

Personal Systems Reference Lenovo® ThinkStation® Workstations 2008 to 2013 - withdrawn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

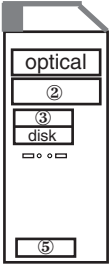


Lenovo ThinkStation Graphics Card Option
NVIDIA Quadro NVS450

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	Intel® Core™ i3-2100 processor (2C/4T, 3.1GHz, 3MB Cache) , integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) Intel Core i3-2120 processor (2C/4T, 3.3GHz, 3MB Cache) , integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) 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) 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)	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
Implementation	One LGA1155 socket	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
Memory	UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC , four 240-pin DIMM sockets; ECC model(s): 32GB max Non-ECC model(s): 16GB max	
Additional memory disclaimers	• 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)	<i>Some:</i> 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5" <i>Some:</i> 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	
Chipset	Intel C206 Chipset , Platform Controller Hub [PCH] (PCI Express® 2.0 x1, ethernet MAC, PCI, and USB)	Intel AMT Intel AMT supported on model(s) with Xeon processor
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	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)
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	GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating
ThinkVantage®	Supports ThinkVantage technologies	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
Preload OS	Genuine Windows® 7 Professional 64	
Preload Applications	• 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)	

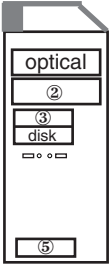
See footnotes for important warranty information
 EMEA model(s) announced April 19, 2011
 EMEA model(s) withdrawn effective October 2012

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 (G-VEN1-3) 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

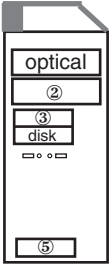
Processor Intel® Xeon® E3-1225 processor (4C/4T, 3.1GHz, 6MB Cache) , Turbo Boost 2.0 (up to 3.4GHz), integrated Intel HD Graphics P3000, DDR3 memory controller (up to 1333MHz) Intel Xeon E3-1235 processor (4C/8T, 3.2GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P3000, 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 - 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 - 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 December 6, 2011
 EMEA model(s) withdrawn effective October 2012

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

Personal Systems Reference(PSREF)

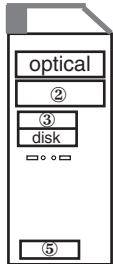
Type-model	Slot x bay	Processor	Cores / Threads	Memory DIMMs	ECC	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	Global	Win7 preload
7824-34G	4x5	Xeon E3-1220	3.1 4C/4T	2x2GB	ECC	1x500GB SATA	No	DVD±RW	Media	None		No	Pro 64
7824-35G	4x5	Xeon E3-1220	3.1 4C/4T	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	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) 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) 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) One LGA1155 socket												
Implementation													
Memory	UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC , four 240-pin DIMM sockets; ECC model(s): 32GB max Non-ECC model(s): 16GB max												
Additional memory disclaimers	- 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	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	25-in-1 media reader, internal USB 2.0												
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive												
Disk(s)	Some: 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5" Some: 1TB, SATA 3.0Gb/s, 7200 rpm, 3.5" Some: 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)												
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	- 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

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 (G-VEN1-4) October 2012

Type-model	Slot x bay	Processor	Cores / GHz	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	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) 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 E3-1240 processor (4C/8T, 3.3GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.7GHz),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) One LGA1155 socket	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
Implementation	One LGA1155 socket	
Memory	UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC , four 240-pin DIMM sockets; ECC model(s): 32GB max Non-ECC model(s): 16GB max	
Additional memory disclaimers	• 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)	<i>Some:</i> 250GB, SATA 3.0Gb/s, 7200 rpm, 3.5" <i>Some:</i> 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	
ThinkVantage®	Supports ThinkVantage technologies	
Preload OS	Genuine Windows® 7 Professional 64	
Preload Applications	• 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)	

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

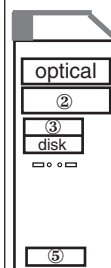
LIMITED WARRANTY¹

- ⇒ 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>

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	Intel® Core™ i3-2130 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) 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) 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) 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)													
Implementation	One LGA1155 socket													
Memory	UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets; ECC model(s): 32GB max Non-ECC model(s): 16GB max													
Additional memory disclaimers	• 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 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)	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													
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) <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	• 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)

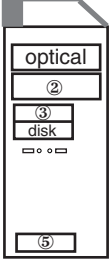
GREENGUARD® certified
 RoHS-compliant
 EPEAT™ Gold rating

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>

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	Intel® Core™ i3-2130 processor (2C/4T, 3.4GHz, 3MB Cache) , integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) 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) 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) 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) 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) 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)	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
Implementation	One LGA1155 socket	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
Memory	UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC , four 240-pin DIMM sockets; ECC model(s): 32GB max Non-ECC model(s): 16GB max	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
Additional memory disclaimers	• 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	Some: 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	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)
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)	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
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) <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 (only some listed)	• 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	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) 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 • 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 section</i>)													
Media reader	25-in-1 media reader, internal USB 2.0													
Optical Disk(s)	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive													
Disk Controller	160GB Solid State Drive (SSD), SATA 3.0Gb/s, 2.5" 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) <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	• 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
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ThinkStation® E30 (7783) - Integrated Graphics - withdrawn

Personal Systems Reference(PSREF)

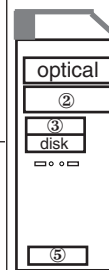
Type-model	Slot x bay	Processor	Cores / Threads	Memory DIMMs	ECC	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis Intrusion switch	Graphics adapter(s)	Global	Win7 preload
7783-27G	4x5	Xeon E3-1245	3.3 4C/8T	2x2GB	ECC	1x1TB SATA	No	DVD±RW	Media	None	Intel HD	No	Pro 64
7783-28G	4x5	Xeon E3-1275	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	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) 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)
Implementation	One LGA1155 socket
Memory	UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC , four 240-pin DIMM sockets; ECC model(s): 32GB max Non-ECC model(s): 16GB max
Additional memory disclaimers	• 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)	<i>Some:</i> 300GB, SATA 6.0Gb/s, 10000 rpm, 2.5" <i>Some:</i> 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
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	• 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
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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)
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- 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
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ThinkStation® E30 (7783) - Integrated Graphics (December 2011)

Personal Systems Reference(PSREF)

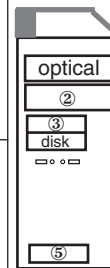
Type-model	Slot x bay	Processor	Cores / Threads	Memory DIMMs	ECC	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis Intrusion switch	1394 adptr	Graphics adapter(s)	Global	Win7 preload
7783-B9G	4x5	Xeon E3-1245	3.3 4C/8T	2x2GB	ECC	2x500GB SATA	No	DVD±RW	Media	None	None	Intel HD	No	Pro 64
7783-C1G	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	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) 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)
Implementation	One LGA1155 socket
Memory	UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC , four 240-pin DIMM sockets; ECC model(s): 32GB max Non-ECC model(s): 16GB max
Additional memory disclaimers	• 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	• 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>

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)
Implementation 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)
 One LGA1155 socket

Memory **UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC**, four 240-pin DIMM sockets;
ECC model(s): 32GB max
Non-ECC model(s): 16GB max
Additional memory disclaimers

- 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 **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 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)
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

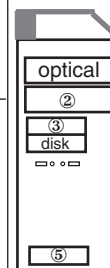
Keyboard Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse Optical Wheel Mouse (USB connector), black
Power supply 280 watts with variable speed fan, autosensing, 85% PSU, 80 PLUS® Bronze qualified

ThinkVantage® Supports ThinkVantage technologies

Preload OS Genuine Windows® 7 Professional 64
Preload Applications

- 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)

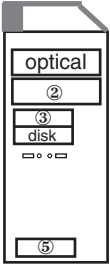
GREENGUARD® certified
 RoHS-compliant
 EPEAT™ Gold rating

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>

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												
Implementation													
Memory	UDIMM, PC3-10600 1333MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets; ECC model(s): 32GB max Non-ECC model(s): 16GB max												
Additional memory disclaimers	• 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	• 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

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 (G-VEN2-2) October 2012

ThinkStation.



Lenovo ThinkStation E31 Tower



Lenovo ThinkStation E31 SFF



Lenovo ThinkStation E31 Tower



Lenovo ThinkStation E31 SFF



Lenovo ThinkStation E31 Tower

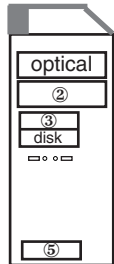


Lenovo ThinkStation E31 SFF

ThinkStation® E31 Tower (2555) - TopSeller

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
2555-11G 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		No	No	Switch	No	No	Pro 64

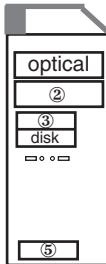
Processor	Intel® Xeon® E3-1220V2 processor (4C/4T, 3.1GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.5GHz), DDR3 memory controller (up to 1600MHz) Intel Xeon E3-1225V2 processor (4C/4T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz) 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) 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) 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) One LGA1155 socket	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
Implementation	One LGA1155 socket	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
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;	Slot 1: half-length, full-height, PCIe* x16 <i>(75w max, near CPU)</i> * 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
Additional memory disclaimers	• 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 i3-2120/2130:</i> Intel HD Graphics 2000 <i>Pentium/Celeron:</i> Intel HD Graphics <i>(connector information please see Rear ports section)</i> 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: 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) <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	
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	

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

ThinkStation® E31 Tower (2555) - TopSeller - II

Personal Systems Reference (PSREF)

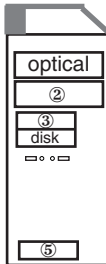
Type-model	Processor	Memory (MHz/ECC)	Memory DIMMs	Pre-conf RAID	Hard drive(s)	Media reader	SATA optical	Graphics adapter(s)	1394 adptr	Global	Chassis intrusion switch	PS/2 rear I/O	Win7 preload
2555-19G Pentium G860		1600MHz ECC	2x2GB	No	1x500GB SATA	Media	DVD±RW	Intel HD	No	No	Switch	No	Pro 64
2555-21G Xeon E3-1230V2		1600MHz ECC	2x2GB	No	1x500GB SATA	Media	DVD±RW		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	Intel® Pentium® G860 processor (2C/2T, 3.0GHz, 3MB Cache), integrated Intel HD Graphics, DDR3 memory controller (up to 1333MHz) 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) 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) One LGA1155 socket	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
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC , four 240-pin DIMM sockets;	
Additional memory disclaimers	• 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; <i>Xeon E3-1225V2/1245V2/1275V2: Intel HD Graphics P4000</i> <i>Core i3-2120/2130: Intel HD Graphics 2000</i> <i>Pentium/Celeron: Intel HD Graphics</i> (connector information please see Rear ports section)	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
Media reader	Media: 29-in-1 Media card reader, internal USB 2.0	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
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	Slot 2: half-length, full-height, PCIe 2.0 x1
Hard drive(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"	Slot 3: half-length, full-height, 32-bit PCI 2.3 Slot 4: half-length, full-height, 32-bit PCI 2.3
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) <i>PS/2 models:</i> additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable	Intel AMT Intel AMT supported on model(s) with Xeon processor
IEEE 1394 adptr	No onboard 1394 ports; <i>1394 models:</i> additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear	Preloaded operating system²⁰ • Windows® 7 Professional 64
Audio	High Definition (HD) Audio, Realtek® ALC662 codec	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))
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	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)
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	ISV certifications Please visit www.lenovo.com/support/ISV GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant
Limited Warranty	3-year parts and labor	

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	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	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	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) 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) 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) One LGA1155 socket	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
Implementation	One LGA1155 socket	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
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;	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
Additional memory disclaimers	• 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	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
Graphics	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 i3-2120/2130:</i> Intel HD Graphics 2000 <i>Pentium/Celeron:</i> Intel HD Graphics (connector information please see Rear ports section)	
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	
Hard drive(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	
Onboard SAS	None	
Chipset	Intel C216 Chipset	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	Intel AMT
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	Intel AMT supported on model(s) with Xeon processor
IEEE 1394 adptr	No onboard 1394 ports; <i>1394 models:</i> additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear	Preloaded operating system²⁰ • Windows® 7 Professional 64
Audio	High Definition (HD) Audio, Realtek® ALC662 codec	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))
Speaker	Internal speaker for business audio	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)
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	ISV certifications Please visit www.lenovo.com/support/ISV
		GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant

ThinkStation® E31 Tower (2555) - TopSeller (September 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-AJG	Xeon E3-1245V2	1600MHz ECC	1x4GB	No	1x1TB SATA	Media	DVD±RW	Intel HD P4000	No	No	No	No	Pro 64
2555-AKG	Xeon E3-1220V2	1600MHz ECC	1x4GB	No	1x1TB SATA	Media	DVD±RW	Quadro 600	No	No	No	No	Pro 64

Processor	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)												
Implementation	One LGA1155 socket												
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;												
Additional memory disclaimers	- 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 <i>Pentium/Celeron:</i> Intel HD Graphics (connector information please see Rear ports section) 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, 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),												
Onboard SAS	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 E3-1225V2/1245V2/1275V2, 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												

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

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

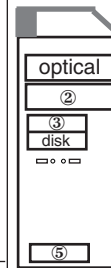
Personal Systems Reference (PSREF)

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	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	Intel® Core™ i3-3240 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz) 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 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) 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 E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), 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	- 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; (connector information please see Rear ports section) Some: NVIDIA® NVS™ 310 , PCIe x16 adapter, 512MB, DMS59 to dual DisplayPort™, 19.5W Some: NVIDIA NVS 510 , PCIe x16 adapter, 2GB, four mini DisplayPort to four DisplayPort, 35W												
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)	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 E3-12X5V2, 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												
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												

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/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

Intel AMT

Intel AMT supported on model(s) with Xeon processor

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

Preloaded applications⁵ (only some listed)

-Windows 7 models

- 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))

-Windows 8 models

- 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))

SECURITY

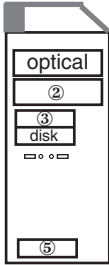
- Security chip (see information on left)
- Padlock loop (in rear for opt padlock;
 padlock prohibits side cover removal)
- Security slot (in rear for optional
 Kensington® Microsaver® cable;
 prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without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

ThinkStation® E31 Tower (2555) - TopSeller (January 2013) - II

Personal Systems Reference (PSREF)

Type-model	Processor	Memory (MHz/ECC)	Memory DIMMs	Pre-conf RAID	Media Hard drive(s)	SATA reader	SATA optical	Graphics adapter(s)	1394 adptr	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	Intel® Core™ i3-3225 processor (2C/4T, 3.3GHz, 3MB Cache), integrated Intel HD Graphics 4000, DDR3 memory controller (up to 1600MHz) 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) 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 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) 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® E3-1225V2 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) 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)	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/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
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets; • 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		
Graphics	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) Some: NVIDIA® NVS™ 310, PCIe x16 adapter, 512MB, DMS59 to dual DisplayPort™, 19.5W Some: NVIDIA NVS 510, PCIe x16 adapter, 2GB, four mini DisplayPort to four DisplayPort, 35W Some: NVIDIA Quadro® 410, PCIe x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 38W	
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)	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	
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	STMicronics 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	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 January 15, 2013

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(G-DEM4-2) February 2013

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

Personal Systems Reference (PSREF)

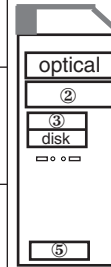
Type-model ¹	Processor	Memory (MHz/ECC)	Memory DIMMs	Pre-conf RAID	Drive(s)	Media reader	SATA optical	Graphics adapter(s)	1394 adptr	PS/2 rear I/O	Chassis intrusion switch	Preload OS ²
2555-DBG	Xeon E3-1245V2	1600MHz Non-ECC	2x4GB	No	1x500GB 3.5" SATA	Media	Blu-ray	Intel HD P4000	No	No	Switch	Win7 Pro64
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)
Implementation	One LGA1155 socket
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC , four 240-pin DIMM sockets;
Additional memory disclaimers	- 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</i> 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) <i>Some: NVIDIA® Quadro® 600</i>, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 40W <i>Some: NVIDIA Quadro K600</i>, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W
Media reader	29-in-1 Media card reader in selected models, internal USB 2.0
Optical Drive(s)	DVD, DVD±RW, or Blu-ray, depending on model 3.5" SATA: SATA 6.0Gb/s, 7200 rpm, 3.5" 2.5" SATA: 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
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

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/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

Intel AMT

Intel AMT supported on model(s) with Xeon processor

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

Preloaded applications⁵ (only some listed)

-Windows 7 models

- 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))

-Windows 8 models

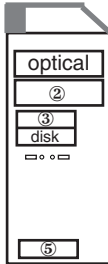
- Evernote®
- Norton Internet Security (30 days of virus definitions)
- Norton Studio
- Skype™
- Microsoft Office 2013 preloaded; purchase product key to activate
- Cyberlink Power2Go (DVD±RW model(s))
- Cyberlink PowerProducer (DVD±RW model(s))

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)

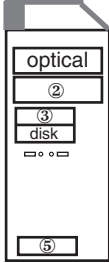
Type-model	Processor	Memory (MHz/ECC)	Memory DIMMs	Pre-conf RAID	Hard drive(s)	Media reader	SATA optical	Graphics adapter(s)	1394 adptr	Global	Chassis intrusion switch	PS/2 rear I/O	Win7 preload
2552-12G Xeon E3-1245V2		1600MHz ECC	2x4GB	No	1x1TB SATA		DVD±RW	Quadro 2000	No	No	No	PS/2	Pro 64
2552-34G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

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	Intel® Core™ i3-2130 processor (2C/4T, 3.4GHz, 3MB Cache) , integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) 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) 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) 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 E3-1270V2 processor (4C/8T, 3.5GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.9GHz), 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) 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)	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
Implementation	One LGA1155 socket	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
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC , four 240-pin DIMM sockets;	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
Additional memory disclaimers	- 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; 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) Some: NVIDIA® Quadro® 400 , PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 32W 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	Intel AMT Intel AMT supported on model(s) with Xeon processor
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)	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	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)
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	ISV certifications Please visit www.lenovo.com/support/ISV
Limited Warranty	3-year parts and labor	GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant

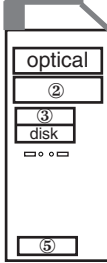
See footnotes for important warranty information
 EMEA model(s) announced May 15 (18G/21G) or June 26 (11G/12G/13G/14G/15G), 2012

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	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) 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)					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							
Implementation	One LGA1155 socket					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							
Memory	32GB max, UDIMM , PC3-12800 1600MHz DDR3, ECC or non-ECC , four 240-pin DIMM sockets;					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	• 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; 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 (connector information please see Rear ports section) Some: 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												
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												
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					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							
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												

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

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 (G-DEM2-4) July 2012

Personal Systems Reference (PSREF)

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

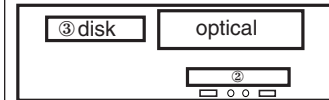
ThinkStation® E31 SFF (3695) - TopSeller (June 5, 2012)

Personal Systems Reference (PSREF)

Type-model	Processor	Memory (MHz/ECC)	Memory DIMMs	Pre-conf RAID	Hard drive(s)	Media reader	SATA optical	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	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) 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) 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) One LGA1155 socket														
Implementation															
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;														
Additional memory disclaimers	- 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; <i>Xeon E3-1225V2/1245V2/1275V2:</i> Intel HD Graphics P4000 <i>Core i7-3770:</i> Intel HD Graphics 4000 <i>Core i3-3450/3470/3550:</i> Intel HD Graphics 2500 <i>Core i3-2120/2130:</i> Intel HD Graphics 2000 <i>Pentium/Celeron:</i> Intel HD Graphics (connector information please see Rear ports section)														
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)	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, 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, autotensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified														
Limited Warranty	3-year parts and labor														

Small Desktop



- 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

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

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

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

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)
- 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

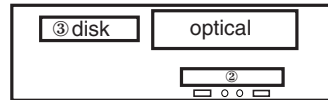
Please visit www.lenovo.com/support/ISV

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

ThinkStation® E31 SFF (3695) - TopSeller (July 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-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) One LGA1155 socket										Small Desktop  • 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 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 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				
Implementation	One LGA1155 socket														
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;														
Additional memory disclaimers	• 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 i3-2120/2130:</i> Intel HD Graphics 2000 <i>Pentium/Celeron:</i> Intel HD Graphics (connector information please see Rear ports section) <i>Some:</i> NVIDIA® Quadro® NVS 300 , PCIe x16 adapter, 512MB, DMS59 to dual single-link DVI-I, 17.5W <i>Some:</i> NVIDIA Quadro 400 , PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 32W														
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, Pentium, and Celeron processors) <i>PS/2 models:</i> additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable										Intel AMT Intel AMT supported on model(s) with Xeon processor				
IEEE 1394 adptr	No onboard 1394 ports; <i>1394 models:</i> additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear										Preloaded operating system²⁰ • Windows® 7 Professional 64				
Audio	High Definition (HD) Audio, Realtek® ALC662 codec										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))				
Speaker	Internal speaker for business audio										SECURITY • 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)				
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										GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-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

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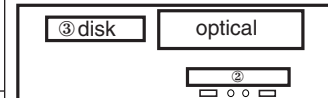
ThinkStation® E31 SFF (3695) - TopSeller (August 2012)

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	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	No	Intel HD 2500	No	No		No	Stand	Pro 64
3695-N3G	Xeon E3-1230V2	1600MHz ECC	1x4GB	No	1x500GB SATA	Media	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)														
Implementation	One LGA1155 socket														
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;														
Additional memory disclaimers	- 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 i3-2120/2130:</i> Intel HD Graphics 2000 <i>Pentium/Celeron:</i> Intel HD Graphics (connector information please see Rear ports section) Some: NVIDIA® Quadro® 410 , PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 38W														
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														
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	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														

Small Desktop



- 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

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

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

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

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)
- 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

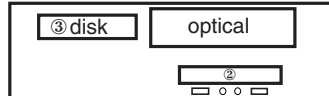
Please visit www.lenovo.com/support/ISV

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

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	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	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	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	No	Intel HD 2500	No	No	No	No	Stand	Pro 64

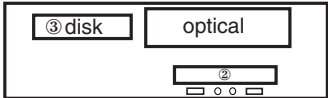
Processor	Intel® Core™ i3-3220 processor (2C/4T, 3.3GHz, 3MB Cache), integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz) Intel Core i3-3240 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz)		Small Desktop	
Implementation	One LGA1155 socket			
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;		• 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	
Additional memory disclaimers	• 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; 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 (connector information please see Rear ports section) Some: NVIDIA® Quadro® 410, PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 38W Some: NVIDIA Quadro NVS 310, PCIe x16 adapter, 512MB, DMS59 to dual DisplayPort, 19.5W			
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		Bay 1: 5.25", 1.6" high, access, for optical/2nd disk	
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"		Bay 2: 3.5", 0.5" high, access, for media reader Bay 3: 3.5", 1" high, internal, for disk	
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) * PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon models	
Onboard SAS	None		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	
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, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified			
Limited Warranty	3-year parts and labor			
			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)	
			• 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 September 18, 2012

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(G-ROC5-1) September 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	Preload OS
3695-PCG	Core i3-3220	1600MHz ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	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	NVS 310	No	No	No	No	Stand	Win8 Pro64
3695-PEG	Core i3-3240	1600MHz ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	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	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)	Small Desktop
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;	• 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
Additional memory disclaimers	• 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 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
Graphics	Some: 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 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 (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	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	Media: 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) 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, 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	

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

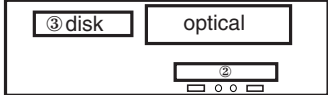
² Win7 Pro64(DG) = Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit

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)	③ disk optical ② • 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 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 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
Implementation	One LGA1155 socket	
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC , four 240-pin DIMM sockets;	
Additional memory disclaimers	• 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; (detailed graphics model name please see Processor section, connector information please see Rear ports section)</i> <i>Some: NVIDIA® Quadro® 600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 40W</i> <i>Some: NVIDIA Quadro K600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W</i>	
Media reader	<i>Media:</i> 29-in-1 Media card reader, slim, internal USB 2.0	Preloaded operating system²⁰ <i>Some:</i> Windows® 7 Professional 64 <i>Some:</i> Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit <i>Some:</i> Windows 8 Pro 64-bit Preloaded applications⁵ (only some listed) -Windows 7 models • 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)) -Windows 8 models • 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)) SECURITY • 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)
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	<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	
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 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
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	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 E3-1270V2 processor (4C/8T, 3.5GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.9GHz), DDR3 memory controller (up to 1600MHz) 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) One LGA1155 socket								Small Desktop  • 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																
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;															
Additional memory disclaimers	• 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® NVS 300 , PCIe x16 adapter, 512MB, DMS59 to dual single-link DVI-I, 17.5W <i>Some:</i> NVIDIA Quadro 600 , PCIe x16 adapter, 1GB, one DisplayPort™, one dual-link DVI-I, 40W															
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															
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" 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)								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							
Onboard SATA									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							
Onboard SAS	None								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							
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	<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															

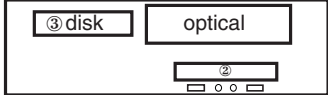
Intel AMT Intel AMT supported on model(s) with Xeon processor															
Preloaded operating system²⁰ • Windows® 7 Professional 64															
Preloaded applications⁵ (only some listed) • Rescue and Recovery® • Norton® Internet Security (30 days of virus definitions) • Adobe® Reader® • Microsoft® 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) • 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															

ThinkStation® E31 SFF (3690) - 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
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						
Implementation	One LGA1155 socket													
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;							- 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						
Additional memory disclaimers	- 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 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						
Graphics	<i>Some: NVIDIA® Quadro® 410,</i> PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 38W <i>Some: NVIDIA Quadro 600,</i> PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 40W							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							Intel AMT						
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive							Intel AMT supported on model(s) with Xeon processor						
Hard drive(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"							Preloaded operating system²⁰						
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)							<i>Some:</i> Windows® 7 Professional 64 <i>Some:</i> Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit <i>Some:</i> Windows 8 Pro 64-bit						
Onboard SAS	None							Preloaded applications⁵ (only some listed)						
Chipset	Intel C216 Chipset							-Windows 7 models • 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))						
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)							-Windows 8 models • 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))						
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							SECURITY						
IEEE 1394 adptr	No onboard 1394 ports; <i>1394 models:</i> additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear							• 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)						
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													

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

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(G-ROC2-2) February 2013

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

Personal Systems Reference (PSREF)

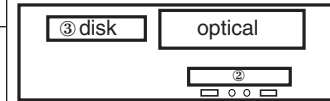
Type-model	Processor	Memory (MHz/ECC)	Memory DIMMs	Pre-conf RAID	Hard drive(s)	Media reader	SATA optical	2nd Disk bay	Graphics adapter(s)	1394 adptr	Global	Chassis intrusion switch	PS/2 rear I/O	Preload OS
3691-C4G	Xeon E3-1270V2	1600MHz Non-ECC	2x4GB	No	1x180GB SSD	Media	DVD±RW	No	Quadro 600	No	Global	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)													
Implementation	One LGA1155 socket													
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;													
Additional memory disclaimers	• 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: NVIDIA® Quadro® 410, PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 38W</i> <i>Some: NVIDIA Quadro 600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 40W</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 i3-2120/2130, Pentium, and Celeron processors)													
IEEE 1394 adptr	<i>PS/2 models:</i> additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable <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, 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													

Small Desktop



- 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
- 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
- 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

Intel AMT

Intel AMT supported on model(s) with Xeon processor

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

Preloaded applications⁵ (only some listed)

-Windows 7 models

- 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))

-Windows 8 models

- 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))

SECURITY

- 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.



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)



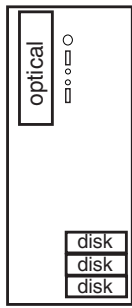
Multi-monitor Display with Optional Lenovo ThinkVision Monitor and Dual NVIDIA Quadro NVS 450
(Both Lenovo ThinkStation C20/C20x)

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	1xE5650	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)	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 with six-core , 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache					Tower  • 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					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								
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					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								
Additional memory disclaimers	• 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					* Adapters >75W use auxiliary power connector(s) from PSU								
Graphics	None					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)								
Media reader	None					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								
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: 150GB or 300GB, SATA 3.0Gb/s, 10000 rpm, 2.5"													
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					GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating								
Preloaded applications	• 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 June 15, 2010
 EMEA model(s) withdrawn effective October 2012

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 (G-MAD1-1) October 2012

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)

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 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													
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 • 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)	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													
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	• 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)													

optical

disk

disk

disk

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

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

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

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 April 26, 2011
 EMEA model(s) withdrawn effective October 2012

© Lenovo
 (G-MAD3-1) 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	Global	Win7 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)

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 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													
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 • 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)	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													
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	• 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)													

optical

disk

disk

disk

Tower

- 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

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

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

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

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

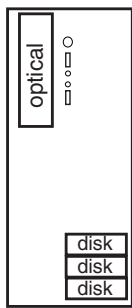
- ↪ 3-year parts and labor
- ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)
- ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html
 - 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>

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	Global	Win7 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)

Processor(s) Implementation Memory Additional memory disclaimers Graphics Media reader Optical Hard drive(s) Disk Controller Chipset Front ports Rear ports IEEE 1394 adptr Audio Speaker Ethernet Security chip Keyboard Mouse Power supply ThinkVantage® Preload OS Preloaded applications	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 Two LGA1366 sockets, supports up to two processors 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 • 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 None None Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5" Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, one SATA connector for optical, RAID 0, 1, 5 support Intel 5520 Chipset, Intel ICH10R, Winbond® W83627DHG-P Super I/O Two USB 2.0, microphone (3.5mm), headphone (3.5mm) 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 None High Definition (HD) Audio, Analog Devices AD1988A codec Internal speaker for business audio One gigabit ethernet on planar, Broadcom® BCM5755 Broadcom Trusted Platform Module, TCG 1.2-compliant Preferred Pro USB Keyboard (USB connector), 104-key, black Optical Wheel Mouse (USB connector), black 800 watts with 80mm side-mounted variable speed fan, universal, Climate Savers® Computing Gold, 80 PLUS® Gold qualified Supports ThinkVantage technologies Genuine Windows® 7 Professional 64 • 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) Tower  • 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 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 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 * Adapters >75W use auxiliary power connector(s) from PSU 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
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See footnotes for important warranty information
 EMEA model(s) announced December 6, 2011
 EMEA model(s) withdrawn effective October 2012

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 (G-MAD5-1) 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	Global Win7 preload	Ann date (mm/dd/yy)
4263-24G	6x4	1xX5650	2.66	3x2GB UDIMM	2x500GB SATA	No	DVD±RW	No	Switch	1xNVS295	No	No	06/15/10
4263-62G	6x4	1xX5650	2.66	1x4GB RDIMM	1x500GB SATA	No	DVD±RW	No	Switch		No	No	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 optical disk disk disk 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 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 * Adapters >75W use auxiliary power connector(s) from PSU
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	- 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	
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	- 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 - 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 June 15, 2010
 EMEA model(s) withdrawn effective October 2012

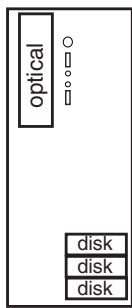
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 (G-MAD1-2) October 2012

ThinkStation® C20 (4263) - 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)
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)	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 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 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 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													
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 • 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)	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													
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	• 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)													
									Tower  • 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 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 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 * Adapters >75W use auxiliary power connector(s) from PSU					
									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 April 26, 2011
 EMEA model(s) withdrawn effective October 2012

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 (G-MAD3-2) 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													
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	• 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	Some: 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	• 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)													

optical

disk

disk

disk

Tower

- 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

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

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

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

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

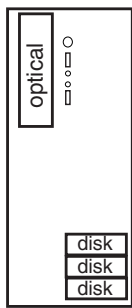
- ↪ 3-year parts and labor
- ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)
- ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html
 - 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 July 19, 2011
 EMEA model(s) withdrawn effective October 2012

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 (G-MAD4-2) 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-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)

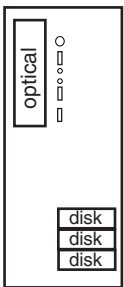
Processor(s)	Intel® Xeon® Processor E5607 with quad-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache Intel Xeon Processor E5645 or E5649 with six-core , 5.86GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache 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 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													
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 • 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													
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	• 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)													
									Tower  • 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 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 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 * Adapters >75W use auxiliary power connector(s) from PSU					
									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					

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)
4269-26G	6x4	1xE5620	2.40	2x2GB RDIMM	1x500GB SATA	No	DVD±RW	No	Switch	None	No	No	Pro 64	06/15/10
4269-27G	6x4	1xE5620	2.40	2x2GB RDIMM	1x150GB SATA	No	DVD±RW	No	Switch	None	No	No	Pro 64	06/15/10
4269-28G	6x4	1xE5620	2.40	2x2GB RDIMM	1x300GB SAS	No	DVD±RW	No	Switch	None	No	No	Pro 64	06/15/10
4269-29G	6x4	1xX5650	2.66	1x4GB RDIMM	1x500GB SATA	No	DVD±RW	No	Switch	None	No	No	Pro 64	06/15/10
4269-31G	6x4	1xX5650	2.66	1x4GB RDIMM	1x150GB SATA	No	DVD±RW	No	Switch	None	No	No	Pro 64	06/15/10
4269-32G	6x4	1xX5650	2.66	1x4GB RDIMM	1x300GB SAS	No	DVD±RW	No	Switch	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
- 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 with six-core, 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache													
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	• 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	None													
Media reader	None													
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" <i>Some:</i> 300GB, 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 ⁴ 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	• 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)													

Tower



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

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

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

- 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

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>

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	Global	Win7 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
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	• 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 ⁴ 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	• 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)

optical ○
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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



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

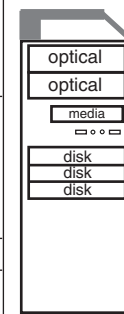
* NVIDIA Quadro 2GB 4000 option packaging contains one 3D stereo bracket

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)
4105-96G	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												
ThinkVantage®	Supports ThinkVantage technologies												
Preload OS	Genuine Windows® 7 Professional 64												
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)												

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

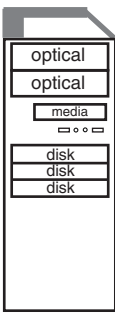
SECURITY

- 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

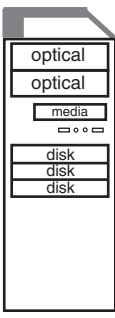
LIMITED WARRANTY¹

- 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>

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-D2G	1xW3565	3.20	3x2GB 1333MHz UDIMM	1x500GB SATA	No	DVD±RW	None	None	No	No	No	Pro 64	01/12/10
• 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												
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	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"												
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	• 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						

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)

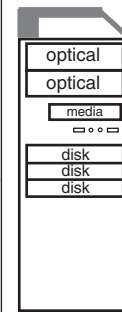
Processor(s)	Intel® Xeon® Processor E5620 with quad-core , 5.86GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 12MB cache Intel Xeon Processor X5650 or X5670 with six-core , 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache One LGA1366 socket												
Implementation													
Memory	48GB max, UDIMM, ECC, PC3-8500 1066MHz DDR3 or PC3-10600 1333MHz DDR3 , 3-channel capable, six 240-pin DIMM sockets • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed												
Additional memory disclaimers													
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> 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/SAS⁴ 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	• 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						

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	Pro 64	05/04/10

- 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 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 One LGA1366 socket												
Implementation													
Memory	48GB max, UDIMM, ECC, PC3-8500 1066MHz DDR3 or PC3-10600 1333MHz DDR3 , 3-channel capable, six 240-pin DIMM sockets • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed												
Additional memory disclaimers													
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> 250GB or 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	SAS model(s): Marvell® 88SE6440, PCIe x4 adapter, 4 SATA/SAS⁴ 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	<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	• 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



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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

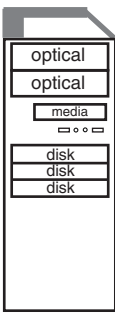
SECURITY

- 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>

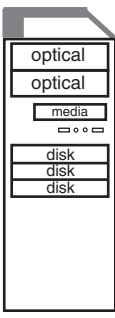
Type-model	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Global	Win7 preload	Ann date (mm/dd/yy)
4105-M2G	1xW3503	2.40	1x2GB 1333MHz UDIMM	1x250GB SATA	No	DVD±RW	Media	None	No	No	No	Pro 64	08/03/10
• Faster, more 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/SAS⁴ 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	• 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						

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												
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)	<i>Some:</i> 1TB, 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	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	• 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	Size	Height	Type	Media
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

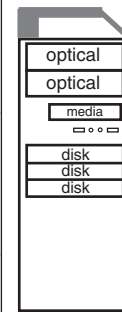
- 3-year parts and labor
- Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)
- Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html
 - Onsite service upgrade options (in eligible locations)⁷
 - Post warranty maintenance services
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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	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 One LGA1366 socket												
Implementation													
Memory	48GB max, UDIMM, ECC, PC3-8500 1066MHz DDR3 or PC3-10600 1333MHz DDR3 , 3-channel capable, six 240-pin DIMM sockets • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed												
Additional memory disclaimers													
Graphics	<i>Some: NVIDIA® Quadro® 2000</i> , PCIe x16 adapter, 1GB, two DisplayPort™, one dual-link DVI-I, 62W <i>Some: NVIDIA Quadro 4000</i> , 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)	<i>Some: 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5"</i> <i>Some: 150GB, SATA 3.0Gb/s, 10000 rpm, 2.5"</i> <i>Some: 300GB, SAS 3.0Gb/s, 15000 rpm, 3.5"</i> Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals SAS model(s): Marvell® 88SE6440, PCIe x4 adapter, 4 SATA/SAS⁴ connectors, SATA 3.0Gb/s, SAS 3.0Gb/s												
SATA controller													
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	• 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

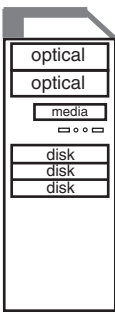
- 3-year parts and labor
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 see lenovo.com/services_warranty/us/en/lenovo-warranty.html
 - Onsite service upgrade options (in eligible locations)⁷
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Type-model	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	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												
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	<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	• 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)												

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

SECURITY

- Security chip (see information on left)
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- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- USB port disablement (front or all)
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 EPEAT™ Gold rating

LIMITED WARRANTY¹

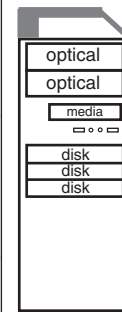
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Type-model	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Global	Win7 preload	Ann date (mm/dd/yy)
4105-8CG	1xW3565	3.20	3x2GB 1333MHz UDIMM	2x500GB SATA	No	DVD±RW	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												
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	<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> 500GB, SATA 3.0Gb/s, 7200 rpm, 3.5" <i>Some:</i> 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)												
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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	• 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

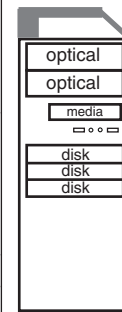
- 3-year parts and labor
- Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)
- Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html
 - Onsite 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>

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-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												
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 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	• 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)												

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- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Rack shelf support

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Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 4: full-length, full-height, PCIe x1
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* Adapters >75W use auxiliary power connector(s) from PSU
** x16 mechanical

SECURITY

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GREENGUARD® certified
RoHS-compliant
EPEAT™ Gold rating

LIMITED WARRANTY¹

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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	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	1	DVD±RW	Media	No	1xQuadro 4000	No	No	Pro 64	09/21/10

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- *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	• 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	• 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

optical

optical

media

disk

disk

disk

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Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max)
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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)
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- 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

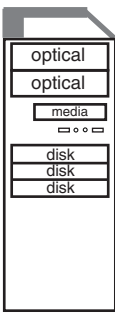
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Type-model	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Global	Win7 preload	Ann date (mm/dd/yy)
4157-F3G	1xW3550	3.06	3x2GB 1333MHz UDIMM	1x500GB SATA	No	DVD±RW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

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
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	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)	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	• 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)

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* Adapters >75W use auxiliary power connector(s) from PSU
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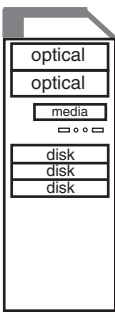
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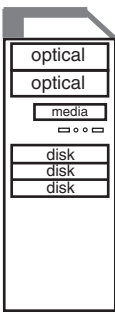
Type-model	Processor(s)	GHz	Memory DIMMs	Disk(s)	Pre-conf RAID	SATA optical	Media reader	Chassis intrusion switch	Graphics adapter(s)	1394 adptr	Global	Win7 preload	Ann date (mm/dd/yy)
4157-M6G	1xW3550	3.06	3x2GB 1333MHz UDIMM	1x300GB SAS	No	DVD±RW	Media	No	1xQuadro 2000	No	No	Pro 64	11/30/10
• Faster, 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 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												
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Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive												
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												
SAS controller	SAS model(s): Marvell® 88SE6440, PCIe x4 adapter, 4 SATA/SAS ⁴ connectors, SATA 3.0Gb/s, SAS 3.0Gb/s												
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							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						

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)
4157-1AG	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)	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 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 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	<i>Some:</i> NVIDIA® Quadro® NVS 300 , PCIe x16 adapter, 512MB, DMS59 to dual single-link DVI-I, 17.5W <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												
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive												
Hard drive(s)	<i>Some:</i> 1TB or 2TB, SATA 3.0Gb/s, 7200 rpm, 3.5" <i>Some:</i> 160GB Solid State Drive (SSD), SATA 3.0Gb/s, 1.8" <i>Some:</i> 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 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	• 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

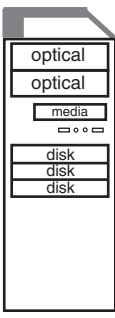
- ↪ 3-year parts and labor
- ↪ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)
- ↪ Lenovo services available; see lenovo.com/services_warranty/us/en/lenovo-warranty.html
 - 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>

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 One LGA1366 socket											
Implementation												
Memory	48GB max, UDIMM, ECC, PC3-8500 1066MHz DDR3 or PC3-10600 1333MHz DDR3 , 3-channel capable, six 240-pin DIMM sockets • Actual memory operating speed is the lowest installed speed, dependent on processor memory controller speed and installed memory speed											
Additional memory disclaimers												
Graphics	<i>Some: NVIDIA® Quadro® 600</i> , PCIe x16 adapter, 1GB, one DisplayPort™, one dual-link DVI-I, 40W <i>Some: NVIDIA Quadro 2000</i> , 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: 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	• 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)
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- 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
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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)
4157-2CG	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)

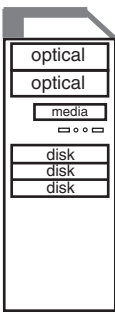
Processor(s)	Intel® Xeon® Processor W3565 with quad-core , 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 8MB cache	Tower optical optical media disk disk disk • 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	• 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)	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 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	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
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	• 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)	
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		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

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

- 3-year limited warranty¹
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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 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 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	<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												
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> 256GB Solid State Drive (SSD), SATA 3.0Gb/s, 1.8"												
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												
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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 adpdr	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												
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Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max)
 Slot 2: full-length, full-height, PCIe 2.0 x4**
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 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

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- Boot sequence control
- Boot without keyboard, mouse
- USB port disablement (front or all)
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 - 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>

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.

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- 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.