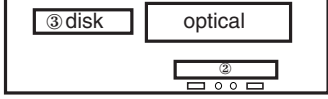
Type-model	Processor	Memory (MHz/ECC)	Memory DIMMS	Pre-conf RAID	Hard drive(s)	Media reader	SATA optical	2nd Disk bay	Graphics adapter(s)	1394 adptr	Global	Chassis intrusion switch	PS/2 rear I/O	Vertical stand	Win7 preload
3690-A8G	Xeon E3-1245V2	1600MHz ECC	2x2GB	No	1x2TB SATA	Media	DVD±RW	No	Quadro 600	No	No	No	No	No	Pro 64
3690-A9G	Xeon E3-1280V2	1600MHz ECC	2x2GB	No	1x2TB SATA	Media	DVD±RW	No	Quadro 600	No	No	No	No	No	Pro 64
3690-B1G	Xeon E3-1270V2	1600MHz ECC	2x2GB	No	1x1TB SATA	Media	DVD±RW	No	Quadro 600	No	No	No	No	No	Pro 64
3690-B2G	Xeon E3-1270V2	1600MHz ECC	2x2GB	No	1x256GB SSD	Media	DVD±RW	No	Quadro NVS 300	No	No	No	No	No	Pro 64

Processor	<p>Intel® Xeon® E3-1245V2 processor (4C/8T, 3.4GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.8GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)</p> <p>Intel Xeon E3-1270V2 processor (4C/8T, 3.5GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz)</p> <p>Intel Xeon E3-1280V2 processor (4C/8T, 3.6GHz, 8MB Cache), Turbo Boost 2.0 (up to 4.0GHz), DDR3 memory controller (up to 1600MHz)</p> <p>One LGA1155 socket</p>	<p>Small Desktop</p>  <ul style="list-style-type: none"> • Raven black color; metal case • 13.35"W x 15.0"D x 3.93"H • 339mm W x 381.1mm D x 99.7mm H • 16.53 lb (7.5kg) max configuration • 11-liter • Toolless top cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Recessed power button <p>Bay 1: 5.25", 1.6" high, access, for optical/2nd disk Bay 2: 3.5", 0.5" high, access, for media reader Bay 3: 3.5", 1" high, internal, for disk</p> <p>Slot 1: Low Profile, PCIe* x16 (45w max, near CPU) * PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon models Slot 2: Low Profile, PCIe 2.0 x1 Slot 3: Low Profile, 32-bit PCI 2.3 Slot 4: Low Profile, 32-bit PCI 2.3</p>
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMS • Mixing of ECC and non-ECC memory is not supported 	
Graphics	<p>Some: NVIDIA® Quadro® NVS 300, PCIe x16 adapter, 512MB, DMS59 to dual single-link DVI-I, 17.5W</p> <p>Some: NVIDIA Quadro 600, PCIe x16 adapter, 1GB, one DisplayPort™, one dual-link DVI-I, 40W</p>	
Media reader	Media: 29-in-1 Media card reader, slim, internal USB 2.0	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Hard drive(s)	<p>250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5"</p> <p>150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5"</p> <p>128GB/180GB/256GB SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"</p>	
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID only work on models with 2nd disk bay)	
Onboard SAS	None	
Chipset	Intel C216 Chipset	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i3-2120/2130, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable	
IEEE 1394 adptr	No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear	
Audio	High Definition (HD) Audio, Realtek® ALC662 codec	
Speaker	Internal speaker for business audio	
Ethernet	One onboard gigabit ethernet, Intel 82579	
Security chip	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Vertical Stand	Some: Vertical stand with retractable tongue for vertical orientation	
Power supply	240 watts with variable speed fan, autosenesing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified	
Limited Warranty	3-year parts and labor	
		<p>Intel AMT</p> <p>Intel AMT supported on model(s) with Xeon processor</p> <p>Preloaded operating system²⁰</p> <ul style="list-style-type: none"> • Windows® 7 Professional 64 <p>Preloaded applications⁵ (only some listed)</p> <ul style="list-style-type: none"> • Rescue and Recovery® • Norton® Internet Security (30 days of virus definitions) • Adobe® Reader® • Microsoft® Office 2013 preloaded; purchase product key to activate • Corel® WinDVD® (DVD±RW model(s)) • Ulead® DVD MovieFactory® (DVD±RW model(s)) <p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • Serial port I/O control • USB port disablement (front or all/individual) • Chassis intrusion switch available on selected model(s) <p>ISV certifications</p> <p>Please visit www.lenovo.com/support/ISV</p> <p>GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant</p>

See footnotes for important warranty information
 EMEA model(s) announced May 15, 2012

Type-model	Processor	Memory (MHz/ECC)	Memory DIMMs	Pre-conf RAID	Hard drive(s)	Media reader	SATA optical	2nd Disk bay	Graphics adapter(s)	1394 adptr	Global	Chassis intrusion switch	PS/2 rear I/O	Preload OS
3690-Q2G	Xeon E3-1270V2	1600MHz Non-ECC	2x4GB	No	1x180GB SSD	Media	DVD±RW	No	Quadro 410	No	No	Switch	No	Win7 Pro64(DG)
3690-Q3G	Xeon E3-1270V2	1600MHz Non-ECC	2x4GB	No	1x180GB SSD	Media	DVD±RW	No	Quadro 600	No	No	Switch	No	Win7 Pro64

* Win7 Pro64(DG) = Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit

Processor	Intel® Xeon® E3-1270V2 processor (4C/8T, 3.5GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz) One LGA1155 socket	Small Desktop  <ul style="list-style-type: none"> • Raven black color; metal case • 13.35"W x 15.0"D x 3.93"H • 339mm W x 381.1mm D x 99.7mm H • 16.53 lb (7.5kg) max configuration • 11-liter • Toolless top cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Recessed power button <p>Bay 1: 5.25", 1.6" high, access, for optical/2nd disk Bay 2: 3.5", 0.5" high, access, for media reader Bay 3: 3.5", 1" high, internal, for disk</p> <p>Slot 1: Low Profile, PCIe* x16 (45w max, near CPU) * PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon models Slot 2: Low Profile, PCIe 2.0 x1 Slot 3: Low Profile, 32-bit PCI 2.3 Slot 4: Low Profile, 32-bit PCI 2.3</p>
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs • Mixing of ECC and non-ECC memory is not supported 	
Graphics	Some: NVIDIA® Quadro® 410, PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 38W Some: NVIDIA Quadro 600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 40W	
Media reader	Media: 29-in-1 Media card reader, slim, internal USB 2.0 Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Optical	250GB/500GB/1TB/2TB/3TB SATA: SATA 6.0Gb/s, 7200 rpm, 3.5"	
Hard drive(s)	150GB/300GB/600GB SATA: SATA 6.0Gb/s, 10000 rpm, 2.5" 128GB/180GB/256GB SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"	
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID only work on models with 2nd disk bay)	
Onboard SAS	None	
Chipset	Intel C216 Chipset	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i3-2120/2130, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable	
IEEE 1394 adptr	No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear	
Audio	High Definition (HD) Audio, Realtek® ALC662 codec	
Speaker	Internal speaker for business audio	
Ethernet	One onboard gigabit ethernet, Intel 82579	
Security chip	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Vertical Stand	Vertical stand with retractable tongue for vertical orientation	
Power supply	240 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified	
Limited Warranty	3-year parts and labor	
Eco-Label and environmental certifications	GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant	
ISV certifications	See the latest list of ISV certifications at www.lenovo.com/support/ISV	
		<p>Intel AMT Intel AMT supported on model(s) with Xeon processor</p> <p>Preloaded operating system²⁰ Some: Windows® 7 Professional 64 Some: Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit Some: Windows 8 Pro 64-bit</p> <p>Preloaded applications⁵ (only some listed)</p> <p>-Windows 7 models</p> <ul style="list-style-type: none"> • Rescue and Recovery® • Norton™ Internet Security (30 days of virus definitions) • Adobe® Reader® • Microsoft® Office 2013 preloaded; purchase product key to activate • Corel® WinDVD® (DVD±RW model(s)) • Ulead® DVD MovieFactory® (DVD±RW model(s)) <p>-Windows 8 models</p> <ul style="list-style-type: none"> • Intel AppUp® • Evernote® • Norton Internet Security (30 days of virus definitions) • Norton Studio • Skype™ • Microsoft Office 2013 preloaded; purchase product key to activate • Cyberlink Power2Go (DVD±RW model(s)) • Cyberlink PowerProducer (DVD±RW model(s)) <p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • Serial port I/O control • USB port disablement (front or all/individual) • Chassis intrusion switch available on selected model(s)

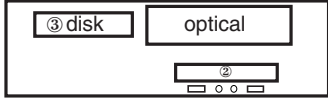
ThinkStation® E31 SFF (3691) - GMP (February 2013)

Personal Systems Reference (PSREF)

Type-model	Processor	Memory (MHz/ECC)	Memory DIMMs	Pre-conf RAID	Hard drive(s)	Media reader	SATA optical	2nd Disk bay	Graphics adapter(s)	1394 adptr	Global	Chassis intrusion switch	PS/2 rear I/O	Preload OS
3691-C4G	Xeon E3-1270V2	1600MHz Non-ECC	2x4GB	No	1x180GB SSD	Media	DVD±RW	No	Quadro 600	No	Global	Switch	No	Win7 Pro64
3691-C5G	Xeon E3-1270V2	1600MHz Non-ECC	2x4GB	No	1x180GB SSD	Media	DVD±RW	No	Quadro 410	No	Global	Switch	No	Win7 Pro64(DG)*

- Part of the Global Models Plus (GMP) program with limited onsite service 3-year limited warranty

* Win7 Pro64(DG) = Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit

Processor	Intel® Xeon® E3-1270V2 processor (4C/8T, 3.5GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz)	Small Desktop  <ul style="list-style-type: none"> • Raven black color; metal case • 13.35"W x 15.0"D x 3.93"H • 339mm W x 381.1mm D x 99.7mm H • 16.53 lb (7.5kg) max configuration • 11-liter • Toolless top cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Recessed power button
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;	<ul style="list-style-type: none"> • Bay 1: 5.25", 1.6" high, access, for optical/2nd disk • Bay 2: 3.5", 0.5" high, access, for media reader • Bay 3: 3.5", 1" high, internal, for disk
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs • Mixing of ECC and non-ECC memory is not supported 	
Graphics	<i>Some:</i> NVIDIA® Quadro® 410 , PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 38W <i>Some:</i> NVIDIA Quadro 600 , PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 40W	<ul style="list-style-type: none"> • Slot 1: Low Profile, PCIe* x16 (45w max, near CPU) • * PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon models • Slot 2: Low Profile, PCIe 2.0 x1 • Slot 3: Low Profile, 32-bit PCI 2.3 • Slot 4: Low Profile, 32-bit PCI 2.3
Media reader	<i>Media:</i> 29-in-1 Media card reader, slim, internal USB 2.0	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	<p align="center">Intel AMT</p> <p>Intel AMT supported on model(s) with Xeon processor</p> <p align="center">Preloaded operating system²⁰</p> <p><i>Some:</i> Windows® 7 Professional 64</p> <p><i>Some:</i> Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit</p> <p><i>Some:</i> Windows 8 Pro 64-bit</p> <p align="center">Preloaded applications⁵ (only some listed)</p> <p>-Windows 7 models</p> <ul style="list-style-type: none"> • Rescue and Recovery® • Norton™ Internet Security (30 days of virus definitions) • Adobe® Reader® • Microsoft® Office 2013 preloaded; purchase product key to activate • Corel® WinDVD® (DVD±RW model(s)) • Ulead® DVD MovieFactory® (DVD±RW model(s)) <p>-Windows 8 models</p> <ul style="list-style-type: none"> • Intel AppUp® • Evernote® • Norton Internet Security (30 days of virus definitions) • Norton Studio • Skype™ • Microsoft Office 2013 preloaded; purchase product key to activate • Cyberlink Power2Go (DVD±RW model(s)) • Cyberlink PowerProducer (DVD±RW model(s)) <p align="center">SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • Serial port I/O control • USB port disablement (front or all/individual) • Chassis intrusion switch available on selected model(s)
Disk(s)	<i>250GB/500GB/1TB/2TB/3TB SATA:</i> SATA 6.0Gb/s, 7200 rpm, 3.5" <i>150GB/300GB/600GB SATA:</i> SATA 6.0Gb/s, 10000 rpm, 2.5" <i>128GB/180GB/256GB SSD:</i> Solid State Drive, SATA 6.0Gb/s, 2.5"	
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID only work on models with 2nd disk bay)	
Onboard SAS	None	
Chipset	Intel C216 Chipset	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort are functional when the following processors are used: Xeon E3-1225V2/1245V2/1275V2, Core i3-2120/2130, Pentium, and Celeron processors) <i>PS/2 models:</i> additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable	
IEEE 1394 adptr	No onboard 1394 ports; <i>1394 models:</i> additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear	
Audio	High Definition (HD) Audio, Realtek® ALC662 codec	
Speaker	Internal speaker for business audio	
Ethernet	One onboard gigabit ethernet, Intel 82579	
Security chip	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Vertical Stand	Vertical stand with retractable tongue for vertical orientation	
Power supply	240 watts with variable speed fan, autosenesing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified	
Limited Warranty	3-year parts and labor	
Eco-Label and environmental certifications	GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant	
ISV certifications	See the latest list of ISV certifications at www.lenovo.com/support/ISV	

See footnotes for important warranty information
 EMEA model(s) announced February 19, 2013

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 (G-ROC3-3) February 2013



Lenovo ThinkStation C20 (left)
Lenovo ThinkStation C20x (right)



Lenovo ThinkStation C20x



Lenovo ThinkStation C20/C20x Stack



Lenovo ThinkStation Graphics Card Option
NVIDIA® Quadro® NVS 450 (57Y4398)



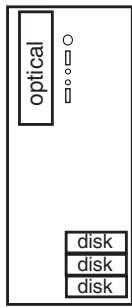
Multi-monitor Display with Optional Lenovo ThinkVision Monitor and Dual NVIDIA Quadro NVS 450
(Both Lenovo ThinkStation C20/C20x)

ThinkStation® C20 (4265) - TopSeller (June 2010) - withdrawn

Personal Systems Reference(PSREF)

Type-model	Slot x bay	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Global	Win7 preload	Ann date (mm/dd/yy)
4265-17G	6x4	2xE5620	2.40	6x1GB UDIMM	1x300GB SATA	No	DVD±RW	No		None	No	No	Pro 64	06/15/10
4265-18G	6x4	1xX5650	2.66	3x2GB UDIMM	1x150GB SATA	No	DVD±RW	No		None	No	No	Pro 64	06/15/10
4265-51G	6x4	1xE5620	2.40	3x2GB RDIMM	1x500GB SATA	No	DVD±RW	No	Switch	None	No	No	Pro 64	06/15/10
4265-52G	6x4	1xE5620	2.40	3x2GB RDIMM	1x150GB SATA	No	DVD±RW	No	Switch	None	No	No	Pro 64	06/15/10
4265-61G	6x4	2xE5620	2.40	2x2GB UDIMM	1x500GB SATA	No	DVD±RW	No		None	No	No	Pro 64	06/15/10

- High performance workstation with smallest-possible form factor
- Environmentally friendly, cool, and quiet with rock solid engineering
- Part of the EMEA TopSeller™ Program
- Microsoft Office 2010 Product Key Ready (O10PKR)

Processor(s)	<p>Intel® Xeon® Processor E5620 with quad-core, 5.86GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 12MB cache</p> <p>Intel Xeon Processor X5650 with six-core, 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache</p>	<p>Tower</p>  <ul style="list-style-type: none"> • Rack-mountable to 3U • Raven black color; metal case • 5.1"W x 17.5"D x 16.8"H • 130mm W x 444mm D x 427mm H • 40.7 lb (18.5kg) max configuration • 24-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support or optional rail kit
Implementation	Two LGA1366 sockets, supports up to two processors	<p>Bay 1: 5.25", 1.6" high, external, std optical</p> <p>Bay 2: 3.5", 1" high, internal, for disk</p> <p>Bay 3: 3.5", 1" high, internal, for disk</p> <p>Bay 4: 3.5", 1" high, internal, for disk</p>
Memory	<p>UDIMM or RDIMM, PC3-10600 1333MHz DDR3, ECC, 48GB max for UDIMM model, 48GB max for RDIMM model, 6-channel capable, six 240-pin DIMM sockets</p> <ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed • Over three DIMMs requires dual processors 	<p>Slot 1: half-length, full-height, PCIe x1</p> <p>Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max)</p> <p>Slot 3: full-length, full-height, 32-bit PCI 2.3</p> <p>Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max)</p> <p>Slot 5: full-length, full-height, PCIe x16 (x4 electrical)</p> <p>Slot 6: half-length, full-height, 32-bit PCI 2.3</p>
Additional memory disclaimers		* Adapters >75W use auxiliary power connector(s) from PSU
Graphics	None	
Media reader	None	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Hard drive(s)	<p>Some: 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"</p> <p>Some: 150GB or 300GB, SATA 3.0Gb/s, 10000 rpm, 2.5"</p>	
Disk Controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, one SATA connector for optical, RAID 0, 1, 5 support	
Chipset	Intel 5520 Chipset , Intel ICH10R, Winbond® W83627DHG-P Super I/O	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Eight USB 2.0, eSATA, one ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in	
IEEE 1394 adptr	None	
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec	
Speaker	Internal speaker for business audio	
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755	
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant	<p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • Chassis intrusion switch on selected model(s)
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Power supply	800 watts with 80mm side-mounted variable speed fan, universal, Climate Savers® Computing Gold, 80 PLUS® Gold qualified	
ThinkVantage®	Supports ThinkVantage technologies	
Preload OS	Genuine Windows® 7 Professional 64	GREENGUARD® certified
Preloaded applications	<ul style="list-style-type: none"> • Rescue and Recovery® • ThinkVantage System Update • ThinkVantage Toolbox • Norton® Internet Security (30 days of virus definitions) • Adobe® Reader® • Adobe Flash® Player • Microsoft® Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW model(s) only) • Roxio MyDVD® (DVD±RW model(s) only) • Corel® WinDVD® (DVD or DVD±RW model(s) only) • Ulead® DVD MovieFactory® (Blu-ray model(s) only) 	<p>RoHS-compliant</p> <p>EPEAT™ Gold rating</p> <p>LIMITED WARRANTY¹</p> <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107

See footnotes for important warranty information
 EMEA model(s) announced June 15, 2010
 EMEA model(s) withdrawn effective October 2012

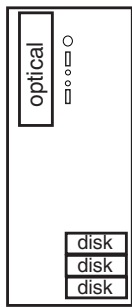
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ThinkStation® C20 (4265) - TopSeller (April 2011) - withdrawn

Personal Systems Reference(PSREF)

Type-model	Slot x bay	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Global	Win7 preload	Ann date (mm/dd/yy)
4265-1JG	6x4	1xE5649	2.53	3x2GB UDIMM	1x1TB SATA	No	DVD±RW	No	None	None	No	No	Pro 64	04/26/11
4265-1KG	6x4	1xE5645	2.40	3x2GB UDIMM	1x1TB SATA	No	DVD±RW	No	None	None	No	No	Pro 64	04/26/11
4265-1LG	6x4	1xE5606	2.13	3x2GB UDIMM	1x1TB SATA	No	DVD±RW	No	None	None	No	No	Pro 64	04/26/11

- High performance workstation with smallest-possible form factor
- Environmentally friendly, cool, and quiet with rock solid engineering
- Part of the EMEA TopSeller™ Program
- Microsoft Office 2010 Product Key Ready (O10PKR)

<p>Processor(s) Intel® Xeon® Processor E5606 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache</p> <p>Implementation Two LGA1366 sockets, supports up to two processors</p> <p>Memory UDIMM or RDIMM, PC3-10600 1333MHz DDR3, ECC, 48GB max for UDIMM model, 48GB max for RDIMM model, 6-channel capable, six 240-pin DIMM sockets</p> <p>Additional memory disclaimers</p> <ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed • Over three DIMMs requires dual processors <p>Graphics None</p> <p>Media reader None</p> <p>Optical Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive</p> <p>Hard drive(s) 1TB, SATA 3.0Gb/s, 7200 rpm, 3.5"</p> <p>Disk Controller Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, one SATA connector for optical, RAID 0, 1, 5 support</p> <p>Chipset Intel 5520 Chipset, Intel ICH10R, Winbond® W83627DHG-P Super I/O</p> <p>Front ports Two USB 2.0, microphone (3.5mm), headphone (3.5mm)</p> <p>Rear ports Eight USB 2.0, eSATA, one ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in</p> <p>IEEE 1394 adptr None</p> <p>Audio High Definition (HD) Audio, Analog Devices AD1988A codec</p> <p>Speaker Internal speaker for business audio</p> <p>Ethernet One gigabit ethernet on planar, Broadcom® BCM5755</p> <p>Security chip Broadcom Trusted Platform Module, TCG 1.2-compliant</p> <p>Keyboard Preferred Pro USB Keyboard (USB connector), 104-key, black</p> <p>Mouse Optical Wheel Mouse (USB connector), black</p> <p>Power supply 800 watts with 80mm side-mounted variable speed fan, universal, Climate Savers® Computing Gold, 80 PLUS® Gold qualified</p> <p>ThinkVantage® Supports ThinkVantage technologies</p> <p>Preload OS Genuine Windows® 7 Professional 64</p> <p>Preloaded applications</p> <ul style="list-style-type: none"> • Rescue and Recovery® • ThinkVantage System Update • ThinkVantage Toolbox • Norton® Internet Security (30 days of virus definitions) • Adobe® Reader® • Adobe Flash® Player • Microsoft® Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW model(s) only) • Roxio MyDVD® (DVD±RW model(s) only) • Corel® WinDVD® (DVD or DVD±RW model(s) only) • Ulead® DVD MovieFactory® (Blu-ray model(s) only) 	<p>Tower</p>  <ul style="list-style-type: none"> • Rack-mountable to 3U • Raven black color; metal case • 5.1"W x 17.5"D x 16.8"H • 130mm W x 444mm D x 427mm H • 40.7 lb (18.5kg) max configuration • 24-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support or optional rail kit <p>Bay 1: 5.25", 1.6" high, external, std optical Bay 2: 3.5", 1" high, internal, for disk Bay 3: 3.5", 1" high, internal, for disk Bay 4: 3.5", 1" high, internal, for disk</p> <p>Slot 1: half-length, full-height, PCIe x1 Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 3: full-length, full-height, 32-bit PCI 2.3 Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 5: full-length, full-height, PCIe x16 (x4 electrical) Slot 6: half-length, full-height, 32-bit PCI 2.3</p> <p>* Adapters >75W use auxiliary power connector(s) from PSU</p>
	<p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • Chassis intrusion switch on selected model(s) <p>GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating</p> <p>LIMITED WARRANTY¹</p> <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)² • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107

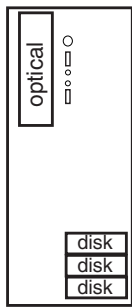
See footnotes for important warranty information
 EMEA model(s) announced April 26, 2011
 EMEA model(s) withdrawn effective October 2012

ThinkStation® C20 (4265) - TopSeller (July 2011) - withdrawn

Personal Systems Reference(PSREF)

Type-model	Slot x bay	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Win7 Global preload	Ann date (mm/dd/yy)
4265-2FG	6x4	2xE5607	2.26	4x2GB UDIMM	1x1TB SATA	No	DVD±RW	No	Switch	None	No	No	Pro 64 07/19/11
4265-2GG	6x4	2xE5620	2.40	4x2GB UDIMM	1x1TB SATA	No	DVD±RW	No	Switch	None	No	No	Pro 64 07/19/11

- High performance workstation with smallest-possible form factor
- Environmentally friendly, cool, and quiet with rock solid engineering
- Part of the EMEA TopSeller™ Program
- Microsoft Office 2010 Product Key Ready (O10PKR)

<p>Processor(s) Intel® Xeon® Processor E5607 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache</p> <p>Implementation Two LGA1366 sockets, supports up to two processors</p> <p>Memory UDIMM or RDIMM, PC3-10600 1333MHz DDR3, ECC, 48GB max for UDIMM model, 48GB max for RDIMM model, 6-channel capable, six 240-pin DIMM sockets</p> <p>Additional memory disclaimers</p> <ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed • Over three DIMMs requires dual processors <p>Graphics None</p> <p>Media reader None</p> <p>Optical Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive</p> <p>Hard drive(s) 1TB, SATA 3.0Gb/s, 7200 rpm, 3.5"</p> <p>Disk Controller Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, one SATA connector for optical, RAID 0, 1, 5 support</p> <p>Chipset Intel 5520 Chipset, Intel ICH10R, Winbond® W83627DHG-P Super I/O</p> <p>Front ports Two USB 2.0, microphone (3.5mm), headphone (3.5mm)</p> <p>Rear ports Eight USB 2.0, eSATA, one ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in</p> <p>IEEE 1394 adptr None</p> <p>Audio High Definition (HD) Audio, Analog Devices AD1988A codec</p> <p>Speaker Internal speaker for business audio</p> <p>Ethernet One gigabit ethernet on planar, Broadcom® BCM5755</p> <p>Security chip Broadcom Trusted Platform Module, TCG 1.2-compliant</p> <p>Keyboard Preferred Pro USB Keyboard (USB connector), 104-key, black</p> <p>Mouse Optical Wheel Mouse (USB connector), black</p> <p>Power supply 800 watts with 80mm side-mounted variable speed fan, universal, Climate Savers® Computing Gold, 80 PLUS® Gold qualified</p> <p>ThinkVantage® Supports ThinkVantage technologies</p> <p>Preload OS Genuine Windows® 7 Professional 64</p> <p>Preloaded applications</p> <ul style="list-style-type: none"> • Rescue and Recovery® • ThinkVantage System Update • ThinkVantage Toolbox • Norton® Internet Security (30 days of virus definitions) • Adobe® Reader® • Adobe Flash® Player • Microsoft® Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW model(s) only) • Roxio MyDVD® (DVD±RW model(s) only) • Corel® WinDVD® (DVD or DVD±RW model(s) only) • Ulead® DVD MovieFactory® (Blu-ray model(s) only) 	<p>Tower</p>  <ul style="list-style-type: none"> • Rack-mountable to 3U • Raven black color; metal case • 5.1"W x 17.5"D x 16.8"H • 130mm W x 444mm D x 427mm H • 40.7 lb (18.5kg) max configuration • 24-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support or optional rail kit <p>Bay 1: 5.25", 1.6" high, external, std optical Bay 2: 3.5", 1" high, internal, for disk Bay 3: 3.5", 1" high, internal, for disk Bay 4: 3.5", 1" high, internal, for disk</p> <p>Slot 1: half-length, full-height, PCIe x1 Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 3: full-length, full-height, 32-bit PCI 2.3 Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 5: full-length, full-height, PCIe x16 (x4 electrical) Slot 6: half-length, full-height, 32-bit PCI 2.3</p> <p>* Adapters >75W use auxiliary power connector(s) from PSU</p>
	<p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • Chassis intrusion switch on selected model(s) <p>GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating</p> <p>LIMITED WARRANTY¹</p> <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)² • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107

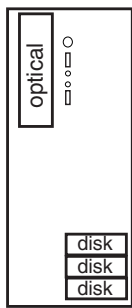
See footnotes for important warranty information
 EMEA model(s) announced July 19, 2011
 EMEA model(s) withdrawn effective October 2012

ThinkStation® C20 (4265) - TopSeller (December 2011) - withdrawn

Personal Systems Reference(PSREF)

Type-model	Slot x bay	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Win7 Global preload	Ann date (mm/dd/yy)
4265-2KG	6x4	1xE5649	2.53	3x2GB UDIMM	2x500GB SATA	No	DVD±RW	No		None	No	No	Pro 64 12/06/11
4265-2LG	6x4	1xE5645	2.40	3x2GB UDIMM	2x500GB SATA	No	DVD±RW	No		None	No	No	Pro 64 12/06/11
4265-2MG	6x4	1xE5606	2.13	3x2GB UDIMM	2x500GB SATA	No	DVD±RW	No		None	No	No	Pro 64 12/06/11
4265-2NG	6x4	2xE5607	2.26	4x2GB UDIMM	2x500GB SATA	No	DVD±RW	No	Switch	None	No	No	Pro 64 12/06/11
4265-3AG	6x4	2xE5620	2.40	4x2GB UDIMM	2x500GB SATA	No	DVD±RW	No	Switch	None	No	No	Pro 64 12/06/11

- High performance workstation with smallest-possible form factor
- Environmentally friendly, cool, and quiet with rock solid engineering
- Part of the EMEA TopSeller™ Program
- Microsoft Office 2010 Product Key Ready (O10PKR)

<p>Processor(s) Intel® Xeon® Processor E5606 or E5607 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache Intel Xeon Processor E5620 with quad-core, 5.86GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 12MB cache Intel Xeon Processor E5645 or E5649 with six-core, 5.86GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache</p> <p>Implementation Two LGA1366 sockets, supports up to two processors</p> <p>Memory UDIMM or RDIMM, PC3-10600 1333MHz DDR3, ECC, 48GB max for UDIMM model, 48GB max for RDIMM model, 6-channel capable, six 240-pin DIMM sockets</p> <p>Additional memory disclaimers</p> <ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed • Over three DIMMs requires dual processors <p>Graphics None</p> <p>Media reader None</p> <p>Optical Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive</p> <p>Hard drive(s) 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"</p> <p>Disk Controller Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, one SATA connector for optical, RAID 0, 1, 5 support</p> <p>Chipset Intel 5520 Chipset, Intel ICH10R, Winbond® W83627DHG-P Super I/O</p> <p>Front ports Two USB 2.0, microphone (3.5mm), headphone (3.5mm)</p> <p>Rear ports Eight USB 2.0, eSATA, one ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in</p> <p>IEEE 1394 adptr None</p> <p>Audio High Definition (HD) Audio, Analog Devices AD1988A codec</p> <p>Speaker Internal speaker for business audio</p> <p>Ethernet One gigabit ethernet on planar, Broadcom® BCM5755</p> <p>Security chip Broadcom Trusted Platform Module, TCG 1.2-compliant</p> <p>Keyboard Preferred Pro USB Keyboard (USB connector), 104-key, black</p> <p>Mouse Optical Wheel Mouse (USB connector), black</p> <p>Power supply 800 watts with 80mm side-mounted variable speed fan, universal, Climate Savers® Computing Gold, 80 PLUS® Gold qualified</p> <p>ThinkVantage® Supports ThinkVantage technologies</p> <p>Preload OS Genuine Windows® 7 Professional 64</p> <p>Preloaded applications</p> <ul style="list-style-type: none"> • Rescue and Recovery® • ThinkVantage System Update • ThinkVantage Toolbox • Norton® Internet Security (30 days of virus definitions) • Adobe® Reader® • Adobe Flash® Player • Microsoft® Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW model(s) only) • Roxio MyDVD® (DVD±RW model(s) only) • Corel® WinDVD® (DVD or DVD±RW model(s) only) • Ulead® DVD MovieFactory® (Blu-ray model(s) only) 	<p>Tower</p>  <ul style="list-style-type: none"> • Rack-mountable to 3U • Raven black color; metal case • 5.1"W x 17.5"D x 16.8"H • 130mm W x 444mm D x 427mm H • 40.7 lb (18.5kg) max configuration • 24-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support or optional rail kit <p>Bay 1: 5.25", 1.6" high, external, std optical Bay 2: 3.5", 1" high, internal, for disk Bay 3: 3.5", 1" high, internal, for disk Bay 4: 3.5", 1" high, internal, for disk</p> <p>Slot 1: half-length, full-height, PCIe x1 Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 3: full-length, full-height, 32-bit PCI 2.3 Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 5: full-length, full-height, PCIe x16 (x4 electrical) Slot 6: half-length, full-height, 32-bit PCI 2.3</p> <p>* Adapters >75W use auxiliary power connector(s) from PSU</p> <p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • Chassis intrusion switch on selected model(s) <p>GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating</p> <p>LIMITED WARRANTY¹</p> <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107
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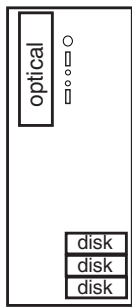
See footnotes for important warranty information
 EMEA model(s) announced December 6, 2011
 EMEA model(s) withdrawn effective October 2012

ThinkStation® C20 (4263) - June 2010 - withdrawn

Personal Systems Reference(PSREF)

Type-model	Slot x bay	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Win7 Global preload	Ann date (mm/dd/yy)
4263-24G	6x4	1xX5650	2.66	3x2GB UDIMM	2x500GB SATA	No	DVD±RW	No		1xNVS295	No	No Pro 64	06/15/10
4263-62G	6x4	1xX5650	2.66	1x4GB RDIMM	1x500GB SATA	No	DVD±RW	No	Switch		No	No Pro 64	06/15/10

- High performance workstation with smallest-possible form factor
- Environmentally friendly, cool, and quiet with rock solid engineering
- Microsoft Office 2010 Product Key Ready (O10PKR)

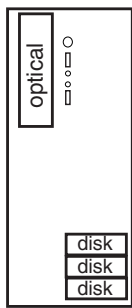
Processor(s)	Intel® Xeon® Processor X5650 with six-core , 6.4GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache	Tower  <ul style="list-style-type: none"> • Rack-mountable to 3U • Raven black color; metal case • 5.1"W x 17.5"D x 16.8"H • 130mm W x 444mm D x 427mm H • 40.7 lb (18.5kg) max configuration • 24-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support or optional rail kit
Implementation	Two LGA1366 sockets, supports up to two processors	
Memory	UDIMM or RDIMM, PC3-10600 1333MHz DDR3, ECC , 48GB max for UDIMM model, 48GB max for RDIMM model, 6-channel capable, six 240-pin DIMM sockets	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed • Over three DIMMs requires dual processors 	
Graphics	<i>Some:</i> NVIDIA® Quadro® NVS 295 , PCIe x16 adapter, 256MB, two DisplayPort™, 23W	
Media reader	None	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Hard drive(s)	500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"	
Disk Controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, one SATA connector for optical, RAID 0, 1, 5 support	Bay 1: 5.25", 1.6" high, external, std optical Bay 2: 3.5", 1" high, internal, for disk Bay 3: 3.5", 1" high, internal, for disk Bay 4: 3.5", 1" high, internal, for disk
Chipset	Intel 5520 Chipset , Intel ICH10R, Winbond® W83627DHG-P Super I/O	Slot 1: half-length, full-height, PCIe x1 Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 3: full-length, full-height, 32-bit PCI 2.3 Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 5: full-length, full-height, PCIe x16 (x4 electrical) Slot 6: half-length, full-height, 32-bit PCI 2.3
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Eight USB 2.0, eSATA, one ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in	
IEEE 1394 adptr	None	
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec	
Speaker	Internal speaker for business audio	
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755	
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant	* Adapters >75W use auxiliary power connector(s) from PSU
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Power supply	800 watts with 80mm side-mounted variable speed fan, universal, Climate Savers® Computing Gold, 80 PLUS® Gold qualified	
ThinkVantage®	Supports ThinkVantage technologies	
Preload OS	Genuine Windows® 7 Professional 64	
Preloaded applications	<ul style="list-style-type: none"> • Rescue and Recovery® • ThinkVantage System Update • ThinkVantage Toolbox • Norton® Internet Security (30 days of virus definitions) • Adobe® Reader® • Adobe Flash® Player • Microsoft® Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW model(s) only) • Roxio MyDVD® (DVD±RW model(s) only) • Corel® WinDVD® (DVD or DVD±RW model(s) only) • Ulead® DVD MovieFactory® (Blu-ray model(s) only) 	SECURITY <ul style="list-style-type: none"> • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • <i>Chassis intrusion switch on selected model(s)</i>
		GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating
		LIMITED WARRANTY¹ <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107

See footnotes for important warranty information
 EMEA model(s) announced June 15, 2010
 EMEA model(s) withdrawn effective October 2012

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 (G-MAD1-2) October 2012

Type-model	Slot x bay	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Global	Win7 preload	Ann date (mm/dd/yy)
4263-A7G	6x4	2xE5645	2.40	6x2GB UDIMM	1x1TB SATA	No	DVD±RW	No	None	None	No	No	Pro 64	04/26/11
4263-A8G	6x4	2xE5649	2.53	6x2GB UDIMM	1x1TB SATA	No	DVD±RW	No	None	None	No	No	Pro 64	04/26/11
4263-A9G	6x4	2xE5607	2.26	6x2GB UDIMM	1x1TB SATA	No	DVD±RW	No	None	None	No	No	Pro 64	04/26/11
4263-B1G	6x4	1xX5675	3.06	3x2GB UDIMM	1x1TB SATA	No	DVD±RW	No	None	None	No	No	Pro 64	04/26/11
4263-B2G	6x4	1xX5672	3.20	3x2GB UDIMM	1x1TB SATA	No	DVD±RW	No	None	None	No	No	Pro 64	04/26/11

- High performance workstation with smallest-possible form factor
- Environmentally friendly, cool, and quiet with rock solid engineering
- Microsoft Office 2010 Product Key Ready (O10PKR)

Processor(s)	<p>Intel® Xeon® Processor E5607 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache</p> <p>Intel Xeon Processor E5645 or E5649 with six-core, 5.86GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache</p> <p>Intel Xeon Processor X5672 with quad-core, 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache</p> <p>Intel Xeon Processor X5675 with six-core, 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache</p>	<p>Tower</p>  <ul style="list-style-type: none"> • Rack-mountable to 3U • Raven black color; metal case • 5.1"W x 17.5"D x 16.8"H • 130mm W x 444mm D x 427mm H • 40.7 lb (18.5kg) max configuration • 24-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support or optional rail kit
Implementation	Two LGA1366 sockets, supports up to two processors	<p>Bay 1: 5.25", 1.6" high, external, std optical</p> <p>Bay 2: 3.5", 1" high, internal, for disk</p> <p>Bay 3: 3.5", 1" high, internal, for disk</p> <p>Bay 4: 3.5", 1" high, internal, for disk</p>
Memory	<p>UDIMM or RDIMM, PC3-10600 1333MHz DDR3, ECC, 48GB max for UDIMM model, 48GB max for RDIMM model, 6-channel capable, six 240-pin DIMM sockets</p> <ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed • Over three DIMMs requires dual processors 	<p>Slot 1: half-length, full-height, PCIe x1</p> <p>Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max)</p> <p>Slot 3: full-length, full-height, 32-bit PCI 2.3</p> <p>Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max)</p> <p>Slot 5: full-length, full-height, PCIe x16 (x4 electrical)</p> <p>Slot 6: half-length, full-height, 32-bit PCI 2.3</p>
Additional memory disclaimers	<ul style="list-style-type: none"> • Over three DIMMs requires dual processors 	<p>* Adapters >75W use auxiliary power connector(s) from PSU</p>
Graphics	None	<p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • Chassis intrusion switch on selected model(s)
Media reader	None	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	<p>GREENGUARD® certified</p> <p>RoHS-compliant</p> <p>EPEAT™ Gold rating</p>
Hard drive(s)	1TB, SATA 3.0Gb/s, 7200 rpm, 3.5"	
Disk Controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, one SATA connector for optical, RAID 0, 1, 5 support	<p>LIMITED WARRANTY¹</p> <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107
Chipset	Intel 5520 Chipset , Intel ICH10R, Winbond® W83627DHG-P Super I/O	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Eight USB 2.0, eSATA, one ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in	
IEEE 1394 adptr	None	
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec	
Speaker	Internal speaker for business audio	
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755	
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Power supply	800 watts with 80mm side-mounted variable speed fan, universal, Climate Savers® Computing Gold, 80 PLUS® Gold qualified	
ThinkVantage®	Supports ThinkVantage technologies	
Preload OS	Genuine Windows® 7 Professional 64	
Preloaded applications	<ul style="list-style-type: none"> • Rescue and Recovery® • ThinkVantage System Update • ThinkVantage Toolbox • Norton® Internet Security (30 days of virus definitions) • Adobe® Reader® • Adobe Flash® Player • Microsoft® Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW model(s) only) • Roxio MyDVD® (DVD±RW model(s) only) • Corel® WinDVD® (DVD or DVD±RW model(s) only) • Ulead® DVD MovieFactory® (Blu-ray model(s) only) 	

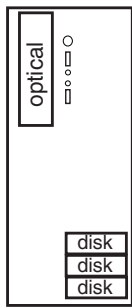
See footnotes for important warranty information
 EMEA model(s) announced April 26, 2011
 EMEA model(s) withdrawn effective October 2012

ThinkStation® C20 (4263) - July 2011 - withdrawn

Personal Systems Reference(PSREF)

Type-model	Slot x bay	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Global	Win7 preload	Ann date (mm/dd/yy)
4263-B7G	6x4	1xX5650	2.66	2x2GB UDIMM	1x500GB SATA	No	DVD±RW	No	Switch		No	Global	Pro 64	07/19/11
4263-B8G	6x4	1xX5660	2.80	2x2GB UDIMM	1x500GB SATA	No	DVD±RW	No	Switch	1xQuadro 600	No	Global	Pro 64	07/19/11

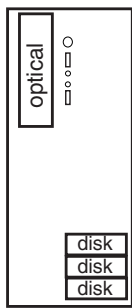
- High performance workstation with smallest-possible form factor
- Environmentally friendly, cool, and quiet with rock solid engineering
- Microsoft Office 2010 Product Key Ready (O10PKR)

Processor(s)	Intel® Xeon® Processor X5650 or X5660 with six-core , 6.4GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache	Tower  <ul style="list-style-type: none"> • Rack-mountable to 3U • Raven black color; metal case • 5.1"W x 17.5"D x 16.8"H • 130mm W x 444mm D x 427mm H • 40.7 lb (18.5kg) max configuration • 24-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support or optional rail kit <p>Bay 1: 5.25", 1.6" high, external, std optical Bay 2: 3.5", 1" high, internal, for disk Bay 3: 3.5", 1" high, internal, for disk Bay 4: 3.5", 1" high, internal, for disk</p> <p>Slot 1: half-length, full-height, PCIe x1 Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 3: full-length, full-height, 32-bit PCI 2.3 Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 5: full-length, full-height, PCIe x16 (x4 electrical) Slot 6: half-length, full-height, 32-bit PCI 2.3</p> <p>* Adapters >75W use auxiliary power connector(s) from PSU</p>
Implementation	Two LGA1366 sockets, supports up to two processors	
Memory	UDIMM or RDIMM, PC3-10600 1333MHz DDR3, ECC , 48GB max for UDIMM model, 48GB max for RDIMM model, 6-channel capable, six 240-pin DIMM sockets	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed • Over three DIMMs requires dual processors 	
Graphics	<i>Some:</i> NVIDIA® Quadro® 600 , PCIe x16 adapter, 1GB, one DisplayPort™, one dual-link DVI-I, 40W	
Media reader	None	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Hard drive(s)	500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"	
Disk Controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, one SATA connector for optical, RAID 0, 1, 5 support	
Chipset	Intel 5520 Chipset , Intel ICH10R, Winbond® W83627DHG-P Super I/O	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Eight USB 2.0, eSATA, one ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in	
IEEE 1394 adptr	None	
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec	
Speaker	Internal speaker for business audio	
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755	
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Power supply	800 watts with 80mm side-mounted variable speed fan, universal, Climate Savers® Computing Gold, 80 PLUS® Gold qualified	
ThinkVantage®	Supports ThinkVantage technologies	
Preload OS	Genuine Windows® 7 Professional 64	
Preloaded applications	<ul style="list-style-type: none"> • Rescue and Recovery® • ThinkVantage System Update • ThinkVantage Toolbox • Norton® Internet Security (30 days of virus definitions) • Adobe® Reader® • Adobe Flash® Player • Microsoft® Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW model(s) only) • Roxio MyDVD® (DVD±RW model(s) only) • Corel® WinDVD® (DVD or DVD±RW model(s) only) • Ulead® DVD MovieFactory® (Blu-ray model(s) only) 	
		<p align="center">SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • <i>Chassis intrusion switch on selected model(s)</i> <p>GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating</p> <p align="center">LIMITED WARRANTY¹</p> <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107

See footnotes for important warranty information
 EMEA model(s) announced July 19, 2011
 EMEA model(s) withdrawn effective October 2012

Type-model	Slot x bay	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Global	Win7 preload	Ann date (mm/dd/yy)
4263-C1G	6x4	2xE5645	2.40	6x2GB UDIMM	2x500GB SATA	No	DVD±RW	No	None	None	No	No	Pro 64	12/06/11
4263-C2G	6x4	2xE5649	2.53	6x2GB UDIMM	2x500GB SATA	No	DVD±RW	No	None	None	No	No	Pro 64	12/06/11
4263-C3G	6x4	2xE5607	2.26	6x2GB UDIMM	2x500GB SATA	No	DVD±RW	No	None	None	No	No	Pro 64	12/06/11
4263-C4G	6x4	1xX5675	3.06	3x2GB UDIMM	2x500GB SATA	No	DVD±RW	No	None	None	No	No	Pro 64	12/06/11
4263-C5G	6x4	1xX5672	3.20	3x2GB UDIMM	2x500GB SATA	No	DVD±RW	No	None	None	No	No	Pro 64	12/06/11

- High performance workstation with smallest-possible form factor
- Environmentally friendly, cool, and quiet with rock solid engineering
- Microsoft Office 2010 Product Key Ready (O10PKR)

Processor(s)	<p>Intel® Xeon® Processor E5607 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache</p> <p>Intel Xeon Processor E5645 or E5649 with six-core, 5.86GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache</p> <p>Intel Xeon Processor X5672 with quad-core, 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache</p> <p>Intel Xeon Processor X5675 with six-core, 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache</p>	<p>Tower</p>  <ul style="list-style-type: none"> • Rack-mountable to 3U • Raven black color; metal case • 5.1"W x 17.5"D x 16.8"H • 130mm W x 444mm D x 427mm H • 40.7 lb (18.5kg) max configuration • 24-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support or optional rail kit <p>Bay 1: 5.25", 1.6" high, external, std optical Bay 2: 3.5", 1" high, internal, for disk Bay 3: 3.5", 1" high, internal, for disk Bay 4: 3.5", 1" high, internal, for disk</p> <p>Slot 1: half-length, full-height, PCIe x1 Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 3: full-length, full-height, 32-bit PCI 2.3 Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 5: full-length, full-height, PCIe x16 (x4 electrical) Slot 6: half-length, full-height, 32-bit PCI 2.3</p> <p>* Adapters >75W use auxiliary power connector(s) from PSU</p>
Implementation	Two LGA1366 sockets, supports up to two processors	
Memory	<p>UDIMM or RDIMM, PC3-10600 1333MHz DDR3, ECC, 48GB max for UDIMM model, 48GB max for RDIMM model, 6-channel capable, six 240-pin DIMM sockets</p> <ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed • Over three DIMMs requires dual processors 	
Additional memory disclaimers		
Graphics	None	
Media reader	None	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Hard drive(s)	500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"	
Disk Controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, one SATA connector for optical, RAID 0, 1, 5 support	
Chipset	Intel 5520 Chipset , Intel ICH10R, Winbond® W83627DHG-P Super I/O	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Eight USB 2.0, eSATA, one ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in	
IEEE 1394 adptr	None	
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec	
Speaker	Internal speaker for business audio	
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755	
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant	<p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • Chassis intrusion switch on selected model(s)
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Power supply	800 watts with 80mm side-mounted variable speed fan, universal, Climate Savers® Computing Gold, 80 PLUS® Gold qualified	
ThinkVantage®	Supports ThinkVantage technologies	<p>GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating</p> <p>LIMITED WARRANTY¹</p> <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107
Preload OS	Genuine Windows® 7 Professional 64	
Preloaded applications	<ul style="list-style-type: none"> • Rescue and Recovery® • ThinkVantage System Update • ThinkVantage Toolbox • Norton® Internet Security (30 days of virus definitions) • Adobe® Reader® • Adobe Flash® Player • Microsoft® Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW model(s) only) • Roxio MyDVD® (DVD±RW model(s) only) • Corel® WinDVD® (DVD or DVD±RW model(s) only) • Ulead® DVD MovieFactory® (Blu-ray model(s) only) 	

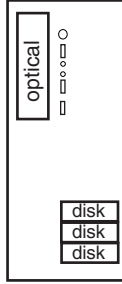
See footnotes for important warranty information
 EMEA model(s) announced December 6, 2011
 EMEA model(s) withdrawn effective October 2012

ThinkStation® C20x (4269) - June 2010 - withdrawn

Personal Systems Reference(PSREF)

Type-model	Slot x bay	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Win7 Global preload	Ann date (mm/dd/yy)
4269-26G	6x4	1xE5620	2.40	2x2GB RDIMM	1x500GB SATA	No	DVD±RW	No	Switch	None	No	Pro 64	06/15/10
4269-27G	6x4	1xE5620	2.40	2x2GB RDIMM	1x150GB SATA	No	DVD±RW	No	Switch	None	No	Pro 64	06/15/10
4269-28G	6x4	1xE5620	2.40	2x2GB RDIMM	1x300GB SAS	No	DVD±RW	No	Switch	None	No	Pro 64	06/15/10
4269-29G	6x4	1xX5650	2.66	1x4GB RDIMM	1x500GB SATA	No	DVD±RW	No	Switch	None	No	Pro 64	06/15/10
4269-31G	6x4	1xX5650	2.66	1x4GB RDIMM	1x150GB SATA	No	DVD±RW	No	Switch	None	No	Pro 64	06/15/10
4269-32G	6x4	1xX5650	2.66	1x4GB RDIMM	1x300GB SAS	No	DVD±RW	No	Switch	None	No	Pro 64	06/15/10

- High performance workstation with smallest-possible form factor
- Environmentally friendly, cool, and quiet with rock solid engineering
- Microsoft Office 2010 Product Key Ready (O10PKR)

<p>Processor(s) Intel® Xeon® Processor E5620 with quad-core, 5.86GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 12MB cache</p> <p>Implementation Two LGA1366 sockets, supports up to two processors</p> <p>Memory UDIMM or RDIMM, PC3-10600 1333MHz DDR3, ECC, 96GB max for UDIMM model, 96GB max for RDIMM model, 6-channel capable, twelve 240-pin DIMM sockets</p> <p>Additional memory disclaimers</p> <ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed • Over six DIMMs requires dual processors <p>Graphics None</p> <p>Media reader None</p> <p>Optical Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive</p> <p>Hard drive(s) <i>Some:</i> 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5" <i>Some:</i> 150GB, SATA 3.0Gb/s, 10000 rpm, 2.5" <i>Some:</i> 300GB, SAS 3.0Gb/s, 15000 rpm, 3.5"</p> <p>Disk Controller 3 SATA connectors for optical, SATA 3.0Gb/s, integrated in ICH10; 5 SATA/SAS⁺ connectors for disks, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 5, integrated in Marvell® 88SE6480</p> <p>Chipset Intel 5520 Chipset, Intel ICH10, Winbond® W83627DHG-P Super I/O</p> <p>Front ports Two USB 2.0, microphone (3.5mm), headphone (3.5mm), FireWire 400 (IEEE 1394a)</p> <p>Rear ports Eight USB 2.0, eSATA, serial (9-pin), two ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in</p> <p>IEEE 1394 adptr None</p> <p>Audio High Definition (HD) Audio, Analog Devices AD1988A codec</p> <p>Speaker Internal speaker for business audio</p> <p>Ethernet Two gigabit ethernet on planar, Broadcom® BCM5755 and BCM5754</p> <p>Security chip Broadcom Trusted Platform Module, TCG 1.2-compliant</p> <p>Keyboard Preferred Pro USB Keyboard (USB connector), 104-key, black</p> <p>Mouse Optical Wheel Mouse (USB connector), black</p> <p>Power supply 800 watts with 80mm side-mounted variable speed fan, universal, Climate Savers® Computing Gold, 80 PLUS® Gold qualified</p> <p>ThinkVantage® Supports ThinkVantage technologies</p> <p>Preload OS Genuine Windows® 7 Professional 64</p> <p>Preloaded applications</p> <ul style="list-style-type: none"> • Rescue and Recovery® • ThinkVantage System Update • ThinkVantage Toolbox • Norton® Internet Security (30 days of virus definitions) • Adobe® Reader® • Adobe Flash® Player • Microsoft® Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW model(s) only) • Roxio MyDVD® (DVD±RW model(s) only) • Corel® WinDVD® (DVD or DVD±RW model(s) only) • Ulead® DVD MovieFactory® (Blu-ray model(s) only) 	<p>Tower</p>  <ul style="list-style-type: none"> • Rack-mountable to 3U • Raven black color; metal case • 5.1"W x 17.5"D x 16.8"H • 130mm W x 444mm D x 427mm H • 40.7 lb (18.5kg) max configuration • 24-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support or optional rail kit <p>Bay 1: 5.25", 1.6" high, external, std optical Bay 2: 3.5", 1" high, internal, for disk Bay 3: 3.5", 1" high, internal, for disk Bay 4: 3.5", 1" high, internal, for disk</p> <p>Slot 1: half-length, full-height, PCIe x1 Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 3: full-length, full-height, 32-bit PCI 2.3 Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 5: full-length, full-height, PCIe x16 (x4 electrical) Slot 6: half-length, full-height, 32-bit PCI 2.3</p> <p>* Adapters >75W use auxiliary power connector(s) from PSU</p> <p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • Chassis intrusion switch on selected model(s) <p>GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating</p> <p>LIMITED WARRANTY¹</p> <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107
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See footnotes for important warranty information
EMEA model(s) announced June 15, 2010
EMEA model(s) withdrawn effective October 2012

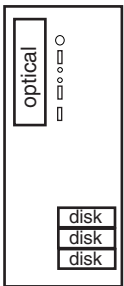
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(G-MAD1-3) October 2012

ThinkStation® C20x (4269) - July 2011 - withdrawn

Personal Systems Reference(PSREF)

Type-model	Slot x bay	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Win7 Global preload	Ann date (mm/dd/yy)
4269-87G	6x4	1xE5620	2.40	2x2GB UDIMM	1x450GB SAS	No	DVD±RW	No	Switch	1xQuadro 400	No	Global Pro 64	07/19/11

- High performance workstation with smallest-possible form factor
- Environmentally friendly, cool, and quiet with rock solid engineering
- Microsoft Office 2010 Product Key Ready (O10PKR)

Processor(s)	Intel® Xeon® Processor E5620 with quad-core , 5.86GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 12MB cache	Tower  <ul style="list-style-type: none"> • Rack-mountable to 3U • Raven black color; metal case • 5.1"W x 17.5"D x 16.8"H • 130mm W x 444mm D x 427mm H • 40.7 lb (18.5kg) max configuration • 24-liter • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support or optional rail kit
Implementation	Two LGA1366 sockets, supports up to two processors	
Memory	UDIMM or RDIMM, PC3-10600 1333MHz DDR3, ECC , 96GB max for UDIMM model, 96GB max for RDIMM model, 6-channel capable, twelve 240-pin DIMM sockets	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed • Over six DIMMs requires dual processors 	
Graphics	NVIDIA® Quadro® 400 , PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 32W	
Media reader	None	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Hard drive(s)	450GB, SAS 3.0Gb/s, 15000 rpm, 3.5"	
Disk Controller	3 SATA connectors for optical, SATA 3.0Gb/s, integrated in ICH10; 5 SATA/SAS ⁺ connectors for disks, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 5, integrated in Marvell® 88SE6480	
Chipset	Intel 5520 Chipset , Intel ICH10, Winbond® W83627DHG-P Super I/O	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm), FireWire 400 (IEEE 1394a)	
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), two ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in	
IEEE 1394 adptr	None	
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec	
Speaker	Internal speaker for business audio	
Ethernet	Two gigabit ethernet on planar, Broadcom® BCM5755 and BCM5754	
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Power supply	800 watts with 80mm side-mounted variable speed fan, universal, Climate Savers® Computing Gold, 80 PLUS® Gold qualified	
ThinkVantage®	Supports ThinkVantage technologies	
Preload OS	Genuine Windows® 7 Professional 64	
Preloaded applications	<ul style="list-style-type: none"> • Rescue and Recovery® • ThinkVantage System Update • ThinkVantage Toolbox • Norton® Internet Security (30 days of virus definitions) • Adobe® Reader® • Adobe Flash® Player • Microsoft® Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW model(s) only) • Roxio MyDVD® (DVD±RW model(s) only) • Corel® WinDVD® (DVD or DVD±RW model(s) only) • Ulead® DVD MovieFactory® (Blu-ray model(s) only) 	
	<p>Bay 1: 5.25", 1.6" high, external, std optical</p> <p>Bay 2: 3.5", 1" high, internal, for disk</p> <p>Bay 3: 3.5", 1" high, internal, for disk</p> <p>Bay 4: 3.5", 1" high, internal, for disk</p> <p>Slot 1: half-length, full-height, PCIe x1</p> <p>Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max)</p> <p>Slot 3: full-length, full-height, 32-bit PCI 2.3</p> <p>Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max)</p> <p>Slot 5: full-length, full-height, PCIe x16 (x4 electrical)</p> <p>Slot 6: half-length, full-height, 32-bit PCI 2.3</p> <p>* Adapters >75W use auxiliary power connector(s) from PSU</p>	
	<p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • Chassis intrusion switch on selected model(s) 	
	<p>GREENGUARD® certified</p> <p>RoHS-compliant</p> <p>EPEAT™ Gold rating</p>	
	<p>LIMITED WARRANTY¹</p> <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?indocid=MIGR-69107 	

See footnotes for important warranty information
 EMEA model(s) announced July 19, 2011
 EMEA model(s) withdrawn effective October 2012

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 (G-MAD4-3) October 2012

ThinkStation.



Lenovo ThinkStation S20



Lenovo ThinkStation S20



Lenovo ThinkStation S20



Lenovo ThinkStation S20 (left)
Lenovo ThinkStation D20 (right)



Lenovo ThinkStation Graphics Card Option
NVIDIA® Quadro® 2GB 4000*



Lenovo ThinkStation Graphics Card Option
NVIDIA Quadro 2.5GB 5000

* NVIDIA Quadro 2GB 4000 option packaging contains one 3D stereo bracket

ThinkStation® S20 (4105) - TopSeller (October 2009) - withdrawn

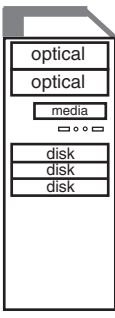
Personal Systems Reference (PSREF)

Type-model	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Global	Win7 preload (mm/dd/yy)	Ann date
4105-96G	1xW3503	2.40	3x2GB 1066MHz UDIMM	1x500GB SATA	No	DVD±RW	Media	No	No	No	No	Pro 64	10/22/09

- Faster, more efficient architecture with the latest Intel workstation technology
- High performance workstation with premium graphics support for specialized professionals
- Environmentally friendly, cool, and quiet with rock solid engineering
- Part of the EMEA TopSeller™ Program
- 3-year limited warranty¹
- Microsoft Office 2010 Product Key Ready (O10PKR)

Processor(s)	Intel® Xeon® Processor W3503 with dual-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 4MB cache
Implementation	One LGA1366 socket
Memory	48GB max, UDIMM, ECC, PC3-8500 1066MHz DDR3 or PC3-10600 1333MHz DDR3 , 3-channel capable, six 240-pin DIMM sockets
Additional memory disclaimers	• Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed
Graphics	None
Media reader	Media card reader, internal USB 2.0
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive
Hard drive(s)	500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals
SAS controller	SAS model(s): Marvell® 88SE6440, PCIe x4 adapter, 4 SATA/SAS ⁴ connectors, SATA 3.0Gb/s, SAS 3.0Gb/s
Chipset	Intel X58 Express Chipset , Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in
IEEE 1394 adptr	None
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec
Speaker	Internal speaker for business audio
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified

Tower



- Raven black color; metal case
- 6.9"W x 19.0"D x 18.8"H (with handle)
- 175mm W x 483mm D x 478mm H
- 38.5 lb (17.5kg) max configuration
- 31-liter
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Rack shelf support

Bay 1: 5.25", 1.6" high, external, std optical
 Bay 2: 5.25", 1.6" high, external, open
 Bay 3: 3.5", 1" high, external, for media reader
 Bay 4: 3.5", 1" high, internal, for disk
 Bay 5: 3.5", 1" high, internal, for disk
 Bay 6: 3.5", 1" high, internal, for disk

Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max)
 Slot 2: full-length, full-height, PCIe 2.0 x4**
 Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max)
 Slot 4: full-length, full-height, PCIe x1
 Slot 5: half-length, full-height, 32-bit PCI 2.3

* Adapters >75W use auxiliary power connector(s) from PSU
 ** x16 mechanical

ThinkVantage®	Supports ThinkVantage technologies
Preload OS	Genuine Windows® 7 Professional 64
Preloaded applications	<ul style="list-style-type: none"> • Rescue and Recovery® • ThinkVantage System Update • ThinkVantage Toolbox • Norton® Internet Security (30 days of virus definitions) • Microsoft® Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW model(s) only) • Roxio MyDVD® (DVD±RW model(s) only) • Corel® WinDVD® (DVD or DVD±RW model(s) only) • Ulead® DVD MovieFactory® (Blu-ray model(s) only)

SECURITY

- Security chip (see information on left)
- Side cover lock (ships with two identical keys)
- Padlock loop (in rear for opt padlock)
- Security slot (in rear for optional Kensington® Microsaver® cable)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- USB port disablement (front or all)
- Chassis intrusion switch on selected model(s)

GREENGUARD® certified
 RoHS-compliant
 EPEAT™ Gold rating

LIMITED WARRANTY¹

- ↪ 3-year parts and labor
- ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)
- ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html
 - Onsite service upgrade options (in eligible locations)⁷
 - Post warranty maintenance services
- ↪ For more information find the Lenovo support phone number in your country at <http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107>

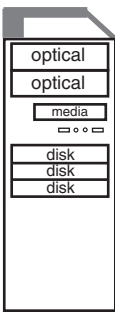
See footnotes for important warranty information
 EMEA model(s) announced October 22, 2009
 EMEA model(s) withdrawn effective October 2012

ThinkStation® S20 (4105) - TopSeller (March 2010) - withdrawn

Personal Systems Reference (PSREF)

Type-model	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Global	Win7 preload	Ann date (mm/dd/yy)
4105-E6G	1xE5620	2.40	3x2GB 1066MHz UDIMM	1x500GB SATA	No	DVD±RW	Media	None	No	No	No	Pro 64	03/16/10
4105-E9G	1XX5650	2.66	3x2GB 1333MHz UDIMM	1x500GB SATA	No	DVD±RW	Media	None	No	No	No	Pro 64	03/16/10
4105-F1G	1XX5670	2.93	3x2GB 1333MHz UDIMM	1x500GB SATA	No	DVD±RW	Media	None	No	No	No	Pro 64	03/16/10
4105-F4G	1XX5670	2.93	3x2GB 1333MHz UDIMM	1x150GB SATA	No	DVD±RW	Media	None	No	No	No	Pro 64	03/16/10
4105-F5G	1XX5650	2.66	3x2GB 1333MHz UDIMM	1x150GB SATA	No	DVD±RW	Media	None	No	No	No	Pro 64	03/16/10

- Part of the EMEA TopSeller™ Program
- 3-year limited warranty¹
- Microsoft Office 2010 Product Key Ready (O10PKR)

Processor(s)	Intel® Xeon® Processor E5620 with quad-core , 5.86GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 12MB cache Intel Xeon Processor X5650 or X5670 with six-core , 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache One LGA1366 socket	Tower  <ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 19.0"D x 18.8"H (with handle) • 175mm W x 483mm D x 478mm H • 38.5 lb (17.5kg) max configuration • 31-liter • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support
Implementation	One LGA1366 socket	
Memory	48GB max, UDIMM, ECC, PC3-8500 1066MHz DDR3 or PC3-10600 1333MHz DDR3 , 3-channel capable, six 240-pin DIMM sockets	<p>Bay 1: 5.25", 1.6" high, external, std optical</p> <p>Bay 2: 5.25", 1.6" high, external, open</p> <p>Bay 3: 3.5", 1" high, external, for media reader</p> <p>Bay 4: 3.5", 1" high, internal, for disk</p> <p>Bay 5: 3.5", 1" high, internal, for disk</p> <p>Bay 6: 3.5", 1" high, internal, for disk</p> <p>Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max)</p> <p>Slot 2: full-length, full-height, PCIe 2.0 x4**</p> <p>Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max)</p> <p>Slot 4: full-length, full-height, PCIe x1</p> <p>Slot 5: half-length, full-height, 32-bit PCI 2.3</p> <p>* Adapters >75W use auxiliary power connector(s) from PSU</p> <p>** x16 mechanical</p>
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	None	<p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • Chassis intrusion switch on selected model(s) <p>GREENGUARD® certified</p> <p>RoHS-compliant</p> <p>EPEAT™ Gold rating</p> <p>LIMITED WARRANTY¹</p> <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107
Media reader	Media card reader, internal USB 2.0	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Hard drive(s)	<i>Some:</i> 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5" <i>Some:</i> 150GB, SATA 3.0Gb/s, 10000 rpm, 2.5"	
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals	
SAS controller	<i>SAS model(s):</i> Marvell® 88SE6440, PCIe x4 adapter, 4 SATA/SAS ⁴ connectors, SATA 3.0Gb/s, SAS 3.0Gb/s	
Chipset	Intel X58 Express Chipset , Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in	
IEEE 1394 adptr	None	
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec	
Speaker	Internal speaker for business audio	
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755	
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Power supply	625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified	
ThinkVantage®	Supports ThinkVantage technologies	
Preload OS	Genuine Windows® 7 Professional 64	
Preloaded applications	<ul style="list-style-type: none"> • Rescue and Recovery® • ThinkVantage System Update • ThinkVantage Toolbox • Norton® Internet Security (30 days of virus definitions) • Microsoft® Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW model(s) only) • Roxio MyDVD® (DVD±RW model(s) only) • Corel® WinDVD® (DVD or DVD±RW model(s) only) • Ulead® DVD MovieFactory® (Blu-ray model(s) only) 	

See footnotes for important warranty information
 EMEA model(s) announced March 16, 2010
 EMEA model(s) withdrawn effective October 2012

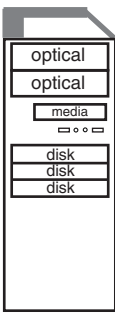
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 (G-SEV1-3) October 2012

ThinkStation® S20 (4105) - TopSeller (May 2010) - withdrawn

Personal Systems Reference (PSREF)

Type-model	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Global	Win7 preload	Ann date (mm/dd/yy)
4105-J6G	1xW3550	3.06	3x2GB 1333MHz UDIMM	1x500GB SATA	No	DVD±RW	Media	None	No	1394	No	Pro 64	05/04/10
4105-J7G	1xW3550	3.06	3x2GB 1333MHz UDIMM	1x150GB SATA	No	DVD±RW	Media	None	No	1394	No	Pro 64	05/04/10
4105-J8G	1xW3550	3.06	3x1GB 1333MHz UDIMM	1x250GB SATA	No	DVD±RW	Media	None	No	1394	No	Pro 64	05/04/10
4105-K7G	1xW3503	2.40	3x2GB 1066MHz UDIMM	1x500GB SATA	No	DVD±RW	Media	None	No	No	No	Pro 64	05/04/10

- Part of the EMEA TopSeller™ Program
- 3-year limited warranty¹
- Microsoft Office 2010 Product Key Ready (O10PKR)

Processor(s)	<p>Intel® Xeon® Processor W3503 with dual-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 4MB cache</p> <p>Intel Xeon Processor W3550 with quad-core, 4.8GT/s QPI, Intel 64, Virtualization Technology, Hyper-Threading Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 8MB cache</p> <p>One LGA1366 socket</p>	<p>Tower</p>  <ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 19.0"D x 18.8"H (with handle) • 175mm W x 483mm D x 478mm H • 38.5 lb (17.5kg) max configuration • 31-liter • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support
Implementation	<p>48GB max, UDIMM, ECC, PC3-8500 1066MHz DDR3 or PC3-10600 1333MHz DDR3, 3-channel capable, six 240-pin DIMM sockets</p> <ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Memory	<p>48GB max, UDIMM, ECC, PC3-8500 1066MHz DDR3 or PC3-10600 1333MHz DDR3, 3-channel capable, six 240-pin DIMM sockets</p> <ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	None	
Media reader	Media card reader, internal USB 2.0	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Hard drive(s)	<p><i>Some:</i> 250GB or 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"</p> <p><i>Some:</i> 150GB, SATA 3.0Gb/s, 10000 rpm, 2.5"</p>	
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals	
SAS controller	SAS model(s): Marvell® 88SE6440, PCIe x4 adapter, 4 SATA/SAS ⁴ connectors, SATA 3.0Gb/s, SAS 3.0Gb/s	
Chipset	<p>Intel X58 Express Chipset, Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O</p>	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in	
IEEE 1394 adptr	<i>Some:</i> FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear	
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec	
Speaker	Internal speaker for business audio	
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755	
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Power supply	625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified	
ThinkVantage®	Supports ThinkVantage technologies	
Preload OS	Genuine Windows® 7 Professional 64	
Preloaded applications	<ul style="list-style-type: none"> • Rescue and Recovery® • ThinkVantage System Update • ThinkVantage Toolbox • Norton® Internet Security (30 days of virus definitions) • Microsoft® Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW model(s) only) • Roxio MyDVD® (DVD±RW model(s) only) • Corel® WinDVD® (DVD or DVD±RW model(s) only) • Ulead® DVD MovieFactory® (Blu-ray model(s) only) 	
	<p>Bay 1: 5.25", 1.6" high, external, std optical</p> <p>Bay 2: 5.25", 1.6" high, external, open</p> <p>Bay 3: 3.5", 1" high, external, for media reader</p> <p>Bay 4: 3.5", 1" high, internal, for disk</p> <p>Bay 5: 3.5", 1" high, internal, for disk</p> <p>Bay 6: 3.5", 1" high, internal, for disk</p>	
	<p>Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max)</p> <p>Slot 2: full-length, full-height, PCIe 2.0 x4**</p> <p>Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max)</p> <p>Slot 4: full-length, full-height, PCIe x1</p> <p>Slot 5: half-length, full-height, 32-bit PCI 2.3</p>	
	<p>* Adapters >75W use auxiliary power connector(s) from PSU</p> <p>** x16 mechanical</p>	
	<p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • Chassis intrusion switch on selected model(s) 	
	<p>GREENGUARD® certified</p> <p>RoHS-compliant</p> <p>EPEAT™ Gold rating</p>	
	<p>LIMITED WARRANTY¹</p> <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107 	

See footnotes for important warranty information
 EMEA model(s) announced May 4, 2010
 EMEA model(s) withdrawn effective October 2012

ThinkStation® S20 (4105) - TopSeller (August 2010) - withdrawn

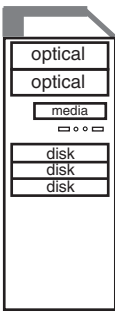
Personal Systems Reference (PSREF)

Type-model	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Global	Win7 preload (mm/dd/yy)	Ann date
4105-M2G	1xW3503	2.40	1x2GB 1333MHz UDIMM	1x250GB SATA	No	DVD±RW	Media	None	No	No	No	Pro 64	08/03/10

- *Faster, more efficient architecture with the latest Intel workstation technology*
- *High performance workstation with premium graphics support for specialized professionals*
- *Environmentally friendly, cool, and quiet with rock solid engineering*
- *Part of the EMEA TopSeller™ Program*
- *3-year limited warranty¹*
- *Microsoft Office 2010 Product Key Ready (O10PKR)*

Processor(s)	Intel® Xeon® Processor W3503 with dual-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 4MB cache
Implementation	One LGA1366 socket
Memory	48GB max, UDIMM, ECC, PC3-8500 1066MHz DDR3 or PC3-10600 1333MHz DDR3 , 3-channel capable, six 240-pin DIMM sockets
Additional memory disclaimers	• Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed
Graphics	None
Media reader	Media card reader, internal USB 2.0
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive
Hard drive(s)	250GB, SATA 3.0Gb/s, 7200 rpm, 3.5"
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals
SAS controller	SAS model(s): Marvell® 88SE6440, PCIe x4 adapter, 4 SATA/SAS ⁴ connectors, SATA 3.0Gb/s, SAS 3.0Gb/s
Chipset	Intel X58 Express Chipset , Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in
IEEE 1394 adptr	None
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec
Speaker	Internal speaker for business audio
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified

Tower



- Raven black color; metal case
- 6.9"W x 19.0"D x 18.8"H (with handle)
- 175mm W x 483mm D x 478mm H
- 38.5 lb (17.5kg) max configuration
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Bay 1: 5.25", 1.6" high, external, std optical
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 Bay 4: 3.5", 1" high, internal, for disk
 Bay 5: 3.5", 1" high, internal, for disk
 Bay 6: 3.5", 1" high, internal, for disk

Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max)
 Slot 2: full-length, full-height, PCIe 2.0 x4**
 Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max)
 Slot 4: full-length, full-height, PCIe x1
 Slot 5: half-length, full-height, 32-bit PCI 2.3

* Adapters >75W use auxiliary power connector(s) from PSU
 ** x16 mechanical

ThinkVantage®	Supports ThinkVantage technologies
Preload OS	Genuine Windows® 7 Professional 64
Preloaded applications	<ul style="list-style-type: none"> • Rescue and Recovery® • ThinkVantage System Update • ThinkVantage Toolbox • Norton® Internet Security (30 days of virus definitions) • Microsoft® Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW model(s) only) • Roxio MyDVD® (DVD±RW model(s) only) • Corel® WinDVD® (DVD or DVD±RW model(s) only) • Ulead® DVD MovieFactory® (Blu-ray model(s) only)

SECURITY

- Security chip (see information on left)
- Side cover lock (ships with two identical keys)
- Padlock loop (in rear for opt padlock)
- Security slot (in rear for optional Kensington® Microsaver® cable)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- USB port disablement (front or all)
- *Chassis intrusion switch on selected model(s)*

GREENGUARD® certified
 RoHS-compliant
 EPEAT™ Gold rating

LIMITED WARRANTY¹

- ↪ 3-year parts and labor
- ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)
- ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html
 - Onsite service upgrade options (in eligible locations)⁷
 - Post warranty maintenance services
- ↪ For more information find the Lenovo support phone number in your country at <http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107>

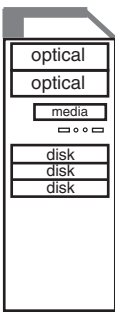
See footnotes for important warranty information
 EMEA model(s) announced August 3, 2010
 EMEA model(s) withdrawn effective October 2012

ThinkStation® S20 (4105) - TopSeller (October 2010) - withdrawn

Personal Systems Reference (PSREF)

Type-model	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Global	Win7 preload	Ann date (mm/dd/yy)
4105-P1G	1xW3565	3.20	3x2GB 1333MHz UDIMM	1x1TB SATA	No	DVD±RW	Media	None	No	No	No	Pro 64	10/12/10
4105-P2G	1xW3565	3.20	3x2GB 1333MHz UDIMM	1x150GB SATA	No	DVD±RW	Media	None	No	No	No	Pro 64	10/12/10

- *Faster, more efficient architecture with the latest Intel workstation technology*
- *High performance workstation with premium graphics support for specialized professionals*
- *Environmentally friendly, cool, and quiet with rock solid engineering*
- *Part of the EMEA TopSeller™ Program*
- *3-year limited warranty¹*
- *Microsoft Office 2010 Product Key Ready (O10PKR)*

Processor(s)	Intel® Xeon® Processor W3565 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 8MB cache	Tower  <ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 19.0"D x 18.8"H (with handle) • 175mm W x 483mm D x 478mm H • 38.5 lb (17.5kg) max configuration • 31-liter • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support
Implementation	One LGA1366 socket	
Memory	48GB max, UDIMM, ECC, PC3-8500 1066MHz DDR3 or PC3-10600 1333MHz DDR3, 3-channel capable, six 240-pin DIMM sockets	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	None	
Media reader	Media card reader, internal USB 2.0	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Hard drive(s)	<i>Some:</i> 1TB, SATA 3.0Gb/s, 7200 rpm, 3.5" <i>Some:</i> 150GB, SATA 3.0Gb/s, 10000 rpm, 2.5"	Bay 1: 5.25", 1.6" high, external, std optical Bay 2: 5.25", 1.6" high, external, open Bay 3: 3.5", 1" high, external, for media reader Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk Bay 6: 3.5", 1" high, internal, for disk
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals	
SAS controller	SAS <i>model(s)</i> : Marvell® 88SE6440, PCIe x4 adapter, 4 SATA/SAS ⁴ connectors, SATA 3.0Gb/s, SAS 3.0Gb/s	
Chipset	Intel X58 Express Chipset, Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O	Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 2: full-length, full-height, PCIe 2.0 x4** Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 4: full-length, full-height, PCIe x1 Slot 5: half-length, full-height, 32-bit PCI 2.3
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in	
IEEE 1394 adptr	None	
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec	
Speaker	Internal speaker for business audio	
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755	
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant	SECURITY <ul style="list-style-type: none"> • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • <i>Chassis intrusion switch on selected model(s)</i>
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Power supply	625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified	GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating
ThinkVantage®	Supports ThinkVantage technologies	
Preload OS	Genuine Windows® 7 Professional 64	
Preloaded applications	<ul style="list-style-type: none"> • Rescue and Recovery® • ThinkVantage System Update • ThinkVantage Toolbox • Norton® Internet Security (30 days of virus definitions) • Microsoft® Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW model(s) only) • Roxio MyDVD® (DVD±RW model(s) only) • Corel® WinDVD® (DVD or DVD±RW model(s) only) • Ulead® DVD MovieFactory® (Blu-ray model(s) only) 	LIMITED WARRANTY¹ <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107

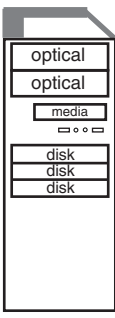
See footnotes for important warranty information
 EMEA model(s) announced October 12, 2010
 EMEA model(s) withdrawn effective October 2012

ThinkStation® S20 (4105) - TopSeller (November 2010) - withdrawn

Personal Systems Reference (PSREF)

Type-model	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Global	Win7 preload	Ann date (mm/dd/yy)
4105-O4G	1xW3550	3.06	3x2GB 1333MHz UDIMM	1x500GB SATA	No	DVD±RW	Media	No	1xQuadro 2000	No	No	Pro 64	11/02/10
4105-O5G	1xW3550	3.06	3x2GB 1333MHz UDIMM	1x500GB SATA	No	DVD±RW	Media	No	1xQuadro 4000	No	No	Pro 64	11/02/10
4105-O6G	1xW3550	3.06	3x2GB 1333MHz UDIMM	1x150GB SATA	No	DVD±RW	Media	No	1xQuadro 4000	No	No	Pro 64	11/02/10
4105-O7G	1xW3550	3.06	3x2GB 1333MHz UDIMM	1x150GB SATA	No	DVD±RW	Media	No	1xQuadro 2000	No	No	Pro 64	11/02/10
4105-1CG	1xW3550	3.06	2x2GB 1333MHz UDIMM	1x300GB SAS	No	DVD±RW	Media	No		No	No	Pro 64	11/30/10

- Part of the EMEA TopSeller™ Program
- 3-year limited warranty¹
- Microsoft Office 2010 Product Key Ready (O10PKR)

Processor(s)	Intel® Xeon® Processor W3550 with quad-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, Hyper-Threading Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 8MB cache	Tower  <ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 19.0"D x 18.8"H (with handle) • 175mm W x 483mm D x 478mm H • 38.5 lb (17.5kg) max configuration • 31-liter • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support
Implementation	One LGA1366 socket	
Memory	48GB max, UDIMM, ECC, PC3-8500 1066MHz DDR3 or PC3-10600 1333MHz DDR3 , 3-channel capable, six 240-pin DIMM sockets	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	<i>Some:</i> NVIDIA® Quadro® 2000 , PCIe x16 adapter, 1GB, two DisplayPort™, one dual-link DVI-I, 62W <i>Some:</i> NVIDIA Quadro 4000 , PCIe x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, one stereo, 142W	
Media reader	Media card reader, internal USB 2.0	Bay 1: 5.25", 1.6" high, external, std optical
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	Bay 2: 5.25", 1.6" high, external, open
Hard drive(s)	<i>Some:</i> 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5" <i>Some:</i> 150GB, SATA 3.0Gb/s, 10000 rpm, 2.5" <i>Some:</i> 300GB, SAS 3.0Gb/s, 15000 rpm, 3.5"	Bay 3: 3.5", 1" high, external, for media reader
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals	Bay 4: 3.5", 1" high, internal, for disk
SAS controller	SAS model(s): Marvell® 88SE6440, PCIe x4 adapter, 4 SATA/SAS ⁺ connectors, SATA 3.0Gb/s, SAS 3.0Gb/s	Bay 5: 3.5", 1" high, internal, for disk
Chipset	Intel X58 Express Chipset , Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O	Bay 6: 3.5", 1" high, internal, for disk
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max)
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in	Slot 2: full-length, full-height, PCIe 2.0 x4**
IEEE 1394 adptr	None	Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max)
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec	Slot 4: full-length, full-height, PCIe x1
Speaker	Internal speaker for business audio	Slot 5: half-length, full-height, 32-bit PCI 2.3
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755	* Adapters >75W use auxiliary power connector(s) from PSU
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant	** x16 mechanical
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Power supply	625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified	
ThinkVantage®	Supports ThinkVantage technologies	
Preload OS	Genuine Windows® 7 Professional 64	
Preloaded applications	<ul style="list-style-type: none"> • Rescue and Recovery® • ThinkVantage System Update • ThinkVantage Toolbox • Norton® Internet Security (30 days of virus definitions) • Microsoft® Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW model(s) only) • Roxio MyDVD® (DVD±RW model(s) only) • Corel® WinDVD® (DVD or DVD±RW model(s) only) • Ulead® DVD MovieFactory® (Blu-ray model(s) only) 	
		SECURITY <ul style="list-style-type: none"> • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • Chassis intrusion switch on selected model(s)
		GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating
		LIMITED WARRANTY¹ <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107

See footnotes for important warranty information
 EMEA model(s) announced November 2 or 30, 2010
 EMEA model(s) withdrawn effective October 2012

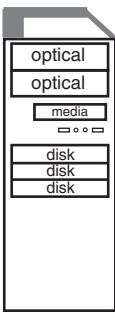
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 (G-SEV1-7) October 2012

ThinkStation® S20 (4105) - TopSeller (April 2011) - withdrawn

Personal Systems Reference (PSREF)

Type-model	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Global	Win7 preload	Ann date (mm/dd/yy)
4105-2AG	1xW3565	3.20	3x2GB 1333MHz UDIMM	1x1TB SATA	No	DVD±RW	Media	None		No	No	Pro 64	04/26/11
4105-2BG	1xW3565	3.20	3x2GB 1333MHz UDIMM	1x1TB SATA	No	DVD±RW	Media	None	1xQuadro 600	No	No	Pro 64	04/26/11
4105-2CG	1xW3565	3.20	3x2GB 1333MHz UDIMM	1x1TB SATA	No	DVD±RW	Media	None	1xQuadro 2000	No	No	Pro 64	04/26/11
4105-2DG	1xW3565	3.20	3x2GB 1333MHz UDIMM	1x300GB SAS	No	DVD±RW	Media	None		No	No	Pro 64	04/26/11

- Part of the EMEA TopSeller™ Program
- 3-year limited warranty¹
- Microsoft Office 2010 Product Key Ready (O10PKR)

Processor(s)	Intel® Xeon® Processor W3565 with quad-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 8MB cache	Tower  <ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 19.0"D x 18.8"H (with handle) • 175mm W x 483mm D x 478mm H • 38.5 lb (17.5kg) max configuration • 31-liter • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support <p>Bay 1: 5.25", 1.6" high, external, std optical Bay 2: 5.25", 1.6" high, external, open Bay 3: 3.5", 1" high, external, for media reader Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk Bay 6: 3.5", 1" high, internal, for disk</p> <p>Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 2: full-length, full-height, PCIe 2.0 x4** Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 4: full-length, full-height, PCIe x1 Slot 5: half-length, full-height, 32-bit PCI 2.3</p> <p>* Adapters >75W use auxiliary power connector(s) from PSU ** x16 mechanical</p>
Implementation	One LGA1366 socket	
Memory	48GB max, UDIMM, ECC, PC3-8500 1066MHz DDR3 or PC3-10600 1333MHz DDR3 , 3-channel capable, six 240-pin DIMM sockets	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	<i>Some:</i> NVIDIA® Quadro® 600 , PCIe x16 adapter, 1GB, one DisplayPort™, one dual-link DVI-I, 40W <i>Some:</i> NVIDIA Quadro 2000 , PCIe x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I, 62W	
Media reader	Media card reader, internal USB 2.0	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Hard drive(s)	<i>Some:</i> 1TB, SATA 3.0Gb/s, 7200 rpm, 3.5" <i>Some:</i> 300GB, SAS 3.0Gb/s, 15000 rpm, 3.5"	
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals	
SAS controller	SAS model(s): Marvell® 88SE6440, PCIe x4 adapter, 4 SATA/SAS ⁴ connectors, SATA 3.0Gb/s, SAS 3.0Gb/s	
Chipset	Intel X58 Express Chipset , Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in	
IEEE 1394 adptr	None	
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec	
Speaker	Internal speaker for business audio	
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755	
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Power supply	625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified	
ThinkVantage®	Supports ThinkVantage technologies	
Preload OS	Genuine Windows® 7 Professional 64	
Preloaded applications	<ul style="list-style-type: none"> • Rescue and Recovery® • ThinkVantage System Update • ThinkVantage Toolbox • Norton® Internet Security (30 days of virus definitions) • Microsoft® Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW model(s) only) • Roxio MyDVD® (DVD±RW model(s) only) • Corel® WinDVD® (DVD or DVD±RW model(s) only) • Ulead® DVD MovieFactory® (Blu-ray model(s) only) 	
<p align="center">SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • Chassis intrusion switch on selected model(s) <p>GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating</p> <p align="center">LIMITED WARRANTY¹</p> <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107 		

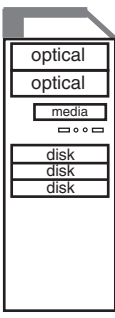
See footnotes for important warranty information
 EMEA model(s) announced April 26, 2011
 EMEA model(s) withdrawn effective October 2012

ThinkStation® S20 (4105) - TopSeller (December 2011) - withdrawn

Personal Systems Reference (PSREF)

Type-model	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Global	Win7 preload	Ann date (mm/dd/yy)
4105-8CG	1xW3565	3.20	3x2GB 1333MHz UDIMM	2x500GB SATA	No	DVD±RW	Media	None		No	No	Pro 64	12/06/11
4105-9CG	1xW3565	3.20	3x2GB 1333MHz UDIMM	2x500GB SATA	No	DVD±RW	Media	None	1xQuadro 600	No	No	Pro 64	12/06/11
4105-4AG	1xW3565	3.20	3x2GB 1333MHz UDIMM	2x500GB SATA	No	DVD±RW	Media	None	1xQuadro 2000	No	No	Pro 64	12/06/11
4105-3CG	1xW3565	3.20	3x2GB 1333MHz UDIMM	1x160GB SSD	No	DVD±RW	Media	None		No	No	Pro 64	12/13/11
4105-4CG	1xW3565	3.20	3x2GB 1333MHz UDIMM	1x256GB SSD	No	DVD±RW	Media	None		No	No	Pro 64	12/13/11

- Part of the EMEA TopSeller™ Program
- 3-year limited warranty¹
- Microsoft Office 2010 Product Key Ready (O10PKR)

Processor(s)	Intel® Xeon® Processor W3565 with quad-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 8MB cache	Tower  <ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 19.0"D x 18.8"H (with handle) • 175mm W x 483mm D x 478mm H • 38.5 lb (17.5kg) max configuration • 31-liter • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support <p>Bay 1: 5.25", 1.6" high, external, std optical Bay 2: 5.25", 1.6" high, external, open Bay 3: 3.5", 1" high, external, for media reader Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk Bay 6: 3.5", 1" high, internal, for disk</p> <p>Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 2: full-length, full-height, PCIe 2.0 x4** Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 4: full-length, full-height, PCIe x1 Slot 5: half-length, full-height, 32-bit PCI 2.3</p> <p>* Adapters >75W use auxiliary power connector(s) from PSU ** x16 mechanical</p>
Implementation	One LGA1366 socket	
Memory	48GB max, UDIMM, ECC, PC3-8500 1066MHz DDR3 or PC3-10600 1333MHz DDR3 , 3-channel capable, six 240-pin DIMM sockets	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	Some: NVIDIA® Quadro® 600 , PCIe x16 adapter, 1GB, one DisplayPort™, one dual-link DVI-I, 40W Some: NVIDIA Quadro 2000 , PCIe x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I, 62W	
Media reader	Media card reader, internal USB 2.0	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Hard drive(s)	Some: 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5" Some: 160GB or 256GB Solid State Drive (SSD), SATA 3.0Gb/s, 1.8" Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals	
SATA controller	SAS model(s): Marvell® 88SE6440, PCIe x4 adapter, 4 SATA/SAS ⁴ connectors, SATA 3.0Gb/s, SAS 3.0Gb/s	
SAS controller		
Chipset	Intel X58 Express Chipset , Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in	
IEEE 1394 adptr	None	
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec	
Speaker	Internal speaker for business audio	
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755	
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Power supply	625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified	
ThinkVantage®	Supports ThinkVantage technologies	
Preload OS	Genuine Windows® 7 Professional 64	
Preloaded applications	<ul style="list-style-type: none"> • Rescue and Recovery® • ThinkVantage System Update • ThinkVantage Toolbox • Norton® Internet Security (30 days of virus definitions) • Microsoft® Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW model(s) only) • Roxio MyDVD® (DVD±RW model(s) only) • Corel® WinDVD® (DVD or DVD±RW model(s) only) • Ulead® DVD MovieFactory® (Blu-ray model(s) only) 	
<p align="center">SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • Chassis intrusion switch on selected model(s) <p>GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating</p> <p align="center">LIMITED WARRANTY¹</p> <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107 		

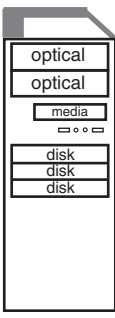
See footnotes for important warranty information
 EMEA model(s) announced December 6 or 13, 2011
 EMEA model(s) withdrawn effective October 2012

ThinkStation® S20 (4157) - March 2010 - withdrawn

Personal Systems Reference (PSREF)

Type-model	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Global	Win7 preload (mm/dd/yy)	Ann date
4157-B4G	1xE5620	2.40	3x2GB 1066MHz UDIMM	1x500GB SATA	No	DVD±RW	Media	None	No	No	No	Pro 64	03/16/10

- *Faster, more efficient architecture with the latest Intel workstation technology*
- *High performance workstation with premium graphics support for specialized professionals*
- *Environmentally friendly, cool, and quiet with rock solid engineering*
- *3-year limited warranty¹*
- *Microsoft Office 2010 Product Key Ready (O10PKR)*

Processor(s)	Intel® Xeon® Processor E5620 with quad-core, 5.86GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 12MB cache	Tower  <ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 19.0"D x 18.8"H (with handle) • 175mm W x 483mm D x 478mm H • 38.5 lb (17.5kg) max configuration • 31-liter • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support
Implementation	One LGA1366 socket	
Memory	48GB max, UDIMM, ECC, PC3-8500 1066MHz DDR3 or PC3-10600 1333MHz DDR3 , 3-channel capable, six 240-pin DIMM sockets	<p>Bay 1: 5.25", 1.6" high, external, std optical</p> <p>Bay 2: 5.25", 1.6" high, external, open</p> <p>Bay 3: 3.5", 1" high, external, for media reader</p> <p>Bay 4: 3.5", 1" high, internal, for disk</p> <p>Bay 5: 3.5", 1" high, internal, for disk</p> <p>Bay 6: 3.5", 1" high, internal, for disk</p> <p>Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max)</p> <p>Slot 2: full-length, full-height, PCIe 2.0 x4**</p> <p>Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max)</p> <p>Slot 4: full-length, full-height, PCIe x1</p> <p>Slot 5: half-length, full-height, 32-bit PCI 2.3</p> <p>* Adapters >75W use auxiliary power connector(s) from PSU</p> <p>** x16 mechanical</p>
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	None	<p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • <i>Chassis intrusion switch on selected model(s)</i> <p>GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating</p> <p>LIMITED WARRANTY¹</p> <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107
Media reader	Media card reader, internal USB 2.0	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Hard drive(s)	500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"	
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals	
SAS controller	<i>SAS model(s):</i> Marvell® 88SE6440, PCIe x4 adapter, 4 SATA/SAS ⁺ connectors, SATA 3.0Gb/s, SAS 3.0Gb/s	
Chipset	Intel X58 Express Chipset , Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in	
IEEE 1394 adptr	None	
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec	
Speaker	Internal speaker for business audio	
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755	
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Power supply	625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified	
ThinkVantage®	Supports ThinkVantage technologies	
Preload OS	Genuine Windows® 7 Professional 64	
Preloaded applications	<ul style="list-style-type: none"> • Rescue and Recovery® • ThinkVantage System Update • ThinkVantage Toolbox • Norton® Internet Security (30 days of virus definitions) • Microsoft® Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW model(s) only) • Roxio MyDVD® (DVD±RW model(s) only) • Corel® WinDVD® (DVD or DVD±RW model(s) only) • Ulead® DVD MovieFactory® (Blu-ray model(s) only) 	

See footnotes for important warranty information
EMEA model(s) announced March 16, 2010
EMEA model(s) withdrawn effective October 2012

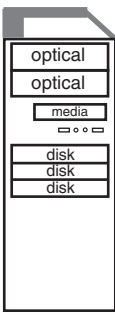
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(G-SEV1-9) October 2012

Type-model	Processor(s)GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Global	Win7 preload	Ann date (mm/dd/yy)		
4157-F4G	1xW3550	3.06	3x2GB	1333MHz	UDIMM	1x500GB SATA	DVD±RW	Media	No	1xQuadro 4000	No	No	Pro 64	09/21/10
4157-F6G	1xW3565	3.20	3x2GB	1333MHz	UDIMM	1x500GB SATA	DVD±RW	Media	No	1xQuadro 4000	No	No	Pro 64	09/21/10
4157-G6G	1xW3565	3.20	3x2GB	1333MHz	UDIMM	1x500GB SATA	DVD±RW	Media	No	1xQuadro 4000	No	No	Pro 64	09/21/10
4157-G8G	1xW3550	3.06	3x2GB	1333MHz	UDIMM	2x500GB SATA	DVD±RW	Media	No	1xQuadro 4000	No	No	Pro 64	09/21/10

- *Faster, more efficient architecture with the latest Intel workstation technology*
- *High performance workstation with premium graphics support for specialized professionals*
- *Environmentally friendly, cool, and quiet with rock solid engineering*
- *3-year limited warranty¹*
- *Microsoft Office 2010 Product Key Ready (O10PKR)*

Processor(s)	Intel® Xeon® Processor W3550 with quad-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, Hyper-Threading Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 8MB cache Intel Xeon Processor W3565 with quad-core , 4.8GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 8MB cache
Implementation	One LGA1366 socket
Memory	48GB max, UDIMM, ECC, PC3-8500 1066MHz DDR3 or PC3-10600 1333MHz DDR3 , 3-channel capable, six 240-pin DIMM sockets
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed
Graphics	NVIDIA® Quadro® 4000 , PCIe x16 adapter, 2GB, two DisplayPort™, one dual-link DVI-I, one stereo, 142W
Media reader	Media card reader, internal USB 2.0
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive
Hard drive(s)	500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals
SAS controller	SAS model(s): Marvell® 88SE6440, PCIe x4 adapter, 4 SATA/SAS ⁴ connectors, SATA 3.0Gb/s, SAS 3.0Gb/s
Chipset	Intel X58 Express Chipset , Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in
IEEE 1394 adptr	None
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec
Speaker	Internal speaker for business audio
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified
ThinkVantage®	Supports ThinkVantage technologies
Preload OS	Genuine Windows® 7 Professional 64
Preloaded applications	<ul style="list-style-type: none"> • Rescue and Recovery® • ThinkVantage System Update • ThinkVantage Toolbox • Norton® Internet Security (30 days of virus definitions) • Microsoft® Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW model(s) only) • Roxio MyDVD® (DVD±RW model(s) only) • Corel® WinDVD® (DVD or DVD±RW model(s) only) • Ulead® DVD MovieFactory® (Blu-ray model(s) only)

Tower



- Raven black color; metal case
- 6.9"W x 19.0"D x 18.8"H (with handle)
- 175mm W x 483mm D x 478mm H
- 38.5 lb (17.5kg) max configuration
- 31-liter
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Rack shelf support

Bay 1: 5.25", 1.6" high, external, std optical
 Bay 2: 5.25", 1.6" high, external, open
 Bay 3: 3.5", 1" high, external, for media reader
 Bay 4: 3.5", 1" high, internal, for disk
 Bay 5: 3.5", 1" high, internal, for disk
 Bay 6: 3.5", 1" high, internal, for disk

Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max)
 Slot 2: full-length, full-height, PCIe 2.0 x4**
 Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max)
 Slot 4: full-length, full-height, PCIe x1
 Slot 5: half-length, full-height, 32-bit PCI 2.3

* Adapters >75W use auxiliary power connector(s) from PSU
 ** x16 mechanical

SECURITY

- Security chip (see information on left)
- Side cover lock (ships with two identical keys)
- Padlock loop (in rear for opt padlock)
- Security slot (in rear for optional Kensington® Microsaver® cable)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- USB port disablement (front or all)
- Chassis intrusion switch on selected model(s)

GREENGUARD® certified
 RoHS-compliant
 EPEAT™ Gold rating

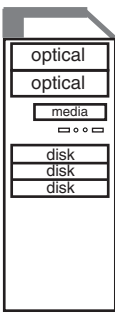
LIMITED WARRANTY¹

- ↪ 3-year parts and labor
- ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)
- ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html
 - Onsite service upgrade options (in eligible locations)⁷
 - Post warranty maintenance services
- ↪ For more information find the Lenovo support phone number in your country at <http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107>

See footnotes for important warranty information
 EMEA model(s) announced September 21, 2010
 EMEA model(s) withdrawn effective October 2012

Type-model	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Win7 Global preload	Ann date (mm/dd/yy)
4157-F3G	1xW3550	3.06	3x2GB 1333MHz UDIMM	1x500GB SATA	No	DVD±RW	Media	No	1xQuadro 2000	No	No	Pro 64 10/26/10

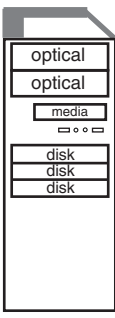
- Faster, more efficient architecture with the latest Intel workstation technology
- High performance workstation with premium graphics support for specialized professionals
- Environmentally friendly, cool, and quiet with rock solid engineering
- 3-year limited warranty¹
- Microsoft Office 2010 Product Key Ready (O10PKR)

<p>Processor(s) Intel® Xeon® Processor W3550 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, Hyper-Threading Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 8MB cache</p> <p>Implementation One LGA1366 socket</p> <p>Memory 48GB max, UDIMM, ECC, PC3-8500 1066MHz DDR3 or PC3-10600 1333MHz DDR3, 3-channel capable, six 240-pin DIMM sockets</p> <p>Additional memory disclaimers • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed</p> <p>Graphics NVIDIA® Quadro® 2000, PCIe x16 adapter, 1GB, two DisplayPort™, one dual-link DVI-I, 62W</p> <p>Media reader Media card reader, internal USB 2.0</p> <p>Optical Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive</p> <p>Hard drive(s) 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"</p> <p>SATA controller Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals</p> <p>SAS controller <i>SAS model(s)</i>: Marvell® 88SE6440, PCIe x4 adapter, 4 SATA/SAS⁴ connectors, SATA 3.0Gb/s, SAS 3.0Gb/s</p> <p>Chipset Intel X58 Express Chipset, Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O</p> <p>Front ports Two USB 2.0, microphone (3.5mm), headphone (3.5mm)</p> <p>Rear ports Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in</p> <p>IEEE 1394 adptr None</p> <p>Audio High Definition (HD) Audio, Analog Devices AD1988A codec</p> <p>Speaker Internal speaker for business audio</p> <p>Ethernet One gigabit ethernet on planar, Broadcom® BCM5755</p> <p>Security chip Broadcom Trusted Platform Module, TCG 1.2-compliant</p> <p>Keyboard Preferred Pro USB Keyboard (USB connector), 104-key, black</p> <p>Mouse Optical Wheel Mouse (USB connector), black</p> <p>Power supply 625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified</p> <p>ThinkVantage® Supports ThinkVantage technologies</p> <p>Preload OS Genuine Windows® 7 Professional 64</p> <p>Preloaded applications • Rescue and Recovery® • ThinkVantage System Update • ThinkVantage Toolbox • Norton® Internet Security (30 days of virus definitions) • Microsoft® Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW model(s) only) • Roxio MyDVD® (DVD±RW model(s) only) • Corel® WinDVD® (DVD or DVD±RW model(s) only) • Ulead® DVD MovieFactory® (Blu-ray model(s) only)</p>	<p>Tower</p>  <ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 19.0"D x 18.8"H (with handle) • 175mm W x 483mm D x 478mm H • 38.5 lb (17.5kg) max configuration • 31-liter • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support <p>Bay 1: 5.25", 1.6" high, external, std optical Bay 2: 5.25", 1.6" high, external, open Bay 3: 3.5", 1" high, external, for media reader Bay 4: 3.5", 1" high, internal, for disk Bay 5: 3.5", 1" high, internal, for disk Bay 6: 3.5", 1" high, internal, for disk</p> <p>Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 2: full-length, full-height, PCIe 2.0 x4** Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max) Slot 4: full-length, full-height, PCIe x1 Slot 5: half-length, full-height, 32-bit PCI 2.3</p> <p>* Adapters >75W use auxiliary power connector(s) from PSU ** x16 mechanical</p> <p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • <i>Chassis intrusion switch on selected model(s)</i> <p>GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating</p> <p>LIMITED WARRANTY¹</p> <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107
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See footnotes for important warranty information
 EMEA model(s) announced October 26, 2010
 EMEA model(s) withdrawn effective October 2012

Type-model	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Win7 Global preload	Ann date (mm/dd/yy)
4157-M6G	1xW3550	3.06	3x2GB 1333MHz UDIMM	1x300GB SAS	No	DVD±RW	Media	No	1xQuadro 2000	No	No	Pro 64 11/30/10

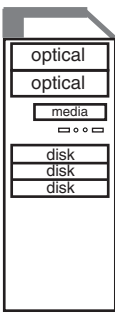
- Faster, more efficient architecture with the latest Intel workstation technology
- High performance workstation with premium graphics support for specialized professionals
- Environmentally friendly, cool, and quiet with rock solid engineering
- 3-year limited warranty¹
- Microsoft Office 2010 Product Key Ready (O10PKR)

Processor(s)	Intel® Xeon® Processor W3550 with quad-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, Hyper-Threading Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 8MB cache	Tower  <ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 19.0"D x 18.8"H (with handle) • 175mm W x 483mm D x 478mm H • 38.5 lb (17.5kg) max configuration • 31-liter • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support
Implementation	One LGA1366 socket	
Memory	48GB max, UDIMM, ECC, PC3-8500 1066MHz DDR3 or PC3-10600 1333MHz DDR3 , 3-channel capable, six 240-pin DIMM sockets	<p>Bay 1: 5.25", 1.6" high, external, std optical</p> <p>Bay 2: 5.25", 1.6" high, external, open</p> <p>Bay 3: 3.5", 1" high, external, for media reader</p> <p>Bay 4: 3.5", 1" high, internal, for disk</p> <p>Bay 5: 3.5", 1" high, internal, for disk</p> <p>Bay 6: 3.5", 1" high, internal, for disk</p>
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	NVIDIA® Quadro® 2000 , PCIe x16 adapter, 1GB, two DisplayPort™, one dual-link DVI-I, 62W	<p>Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max)</p> <p>Slot 2: full-length, full-height, PCIe 2.0 x4**</p> <p>Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max)</p> <p>Slot 4: full-length, full-height, PCIe x1</p> <p>Slot 5: half-length, full-height, 32-bit PCI 2.3</p>
Media reader	Media card reader, internal USB 2.0	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	<p>* Adapters >75W use auxiliary power connector(s) from PSU</p> <p>** x16 mechanical</p>
Hard drive(s)	300GB, SAS 3.0Gb/s, 15000 rpm, 3.5"	
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals	<p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • Chassis intrusion switch on selected model(s)
SAS controller	SAS model(s): Marvell® 88SE6440, PCIe x4 adapter, 4 SATA/SAS ⁴ connectors, SATA 3.0Gb/s, SAS 3.0Gb/s	
Chipset	Intel X58 Express Chipset , Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O	<p>GREENGUARD® certified</p> <p>RoHS-compliant</p> <p>EPEAT™ Gold rating</p>
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in	<p>LIMITED WARRANTY¹</p> <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107
IEEE 1394 adptr	None	
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec	
Speaker	Internal speaker for business audio	<p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • Chassis intrusion switch on selected model(s)
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755	
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant	<p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • Chassis intrusion switch on selected model(s)
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	<p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • Chassis intrusion switch on selected model(s)
Power supply	625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified	
ThinkVantage®	Supports ThinkVantage technologies	<p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • Chassis intrusion switch on selected model(s)
Preload OS	Genuine Windows® 7 Professional 64	
Preloaded applications	<ul style="list-style-type: none"> • Rescue and Recovery® • ThinkVantage System Update • ThinkVantage Toolbox • Norton® Internet Security (30 days of virus definitions) • Microsoft® Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW model(s) only) • Roxio MyDVD® (DVD±RW model(s) only) • Corel® WinDVD® (DVD or DVD±RW model(s) only) • Ulead® DVD MovieFactory® (Blu-ray model(s) only) 	

See footnotes for important warranty information
 EMEA model(s) announced November 30, 2010
 EMEA model(s) withdrawn effective October 2012

Type-model	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Win7 Global preload	Ann date (mm/dd/yy)
4157-1AG	1xW3565	3.20	3x2GB 1333MHz UDIMM	1x450GB SAS	No	DVD±RW	Media	No	1xQuadro 2000	No	No	Pro 64 04/26/11
4157-2AG	1xW3565	3.20	3x2GB 1333MHz UDIMM	1x160GB SSD	No	DVD±RW	Media	No		No	No	Pro 64 04/26/11
4157-3AG	1xW3690	3.46	3x2GB 1333MHz UDIMM	1x1TB SATA	No	DVD±RW	Media	No		No	No	Pro 64 04/26/11
4157-4AG	1xW3690	3.46	3x2GB 1333MHz UDIMM	1x450GB SAS	No	DVD±RW	Media	No		No	No	Pro 64 04/26/11
4157-5AG	1xW3690	3.46	3x2GB 1333MHz UDIMM	1x1TB SATA	No	DVD±RW	Media	No	1xQuadro 4000	No	No	Pro 64 04/26/11
4157-6AG	1xW3565	3.20	3x2GB 1333MHz UDIMM	1x2TB SATA	No	DVD±RW	Media	No	1xNVS300	No	No	Pro 64 04/26/11

- 3-year limited warranty¹
- Microsoft Office 2010 Product Key Ready (O10PKR)

Processor(s)	<p>Intel® Xeon® Processor W3565 with quad-core. 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 8MB cache</p> <p>Intel Xeon Processor W3690 with six-core. 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache</p>	Tower	<ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 19.0"D x 18.8"H (with handle) • 175mm W x 483mm D x 478mm H • 38.5 lb (17.5kg) max configuration • 31-liter • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support
Implementation	One LGA1366 socket		
Memory	48GB max, UDIMM, ECC, PC3-8500 1066MHz DDR3 or PC3-10600 1333MHz DDR3 , 3-channel capable, six 240-pin DIMM sockets	<p>Bay 1: 5.25", 1.6" high, external, std optical</p> <p>Bay 2: 5.25", 1.6" high, external, open</p> <p>Bay 3: 3.5", 1" high, external, for media reader</p> <p>Bay 4: 3.5", 1" high, internal, for disk</p> <p>Bay 5: 3.5", 1" high, internal, for disk</p> <p>Bay 6: 3.5", 1" high, internal, for disk</p>	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	<p>Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max)</p> <p>Slot 2: full-length, full-height, PCIe 2.0 x4**</p> <p>Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max)</p> <p>Slot 4: full-length, full-height, PCIe x1</p> <p>Slot 5: half-length, full-height, 32-bit PCI 2.3</p>	
Graphics	<p><i>Some:</i> NVIDIA® Quadro® NVS 300, PCIe x16 adapter, 512MB, DMS59 to dual single-link DVI-I, 17.5W</p> <p><i>Some:</i> NVIDIA Quadro 2000, PCIe x16 adapter, 1GB, two DisplayPort™, one dual-link DVI-I, 62W</p> <p><i>Some:</i> NVIDIA Quadro 4000, PCIe x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, one stereo, 142W</p>	<p>* Adapters >75W use auxiliary power connector(s) from PSU</p> <p>** x16 mechanical</p>	
Media reader	Media card reader, internal USB 2.0		
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive		
Hard drive(s)	<p><i>Some:</i> 1TB or 2TB, SATA 3.0Gb/s, 7200 rpm, 3.5"</p> <p><i>Some:</i> 160GB Solid State Drive (SSD), SATA 3.0Gb/s, 1.8"</p> <p><i>Some:</i> 450GB, SAS 3.0Gb/s, 15000 rpm, 3.5"</p>		
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals		
SAS controller	<i>SAS model(s):</i> Marvell® 88SE6440, PCIe x4 adapter, 4 SATA/SAS ⁴ connectors, SATA 3.0Gb/s, SAS 3.0Gb/s		
Chipset	Intel X58 Express Chipset , Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O		
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)		
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in		
IEEE 1394 adptr	None		
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec		
Speaker	Internal speaker for business audio		
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755		
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant		
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black		
Mouse	Optical Wheel Mouse (USB connector), black		
Power supply	625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified		
ThinkVantage®	Supports ThinkVantage technologies		
Preload OS	Genuine Windows® 7 Professional 64		
Preloaded applications	<ul style="list-style-type: none"> • Rescue and Recovery® • ThinkVantage System Update • ThinkVantage Toolbox • Norton® Internet Security (30 days of virus definitions) • Microsoft® Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW model(s) only) • Roxio MyDVD® (DVD±RW model(s) only) • Corel® WinDVD® (DVD or DVD±RW model(s) only) • Ulead® DVD MovieFactory® (Blu-ray model(s) only) 	<p>GREENGUARD® certified</p> <p>RoHS-compliant</p> <p>EPEAT™ Gold rating</p> <p>LIMITED WARRANTY¹</p> <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107 	

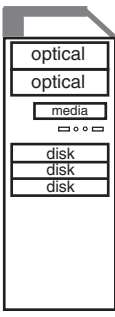
See footnotes for important warranty information
 EMEA model(s) announced April 26, 2011
 EMEA model(s) withdrawn effective October 2012

ThinkStation® S20 (4157) - May 2011 - withdrawn

Personal Systems Reference (PSREF)

Type-model	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Global	Win7 preload	Ann date (mm/dd/yy)
4157-J7G	1xW3550	3.06	2x2GB 1333MHz UDIMM	1x500GB SATA	No	DVD±RW	Media	No	1xQuadro 2000	No	Global	Pro 64	05/17/11
4157-M3G	1xW3550	3.06	2x2GB 1333MHz UDIMM	1x150GB SATA	No	DVD±RW	Media	No	1xQuadro 2000	No	Global	Pro 64	05/17/11
4157-M4G	1xW3550	3.06	3x2GB 1333MHz UDIMM	1x500GB SATA	No	DVD±RW	Media	No	1xQuadro 600	No	Global	Pro 64	05/17/11

- *Faster, more efficient architecture with the latest Intel workstation technology*
- *High performance workstation with premium graphics support for specialized professionals*
- *Environmentally friendly, cool, and quiet with rock solid engineering*
- *3-year limited warranty¹*
- *Microsoft Office 2010 Product Key Ready (O10PKR)*

Processor(s)	Intel® Xeon® Processor W3550 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, Hyper-Threading Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 8MB cache	Tower	<ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 19.0"D x 18.8"H (with handle) • 175mm W x 483mm D x 478mm H • 38.5 lb (17.5kg) max configuration • 31-liter • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support
Implementation	One LGA1366 socket		
Memory	48GB max, UDIMM, ECC, PC3-8500 1066MHz DDR3 or PC3-10600 1333MHz DDR3 , 3-channel capable, six 240-pin DIMM sockets	<ul style="list-style-type: none"> • Bay 1: 5.25", 1.6" high, external, std optical • Bay 2: 5.25", 1.6" high, external, open • Bay 3: 3.5", 1" high, external, for media reader • Bay 4: 3.5", 1" high, internal, for disk • Bay 5: 3.5", 1" high, internal, for disk • Bay 6: 3.5", 1" high, internal, for disk 	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	<ul style="list-style-type: none"> • Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max) • Slot 2: full-length, full-height, PCIe 2.0 x4** • Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max) • Slot 4: full-length, full-height, PCIe x1 • Slot 5: half-length, full-height, 32-bit PCI 2.3 	
Graphics	<i>Some: NVIDIA® Quadro® 600, PCIe x16 adapter, 1GB, one DisplayPort™, one dual-link DVI-I, 40W</i> <i>Some: NVIDIA Quadro 2000, PCIe x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I, 62W</i>	<ul style="list-style-type: none"> * Adapters >75W use auxiliary power connector(s) from PSU ** x16 mechanical 	
Media reader	Media card reader, internal USB 2.0		
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive		
Hard drive(s)	<i>Some: 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"</i> <i>Some: 150GB, SATA 3.0Gb/s, 10000 rpm, 2.5"</i>		
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals		
SAS controller	SAS model(s): Marvell® 88SE6440, PCIe x4 adapter, 4 SATA/SAS ² connectors, SATA 3.0Gb/s, SAS 3.0Gb/s		
Chipset	Intel X58 Express Chipset , Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O		
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)		
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in		
IEEE 1394 adptr	None		
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec		
Speaker	Internal speaker for business audio		
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755		
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant		
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black		
Mouse	Optical Wheel Mouse (USB connector), black		
Power supply	625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified		
ThinkVantage®	Supports ThinkVantage technologies		
Preload OS	Genuine Windows® 7 Professional 64		
Preloaded applications	<ul style="list-style-type: none"> • Rescue and Recovery® • ThinkVantage System Update • ThinkVantage Toolbox • Norton® Internet Security (30 days of virus definitions) • Microsoft® Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW model(s) only) • Roxio MyDVD® (DVD±RW model(s) only) • Corel® WinDVD® (DVD or DVD±RW model(s) only) • Ulead® DVD MovieFactory® (Blu-ray model(s) only) 		
			<p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • Chassis intrusion switch on selected model(s)
			<p>GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating</p>
			<p>LIMITED WARRANTY¹</p> <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107

See footnotes for important warranty information
 EMEA model(s) announced May 17, 2011
 EMEA model(s) withdrawn effective October 2012

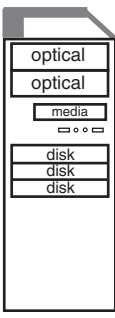
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 (G-SEV1-14) October 2012

ThinkStation® S20 (4157) - July 2011 - withdrawn

Personal Systems Reference (PSREF)

Type-model	Processor(s)GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Win7 Global preload (mm/dd/yy)	Ann date
4157-2CG	1xW3565 3.20	3x2GB 1333MHz UDIMM	1x450GB SAS	No	DVD±RW	Media	Switch	1xQuadro 4000	No	Global Pro 64	07/19/11

- Faster, more efficient architecture with the latest Intel workstation technology
- High performance workstation with premium graphics support for specialized professionals
- Environmentally friendly, cool, and quiet with rock solid engineering
- 3-year limited warranty¹
- Microsoft Office 2010 Product Key Ready (O10PKR)

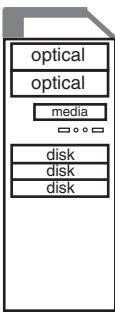
Processor(s)	Intel® Xeon® Processor W3565 with quad-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 8MB cache	Tower	<ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 19.0"D x 18.8"H (with handle) • 175mm W x 483mm D x 478mm H • 38.5 lb (17.5kg) max configuration • 31-liter • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support
Implementation	One LGA1366 socket		
Memory	48GB max, UDIMM, ECC, PC3-8500 1066MHz DDR3 or PC3-10600 1333MHz DDR3 , 3-channel capable, six 240-pin DIMM sockets	<p>Bay 1: 5.25", 1.6" high, external, std optical</p> <p>Bay 2: 5.25", 1.6" high, external, open</p> <p>Bay 3: 3.5", 1" high, external, for media reader</p> <p>Bay 4: 3.5", 1" high, internal, for disk</p> <p>Bay 5: 3.5", 1" high, internal, for disk</p> <p>Bay 6: 3.5", 1" high, internal, for disk</p>	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	<p>Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max)</p> <p>Slot 2: full-length, full-height, PCIe 2.0 x4**</p> <p>Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max)</p> <p>Slot 4: full-length, full-height, PCIe x1</p> <p>Slot 5: half-length, full-height, 32-bit PCI 2.3</p>	
Graphics	NVIDIA® Quadro® 4000 , PCIe x16 adapter, 2GB, two DisplayPort™, one dual-link DVI-I, one stereo, 142W	<p>* Adapters >75W use auxiliary power connector(s) from PSU</p> <p>** x16 mechanical</p>	
Media reader	Media card reader, internal USB 2.0		
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive		
Hard drive(s)	450GB, SAS 3.0Gb/s, 15000 rpm, 3.5"		
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals		
SAS controller	SAS model(s): Marvell® 88SE6440, PCIe x4 adapter, 4 SATA/SAS ⁺ connectors, SATA 3.0Gb/s, SAS 3.0Gb/s		
Chipset	Intel X58 Express Chipset , Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O		
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)		
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in		
IEEE 1394 adptr	None		
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec		
Speaker	Internal speaker for business audio		
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755		
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant		
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black		
Mouse	Optical Wheel Mouse (USB connector), black		
Power supply	625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified		
ThinkVantage®	Supports ThinkVantage technologies		
Preload OS	Genuine Windows® 7 Professional 64		
Preloaded applications	<ul style="list-style-type: none"> • Rescue and Recovery® • ThinkVantage System Update • ThinkVantage Toolbox • Norton® Internet Security (30 days of virus definitions) • Microsoft® Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW model(s) only) • Roxio MyDVD® (DVD±RW model(s) only) • Corel® WinDVD® (DVD or DVD±RW model(s) only) • Ulead® DVD MovieFactory® (Blu-ray model(s) only) 		
			<p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • Chassis intrusion switch on selected model(s)
			<p>GREENGUARD® certified</p> <p>RoHS-compliant</p> <p>EPEAT™ Gold rating</p>
			<p>LIMITED WARRANTY¹</p> <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107

See footnotes for important warranty information
 EMEA model(s) announced July 19, 2011
 EMEA model(s) withdrawn effective October 2012

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Type-model	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Win7 Global preload	Ann date (mm/dd/yy)
4157-3DG	1xW3690	3.46	3x2GB 1333MHz UDIMM	2x500GB SATA	No	DVD±RW	Media	No		No	Pro 64	12/06/11
4157-5CG	1xW3690	3.46	3x2GB 1333MHz UDIMM	2x500GB SATA	No	DVD±RW	Media	No	1xQuadro 4000	No	Pro 64	12/06/11
4157-3CG	1xW3565	3.20	3x2GB 1333MHz UDIMM	1x256GB SSD	No	DVD±RW	Media	No	1xQuadro 2000	No	Pro 64	12/13/11

- 3-year limited warranty¹
- Microsoft Office 2010 Product Key Ready (O10PKR)

Processor(s)	<p>Intel® Xeon® Processor W3565 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 8MB cache</p> <p>Intel Xeon Processor W3690 with six-core, 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache</p>	<p>Tower</p>  <ul style="list-style-type: none"> • Raven black color; metal case • 6.9"W x 19.0"D x 18.8"H (with handle) • 175mm W x 483mm D x 478mm H • 38.5 lb (17.5kg) max configuration • 31-liter • Removable handle on top front • Toolless side cover removal • Toolless disk and optical drive removal • Toolless adapter retention • Illuminated front icons • Rack shelf support
Implementation	One LGA1366 socket	
Memory	48GB max, UDIMM, ECC, PC3-8500 1066MHz DDR3 or PC3-10600 1333MHz DDR3 , 3-channel capable, six 240-pin DIMM sockets	
Additional memory disclaimers	<ul style="list-style-type: none"> • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed 	
Graphics	<p><i>Some:</i> NVIDIA® Quadro® 2000, PCIe x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I, 62W</p> <p><i>Some:</i> NVIDIA Quadro 4000, PCIe x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, one stereo, 142W</p>	<p>Bay 1: 5.25", 1.6" high, external, std optical</p> <p>Bay 2: 5.25", 1.6" high, external, open</p> <p>Bay 3: 3.5", 1" high, external, for media reader</p> <p>Bay 4: 3.5", 1" high, internal, for disk</p> <p>Bay 5: 3.5", 1" high, internal, for disk</p> <p>Bay 6: 3.5", 1" high, internal, for disk</p>
Media reader	Media card reader, internal USB 2.0	
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	
Hard drive(s)	<p><i>Some:</i> 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"</p> <p><i>Some:</i> 256GB Solid State Drive (SSD), SATA 3.0Gb/s, 1.8"</p>	<p>Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max)</p> <p>Slot 2: full-length, full-height, PCIe 2.0 x4**</p> <p>Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max)</p> <p>Slot 4: full-length, full-height, PCIe x1</p> <p>Slot 5: half-length, full-height, 32-bit PCI 2.3</p>
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals	
SAS controller	<i>SAS model(s):</i> Marvell® 88SE6440, PCIe x4 adapter, 4 SATA/SAS ⁴ connectors, SATA 3.0Gb/s, SAS 3.0Gb/s	
Chipset	Intel X58 Express Chipset , Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O	<p>* Adapters >75W use auxiliary power connector(s) from PSU</p> <p>** x16 mechanical</p>
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in	
IEEE 1394 adptr	None	
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec	
Speaker	Internal speaker for business audio	
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755	
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant	<p>SECURITY</p> <ul style="list-style-type: none"> • Security chip (see information on left) • Side cover lock (ships with two identical keys) • Padlock loop (in rear for opt padlock) • Security slot (in rear for optional Kensington® Microsaver® cable) • Power-on password • Administrator password • Boot sequence control • Boot without keyboard, mouse • USB port disablement (front or all) • Chassis intrusion switch on selected model(s)
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Power supply	625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified	
ThinkVantage®	Supports ThinkVantage technologies	
Preload OS	Genuine Windows® 7 Professional 64	
Preloaded applications	<ul style="list-style-type: none"> • Rescue and Recovery® • ThinkVantage System Update • ThinkVantage Toolbox • Norton® Internet Security (30 days of virus definitions) • Microsoft® Office 2010 preloaded; purchase product key to activate • Roxio® Creator® Business Edition (DVD±RW model(s) only) • Roxio MyDVD® (DVD±RW model(s) only) • Corel® WinDVD® (DVD or DVD±RW model(s) only) • Ulead® DVD MovieFactory® (Blu-ray model(s) only) 	<p>GREENGUARD® certified</p> <p>RoHS-compliant</p> <p>EPEAT™ Gold rating</p> <p>LIMITED WARRANTY¹</p> <ul style="list-style-type: none"> ↪ 3-year parts and labor ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time) ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html <ul style="list-style-type: none"> • Onsite service upgrade options (in eligible locations)⁷ • Post warranty maintenance services ↪ For more information find the Lenovo support phone number in your country at http://www-307.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-69107

See footnotes for important warranty information
 EMEA model(s) announced December 6 or 13, 2011
 EMEA model(s) withdrawn effective October 2012

Availability: All offers subject to availability. Lenovo reserves the right to alter product offerings and specifications at any time, without notice. Lenovo is not responsible for photographic or typographic errors.

Warranty: For a copy of applicable product warranties, write to: Warranty Information, 500 Park Offices Drive, RTP, NC, 27709, Attn: Dept ZPYA/B600. Lenovo makes no representation or warranty regarding third party products or services.

- ¹ **Limited warranty:** Support unrelated to a warranty issue may be subject to additional charges.
- ² **Hard drive:** GB = billion bytes, TB = trillion bytes. Accessible capacity is less.
- ³ **Systems with limited onsite service** are designed to be repaired during the applicable warranty period primarily with customer-replaceable parts provided by Lenovo. Lenovo will only send a technician onsite to perform a repair if (a) remote telephone diagnosis and/or customer part replacement are unable to resolve the problem, or (b) the part is one of the few designated by Lenovo for onsite replacement. For a list of onsite replaceable parts, contact Lenovo. In the United States call 1-800-426-7378. Support unrelated to a warranty issue may be subject to additional charges.
- ⁵ **Included software** may differ from its retail version (if available), and may not include user manuals or all program functionality. License agreements may apply.
- ⁶ **Multi-Burner Plus** (part number 73P3305 or 73P3370) is a DVD±RW device that reads and writes to DVD-RAM, DVD-R, DVD-RW, DVD+R, and DVD+RW. It also reads and writes to CD-R and CD-RW media. 73P3370 also writes to DVD+R double layer media.

⁶ **Multi-Burner Plus** (part number 73P3305 or 73P3370) is a DVD±RW device that reads and writes to DVD-RAM, DVD-R, DVD-RW, DVD+R, and DVD+RW. It also reads and writes to CD-R and CD-RW media. 73P3370 also writes to DVD+R double layer media.

⁷ **ThinkPlus Services:** These services are available for machines normally used for business, professional, or trade purposes, rather than personal, family, or household purposes. Not all machine types and models are covered. Service period begins with the equipment date of purchase. Service must be purchased during the original limited product warranty period. Service levels are response time objectives and are not guarantees. If the machine problem turns out to be a Customer Replaceable Unit (CRU), a part will be express shipped to you for quick replacement. Onsite 24x7x2-hour service is not available in all locations. P&L means parts and labor. P/U means pick-up. See ThinkPlus terms and conditions for complete details and restrictions.

⁸ **Memory:** For PCs without a separate graphics card, memory supports both system and video. Accessible system memory may be up to 384MB less than the amount stated, depending on video mode.

⁹ **International Warranty Service** is available in any country in which this product is sold and serviced. Service delivery methods and parts availability vary by country, may be different from that in the country of purchase, and are subject to change without notice. Fees and restrictions may apply in some countries.

¹⁰ **Modem speeds:** Public network download speeds are limited to 53Kbps. Upload speeds are limited to 48Kbps for V.92 modems. Actual speeds depend on many factors and are often less than the maximum possible. V.92 functions and speeds require compatible phone line and server equipment. Check with your telephone and ISP service providers for availability.

¹¹ **For combination drives,** maximum speeds only are given in the following order: CD read, CD write, CD re-write, DVD read.

¹⁴ **Response times may vary.** May exclude some holidays. Telephone support may be subject to additional charges.

¹⁵ **Update Connector** is available at no charge to registered customers during the limited warranty period. Line charges may apply.

¹⁶ **Embedded Security Subsystem** works with optional VPN software.