

ThinkStation.



Lenovo ThinkStation E31 Tower



Lenovo ThinkStation E31 SFF



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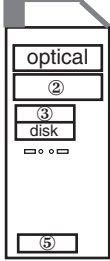


Lenovo ThinkStation E31 SFF

ThinkStation® E31 Tower (2555) - TopSeller

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
2555-31U	Core i3-2120	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Intel HD 2000	No	No	Switch	No	Pro 64
2555-32U	Core i3-2120	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 400	No	No	Switch	No	Pro 64
2555-33U	Core i3-2120	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 600	No	No	Switch	No	Pro 64
2555-34U	Core i3-2130	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 600	No	No	Switch	No	Pro 64
2555-35U	Core i3-2130	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 2000	No	No	Switch	No	Pro 64
2555-45U	Xeon E3-1225V2	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 400	No	No	Switch	No	Pro 64
2555-46U	Xeon E3-1225V2	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 600	No	No	Switch	No	Pro 64
2555-47U	Xeon E3-1230V2	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 600	No	No	Switch	No	Pro 64
2555-48U	Xeon E3-1230V2	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 2000	No	No	Switch	No	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) 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 E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), 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	
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	<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 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® 400, PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 32W <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	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
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	
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, more Lenovo® services see S-TS sheet	

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 More compatible accessories, please see O-DEM sheet

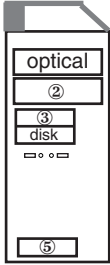
See footnotes for important warranty information
US model(s) announced May 15, 2012

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(DEM1-1) May 2012

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

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
2555-36U	Core i5-3450	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Intel HD 2500	No	No	Switch	No	Pro 64
2555-37U	Core i5-3450	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 400	No	No	Switch	No	Pro 64
2555-38U	Core i5-3450	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 600	No	No	Switch	No	Pro 64
2555-39U	Core i5-3550	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 600	No	No	Switch	No	Pro 64
2555-41U	Core i5-3550	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 2000	No	No	Switch	No	Pro 64
2555-42U	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Intel HD 4000	No	No	Switch	No	Pro 64
2555-43U	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 400	No	No	Switch	No	Pro 64
2555-44U	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 600	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	
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	<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 (connecter information please see Rear ports section) <i>Some:</i> NVIDIA® Quadro® 400 , PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 32W <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	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
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	
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, more Lenovo® services see S-TS sheet	

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 More compatible accessories, please see O-DEM sheet

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

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(DEM2-1) June 2012

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
2555-ALU	Core i3-2130	1600MHz Non-ECC	1x4GB	No	1x128GB SSD	Media	DVD±RW	Intel HD 2000	No	No	Switch	No	Pro 64
2555-AMU	E3-1245V2	1600MHz Non-ECC	1x4GB	No	1x180GB SSD	Media	DVD±RW	Quadro 400	No	No	Switch	No	Pro 64
2555-ANU	E3-1275V2	1600MHz Non-ECC	1x4GB	No	1x256GB SSD	Media	DVD±RW	Quadro 600	No	No	Switch	No	Pro 64

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® E3-1245V2 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)
 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;
 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® 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

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

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

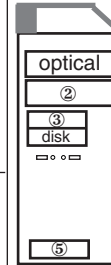
Keyboard Preferred Pro USB Keyboard (USB connector), 104-key, black

Mouse Optical Wheel Mouse (USB connector), black

Power supply 280 watts with variable speed fan, autotensing, 85% PSU, **Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified**

Limited Warranty 3-year parts and labor, more Lenovo® services see S-TS sheet

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

More compatible accessories, please see O-DEM sheet

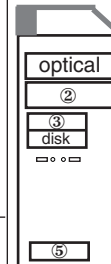
ThinkStation® E31 Tower (2555) - TopSeller (October 2012)

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	Preload OS
2555-APU	Core i3-2120	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 410	No	No	Switch	No	Win8 Pro64
2555-AQU	Core i5-3470	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 410	No	No	Switch	No	Win8 Pro64
2555-ASU	Xeon E3-1230V2	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 410	No	No	Switch	No	Win8 Pro64
2555-ATU	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 410	No	No	Switch	No	Win8 Pro64

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 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® E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz) One LGA1155 socket												
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® 410, PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 38W												
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) <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, more Lenovo® services see S-TS sheet												
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 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)

More compatible accessories, please see O-DEM sheet

Personal Systems Reference (PSREF)

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

	• 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)	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	* 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 2: half-length, full-height, PCIe 2.0 x1
Slot 3: half-length, full-height, 32-bit PCI 2.3	Slot 3: half-length, full-height, 32-bit PCI 2.3
Slot 4: 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
Some: Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit	Some: Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit
Some: Windows 8 Pro 64-bit	Some: Windows 8 Pro 64-bit
Preloaded applications⁵ (only some listed)	
-Windows 7 models	
• Rescue and Recovery®	• Rescue and Recovery®
• Norton™ Internet Security (30 days of virus definitions)	• Norton™ Internet Security (30 days of virus definitions)
• Adobe® Reader®	• Adobe® Reader®
• Microsoft® Office 2013 preloaded; purchase product key to activate	• Microsoft® Office 2013 preloaded; purchase product key to activate
• Core!® WinDVD® (DVD±RW model(s))	• Core!® WinDVD® (DVD±RW model(s))
• Ulead® DVD MovieFactory® (DVD±RW model(s))	• Ulead® DVD MovieFactory® (DVD±RW model(s))
-Windows 8 models	
• Evernote®	• Evernote®
• Norton Internet Security (30 days of virus definitions)	• Norton Internet Security (30 days of virus definitions)
• Norton Studio	• Norton Studio
• Skype™	• Skype™
• Microsoft Office 2013 preloaded; purchase product key to activate	• Microsoft Office 2013 preloaded; purchase product key to activate
• Cyberlink Power2Go (DVD±RW model(s))	• Cyberlink Power2Go (DVD±RW model(s))
• Cyberlink PowerProducer (DVD±RW model(s))	• Cyberlink PowerProducer (DVD±RW model(s))
SECURITY	
• Security chip (see information on left)	• Security chip (see information on left)
• Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)	• 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)	• Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
• Power-on password	• Power-on password
• Administrator password	• Administrator password
• Boot sequence control	• Boot sequence control
• Boot without keyboard, mouse	• Boot without keyboard, mouse
• Serial port I/O control	• Serial port I/O control
• USB port disablement (front or all/individual)	• USB

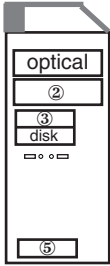
ThinkStation® E31 Tower (2555) - TopSeller (March 2013) - II

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-DYU	Core i3-3220	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win7 Pro64(DG)
2555-DZU	Core i3-3220	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win8 Pro64
2555-E1U	Core i5-3470	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Intel HD 2500	No	No	Switch	Win8 Pro64
2555-E2U	Core i5-3470	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Intel HD 2500	No	No	Switch	Win7 Pro64(DG)
2555-E3U	Core i5-3470	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro 410	No	No	Switch	Win8 Pro64
2555-E4U	Core i5-3470	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro K600	No	No	Switch	Win8 Pro64
2555-E5U	Core i5-3470	1600MHz Non-ECC	1x4GB	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® Core™ i3-3220 processor (2C/4T, 3.3GHz, 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) 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/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						Intel AMT Intel AMT supported on model(s) with Xeon processor					
Graphics	Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; <i>(detailed graphics model name please see Processor section, connector information please see Rear ports section)</i> Some: NVIDIA® Quadro® 410 , PCIe x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W Some: NVIDIA Quadro K600 , PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W Some: NVIDIA Quadro K2000 , PCIe x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, 51W						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 • 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))					
Media reader	29-in-1 Media card reader in selected models, internal USB 2.0						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)					
Optical	DVD, DVD±RW, or Blu-ray, depending on model						More compatible accessories, please see O-DEM sheet					
Drive(s)	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 <i>(Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors)</i> PS/2 models: 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											
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, more Lenovo® services see S-TS sheet											

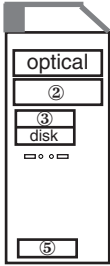
See footnotes for important warranty information
US model(s) announced March 19, 2013

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(DEM6-1) March 2013

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-E6U	Core i5-3550	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro K600	No	No	Switch	Win7 Pro64(DG)
2555-E7U	Core i5-3550	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro K600	No	No	Switch	Win8 Pro64
2555-E8U	Core i5-3550	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win8 Pro64
2555-E9U	Core i5-3550	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win7 Pro64(DG)
2555-EAU	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Intel HD 4000	No	No	Switch	Win7 Pro64(DG)
2555-EBU	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Intel HD 4000	No	No	Switch	Win8 Pro64
2555-ECU	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro 410	No	No	Switch	Win8 Pro64

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™ 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)					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 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/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						
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;					Intel AMT Intel AMT supported on model(s) with Xeon processor						
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					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))						
Graphics	<i>Some:</i> Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; <i>(detailed graphics model name please see Processor section, connector information please see Rear ports section)</i> <i>Some:</i> NVIDIA® Quadro® 410 , PCIe x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W <i>Some:</i> NVIDIA Quadro K600 , PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W <i>Some:</i> NVIDIA Quadro K2000 , PCIe x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, 51W					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) More compatible accessories, please see O-DEM sheet						
Media reader	29-in-1 Media card reader in selected models, internal USB 2.0											
Optical	DVD, DVD±RW, or Blu-ray, depending on model											
Drive(s)	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 <i>(Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors)</i> <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											
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, more Lenovo® services see S-TS sheet											

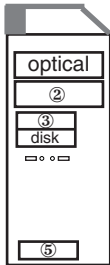
ThinkStation® E31 Tower (2555) - TopSeller (March 2013) - IV

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-EDU	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K600	No	No	Switch	Win7 Pro64(DG)
2555-EEU	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K600	No	No	Switch	Win8 Pro64
2555-EFU	Xeon E3-1225V2	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro 410	No	No	Switch	Win8 Pro64
2555-EGU	Xeon E3-1225V2	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro K600	No	No	Switch	Win8 Pro64
2555-EHU	Xeon E3-1225V2	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro K600	No	No	Switch	Win7 Pro64(DG)
2555-EJU	Xeon E3-1230V2	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro K600	No	No	Switch	Win7 Pro64(DG)
2555-EKU	Xeon E3-1230V2	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro K600	No	No	Switch	Win8 Pro64

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™ 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) 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)				• 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				Intel AMT Intel AMT supported on model(s) with Xeon processor
Graphics	Some: NVIDIA® Quadro® 410, PCIe x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W Some: NVIDIA Quadro K600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W			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 • 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))	
Media reader	Media: 29-in-1 Media card reader on selected models, internal USB 2.0			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) More compatible accessories, please see O-DEM sheet	
Optical	DVD, DVD±RW, or Blu-ray, depending on model				
Drive(s)	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, more Lenovo® services see S-TS sheet				

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

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(DEM8-1) March 2013

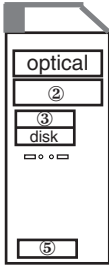
ThinkStation® E31 Tower (2555) - TopSeller (March 2013) - V

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-ELU	Xeon E3-1230V2	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win8 Pro64
2555-EMU	Xeon E3-1230V2	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win7 Pro64(DG)
2555-ENU	Core i3-3220	1600MHz Non-ECC	1x4GB	No	1x128GB SSD	Media	DVD±RW	Intel HD 2500	No	No	Switch	Win7 Pro64(DG)
2555-EPU	Core i3-3220	1600MHz Non-ECC	1x4GB	No	1x128GB SSD	Media	DVD±RW	Intel HD 2500	No	No	Switch	Win8 Pro64
2555-EQU	Xeon E3-1245V2	1600MHz Non-ECC	1x4GB	No	1x180GB SSD	Media	DVD±RW	Quadro 410	No	No	Switch	Win8 Pro64
2555-ERU	Xeon E3-1275V2	1600MHz Non-ECC	1x4GB	No	1x256GB SSD	Media	DVD±RW	Quadro K600	No	No	Switch	Win7 Pro64(DG)
2555-ESU	Xeon E3-1275V2	1600MHz Non-ECC	1x4GB	No	1x256GB SSD	Media	DVD±RW	Quadro K600	No	No	Switch	Win8 Pro64
2555-ETU	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win8 Pro64

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™ i3-3220 processor (2C/4T, 3.3GHz, 3MB Cache), integrated Intel HD Graphics 2500, 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® E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), 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)										
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; (detailed graphics model name please see Processor section, connector information please see Rear ports section) <i>Some:</i> NVIDIA® Quadro® 410, PCIe x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W <i>Some:</i> NVIDIA Quadro K600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W <i>Some:</i> NVIDIA Quadro K2000, PCIe x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, 51W										
Media reader	29-in-1 Media card reader in selected models, internal USB 2.0										
Optical	DVD, DVD±RW, or Blu-ray, depending on model										
Drive(s)	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 <i>(Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors)</i> <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										
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, more Lenovo® services see S-TS sheet										
							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 <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) - 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) More compatible accessories, please see O-DEM sheet				

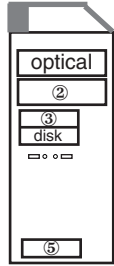
ThinkStation® E31 Tower (2555) - TopSeller (March 2013) - VI

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-EUU	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win7 Pro64(DG)
2555-EVU	Xeon E3-1275V2	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win7 Pro64(DG)
2555-EWU	Xeon E3-1275V2	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win8 Pro64
2555-EYU	Xeon E3-1230V2	1600MHz Non-ECC	1x4GB	No	1x128GB SSD	Media	DVD±RW	Quadro K600	No	No	Switch	Win8 Pro64
2555-EZU	Xeon E3-1230V2	1600MHz Non-ECC	1x4GB	No	1x128GB SSD	Media	DVD±RW	Quadro K600	No	No	Switch	Win7 Pro64(DG)
2555-F1U	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x180GB SSD	Media	DVD±RW	Quadro K2000	No	No	Switch	Win7 Pro64(DG)
2555-F2U	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x180GB SSD	Media	DVD±RW	Quadro K2000	No	No	Switch	Win8 Pro64

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™ 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® E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), 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)					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/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					Intel AMT Intel AMT supported on model(s) with Xeon processor						
Graphics	Some: NVIDIA® Quadro® K600 , PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W Some: NVIDIA Quadro K2000 , PCIe x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, 51W					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 • 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))						
Media reader	29-in-1 Media card reader in selected models, internal USB 2.0					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)						
Optical	DVD, DVD±RW, or Blu-ray, depending on model					More compatible accessories, please see O-DEM sheet						
Drive(s)	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 <i>(Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors)</i> 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											
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, more Lenovo® services see S-TS sheet											

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

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 (DEM10-1) March 2013

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

Personal Systems Reference (PSREF)

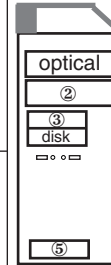
Type-model ¹	Processor	Memory (MHz/ECC)	Memory DIMMs	Pre-conf RAID	Drive(s)	Media reader	SATA optical	Graphics adapter(s)	1394 adptr	PS/2 rear I/O	Chassis intrusion switch	Preload OS ²
2555-F3U	Xeon E3-1280V2	1600MHz ECC	8GBx1	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K600	No	No	Switch	Win7 Pro64(DG)
2555-F4U	Xeon E3-1280V2	1600MHz ECC	8GBx1	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K600	No	No	Switch	Win8 Pro64
2555-F5U	Xeon E3-1245V2	1600MHz ECC	8GBx1	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro 410	No	No	Switch	Win8 Pro64
2555-F6U	Xeon E3-1245V2	1600MHz ECC	8GBx1	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro 410	No	No	Switch	Win7 Pro64(DG)
2555-F7U	Xeon E3-1280V2	1600MHz ECC	8GBx1	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win7 Pro64(DG)
2555-F8U	Xeon E3-1280V2	1600MHz ECC	8GBx1	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win8 Pro64
2555-F9U	Xeon E3-1290V2	1600MHz ECC	8GBx1	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win8 Pro64
2555-FAU	Xeon E3-1290V2	1600MHz ECC	8GBx1	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	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) 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) 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											
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; <i>(detailed graphics model name please see Processor section, connector information please see Rear ports section)</i> <i>Some: NVIDIA® Quadro® 410,</i> PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 37W <i>Some: NVIDIA Quadro K600,</i> PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W <i>Some: NVIDIA Quadro K2000,</i> PCIe x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, 51W											
Media reader	29-in-1 Media card reader in selected models, internal USB 2.0											
Optical	DVD, DVD±RW, or Blu-ray, depending on model											
Drive(s)	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 <i>(Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors)</i> <i>PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable</i>											
IEEE 1394 adptr	No onboard 1394 ports; <i>1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear</i>											
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, more Lenovo® services see S-TS sheet											

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))

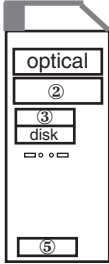
-Windows 8 models

- 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)

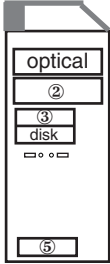
More compatible accessories, please see O-DEM sheet

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
2552-15U	Core i3-2120	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 2000	No	No	Switch		Pro 64
2552-16U	Core i3-2130	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Intel HD 2000	No	No	Switch		Pro 64
2552-23U	Xeon E3-1225V2	1600MHz ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Intel HD P4000	No	No	Switch		Pro 64
2552-24U	Xeon E3-1225V2	1600MHz ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 2000	No	No	Switch		Pro 64
2552-25U	Xeon E3-1230V2	1600MHz ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 400	No	No	Switch		Pro 64
2552-26U	Xeon E3-1245V2	1600MHz ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Intel HD P4000	No	No	Switch		Pro 64
2552-27U	Xeon E3-1245V2	1600MHz ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 400	No	No	Switch		Pro 64
2552-29U	Xeon E3-1245V2	1600MHz ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 2000	No	No	Switch		Pro 64
2552-31U	Xeon E3-1275V2	1600MHz ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Intel HD P4000	No	No	Switch		Pro 64
2552-32U	Xeon E3-1275V2	1600MHz ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 400	No	No	Switch		Pro 64
2552-33U	Xeon E3-1275V2	1600MHz ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 600	No	No	Switch		Pro 64
2552-34U	Xeon E3-1275V2	1600MHz ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 2000	No	No		PS/2	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) 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 E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), 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) 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	<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 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® 400 , PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 32W <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	<i>Media:</i> 29-in-1 Media card reader, internal USB 2.0												
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive												
Disk(s)	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, more Lenovo® services see S-TS sheet												
							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						
							More compatible accessories, please see O-DEM sheet						

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
2552-14U	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x1TB SATA		DVD±RW	Quadro 600	No	No		PS/2	Pro 64
2552-18U	Core i5-3450	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 2000	No	No	Switch		Pro 64
2552-19U	Core i5-3550	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Intel HD 2500	No	No	Switch		Pro 64
2552-21U	Core i5-3550	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 400	No	No	Switch		Pro 64
2552-22U	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 2000	No	No	Switch		Pro 64

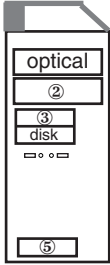
Processor	Intel® Core™ i5-3450 processor (4C/4T, 3.1GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.5GHz), DDR3 memory controller (up to 1600MHz) Intel Core i5-3550 processor (4C/4T, 3.3GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.7GHz), DDR3 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	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® 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												
Media reader	<i>Media:</i> 29-in-1 Media card reader, internal USB 2.0												
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive												
Disk(s)	<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)												
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												
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, more Lenovo® services see S-TS sheet												

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		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® 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		Media reader <i>Media:</i> 29-in-1 Media card reader, internal USB 2.0 Optical Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive		Disk(s) <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)		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		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, more Lenovo® services see S-TS sheet	
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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	
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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 More compatible accessories, please see O-DEM sheet	
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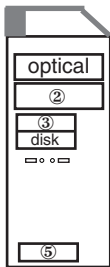
Type-model	Processor	Memory (MHz/ECC)	Memory DIMMs	Pre-conf RAID	Disk(s)	Media reader	SATA optical	Graphics adapter(s)	1394 adptr	Global	Chassis intrusion switch	PS/2 rear I/O	Win7 preload
2552-B6U	Core i3-2130	1600MHz ECC	1x4GB	No	1x128GB SSD	Media	DVD±RW	Intel HD 2000	No	No	Switch	No	Pro 64
2552-B7U	Core i5-3550	1600MHz Non-ECC	1x4GB	No	1x180GB SSD	Media	DVD±RW	Quadro 400	No	No	Switch	No	Pro 64
2552-B8U	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x180GB SSD	Media	DVD±RW	Quadro 600	No	No	Switch	No	Pro 64
2552-B9U	E3-1230V2	1600MHz ECC	1x4GB	No	1x180GB SSD	Media	DVD±RW	Quadro 400	No	No	Switch	No	Pro 64
2552-BAU	E3-1245V2	1600MHz ECC	1x4GB	No	1x180GB SSD	Media	DVD±RW	Quadro 400	No	No	Switch	No	Pro 64
2552-BBU	E3-1275V2	1600MHz ECC	1x4GB	No	1x256GB SSD	Media	DVD±RW	Quadro 600	No	No	Switch	No	Pro 64

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 i5-3550 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) 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) 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)	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 i3-3220/3240: 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® 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	
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	
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, more Lenovo® services see S-TS sheet	
		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
		More compatible accessories, please see O-DEM sheet

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
2552-CVU	Core i3-3220	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro K600	No	No	Switch	Win7 Pro64(DG)
2552-CWU	Core i3-3220	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Intel HD 2500	No	No	Switch	Win7 Pro64(DG)
2552-CYU	Core i3-3240	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro K600	No	No	Switch	Win7 Pro64(DG)
2552-CZU	Core i3-3240	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Intel HD 2500	No	No	Switch	Win7 Pro64(DG)
2552-D1U	Core i3-3240	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro 410	No	No	Switch	Win7 Pro64(DG)
2552-D2U	Core i5-3470	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win7 Pro64(DG)
2552-D3U	Core i5-3550	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Intel HD 2500	No	No	Switch	Win7 Pro64(DG)

¹ Model in *italics* shows that this is a Global Model

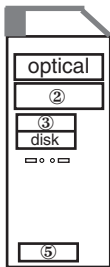
² Win7 Pro64(DG) = Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit

Processor	Intel® 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) 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) One LGA1155 socket		Tower  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 • 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) More compatible accessories, please see O-DEM sheet
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; (detailed graphics model name please see Processor section, connector information please see Rear ports section) Some: NVIDIA® Quadro® 410 , PCIe x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W Some: NVIDIA Quadro K600 , PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W Some: NVIDIA Quadro K2000 , PCIe x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, 51W		
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, more Lenovo® services see S-TS sheet		

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
2552-D4U	Core i5-3570	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Intel HD 2500	No	No	Switch	Win7 Pro64(DG)
2552-D5U	Core i5-3570	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro 410	No	No	Switch	Win7 Pro64(DG)
2552-D6U	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win7 Pro64(DG)
2552-D7U	Xeon E3-1225V2	1600MHz ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Intel HD P4000	No	No	Switch	Win7 Pro64(DG)
2552-D8U	Xeon E3-1225V2	1600MHz ECC	1x4GB	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win7 Pro64(DG)
2552-D9U	Xeon E3-1245V2	1600MHz ECC	1x4GB	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win7 Pro64(DG)
2552-DAU	Xeon E3-1275V2	1600MHz ECC	1x4GB	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® Core™ i5-3570 processor (4C/4T, 3.4GHz, 6MB Cache) , integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.8GHz), 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® E3-1225V2 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) 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)		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		Intel AMT Intel AMT supported on model(s) with Xeon processor	
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® 410</i> , PCIe x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W <i>Some: NVIDIA Quadro K600</i> , PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W <i>Some: NVIDIA Quadro K2000</i> , PCIe x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, 51W		Preloaded operating system²⁰ <i>Some: Windows® 7 Professional 64</i> <i>Some: Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit</i> <i>Some: Windows 8 Pro 64-bit</i> 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))	
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		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			
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, more Lenovo® services see S-TS sheet		More compatible accessories, please see O-DEM sheet	

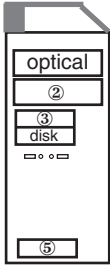
See footnotes for important warranty information

US model(s) announced March 19, 2013

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
2552-DBU	Xeon E3-1275V2	1600MHz ECC	1x4GB	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win7 Pro64(DG)
2552-DCU	Core i3-2130	1600MHz Non-ECC	1x4GB	No	1x128GB SSD	Media	DVD±RW	Intel HD 2000	No	No	Switch	Win7 Pro64(DG)
2552-DDU	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x180GB SSD	Media	DVD±RW	Quadro K600	No	No	Switch	Win7 Pro64(DG)
2552-DEU	Xeon E3-1275V2	1600MHz ECC	1x4GB	No	1x256GB SSD	Media	DVD±RW	Quadro K600	No	No	Switch	Win7 Pro64(DG)
2552-DFU	Core i3-3220	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro K600	No	No	Switch	Win8 Pro64
2552-DGU	Core i3-3220	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Intel HD 2500	No	No	Switch	Win8 Pro64
2552-DHU	Core i3-3220	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro 410	No	No	Switch	Win8 Pro64

¹ Model in *italics* shows that this is a Global Model

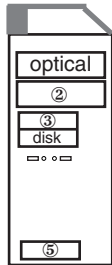
² Win7 Pro64(DG) = Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit

Processor	Intel® Core™ i3-2130 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) Intel Core i3-3220 processor (2C/4T, 3.3GHz, 3MB Cache), integrated Intel HD Graphics 2500, 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® E3-1275V2 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)						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/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						Intel AMT Intel AMT supported on model(s) with Xeon processor					
Graphics	<i>Some: Intel HD Graphics</i> in processor, uses main memory, works along with discrete graphics to support multi-display; <i>(detailed graphics model name please see Processor section, connector information please see Rear ports section)</i> <i>Some: NVIDIA® Quadro® 410,</i> PCIe x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W <i>Some: NVIDIA Quadro K600,</i> PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W <i>Some: NVIDIA Quadro K2000,</i> PCIe x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, 51W						Preloaded operating system²⁰ <i>Some: Windows® 7 Professional 64</i> <i>Some: Windows 7 Professional 64</i> preinstalled through downgrade rights in Windows 8 Pro 64-bit <i>Some: Windows 8 Pro 64-bit</i> 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))					
Media reader	29-in-1 Media card reader in selected models, internal USB 2.0						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)					
Optical	DVD, DVD±RW, or Blu-ray, depending on model						More compatible accessories, please see O-DEM sheet					
Drive(s)	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 <i>(Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors)</i> 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, more Lenovo® services see S-TS sheet											

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
2552-DJU	Core i3-3240	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro K600	No	No	Switch	Win8 Pro64
2552-DKU	Core i3-3240	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Intel HD 2500	No	No	Switch	Win8 Pro64
2552-DLU	Core i3-3240	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro 410	No	No	Switch	Win8 Pro64
2552-DMU	Core i5-3470	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win8 Pro64
2552-DNU	Core i5-3470	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro 410	No	No	Switch	Win8 Pro64
2552-DPU	Core i5-3550	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Intel HD 2500	No	No	Switch	Win8 Pro64
2552-DQU	Core i5-3550	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro 410	No	No	Switch	Win8 Pro64

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

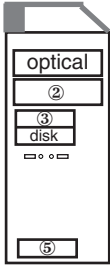
Processor	Intel® Core™ i3-3240 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz) Intel Core i5-3470 processor (4C/4T, 3.2GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.6GHz), DDR3 memory controller (up to 1600MHz) 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)		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	Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; (detailed graphics model name please see Processor section, connector information please see Rear ports section) Some: NVIDIA® Quadro® 410, PCIe x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W Some: NVIDIA Quadro K600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W Some: NVIDIA Quadro K2000, PCIe x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, 51W		
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, more Lenovo® services see S-TS sheet		

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 • 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)
More compatible accessories, please see O-DEM sheet

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
2552-DRU	Core i5-3570	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Intel HD 2500	No	No	Switch	Win8 Pro64
2552-DSU	Core i5-3570	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro 410	No	No	Switch	Win8 Pro64
2552-DTU	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win8 Pro64
2552-DUU	Xeon E3-1225V2	1600MHz ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Intel HD P4000	No	No	Switch	Win8 Pro64
2552-DVU	Xeon E3-1225V2	1600MHz ECC	1x4GB	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win8 Pro64
2552-DWU	Xeon E3-1230V2	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro 410	No	No	Switch	Win8 Pro64
2552-DYU	Xeon E3-1245V2	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro 410	No	No	Switch	Win8 Pro64

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™ i5-3570 processor (4C/4T, 3.4GHz, 6MB Cache) , integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.8GHz), 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® E3-1225V2 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 E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.7GHz), 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
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/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	Intel AMT Intel AMT supported on model(s) with Xeon processor
Graphics	Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; (detailed graphics model name please see Processor section, connector information please see Rear ports section) Some: NVIDIA® Quadro® 410 , PCIe x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W Some: NVIDIA Quadro K2000 , PCIe x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, 51W	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 • 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))
Media reader	29-in-1 Media card reader in selected models, internal USB 2.0	
Optical	DVD, DVD±RW, or Blu-ray, depending on model	
Drive(s)	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	STMicronelectronics 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	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)
Eco-Label and environmental certifications	GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant	More compatible accessories, please see O-DEM sheet
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, more Lenovo® services see S-TS sheet	

See footnotes for important warranty information

US model(s) announced March 19, 2013

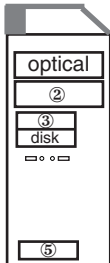
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(DEM8-2) March 2013

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
2552-DZU	Xeon E3-1245V2	1600MHz ECC	1x4GB	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win8 Pro64
2552-E1U	Xeon E3-1275V2	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro 410	No	No	Switch	Win8 Pro64
2552-E2U	Xeon E3-1275V2	1600MHz ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro K600	No	No	Switch	Win8 Pro64
2552-E3U	Xeon E3-1275V2	1600MHz ECC	1x4GB	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win8 Pro64
2552-E4U	Core i3-2130	1600MHz Non-ECC	1x4GB	No	1x128GB SSD	Media	DVD±RW	Intel HD 2000	No	No	Switch	Win8 Pro64
2552-E5U	Core i5-3550	1600MHz Non-ECC	1x4GB	No	1x180GB SSD	Media	DVD±RW	Quadro 410	No	No	Switch	Win8 Pro64
2552-E6U	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x180GB SSD	Media	DVD±RW	Quadro K600	No	No	Switch	Win8 Pro64

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™ i3-2130 processor (2C/4T, 3.4GHz, 3MB Cache) , integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) 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) 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)			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/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			Intel AMT Intel AMT supported on model(s) with Xeon processor		
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® 410, PCIe x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W</i> <i>Some: NVIDIA Quadro K600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W</i> <i>Some: NVIDIA Quadro K2000, PCIe x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, 51W</i>			Preloaded operating system²⁰ <i>Some: Windows® 7 Professional 64</i> <i>Some: Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit</i> <i>Some: Windows 8 Pro 64-bit</i> 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))		
Media reader	29-in-1 Media card reader in selected models, internal USB 2.0			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) More compatible accessories, please see O-DEM sheet		
Optical	DVD, DVD±RW, or Blu-ray, depending on model					
Drive(s)	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 <i>(Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors)</i> 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, more Lenovo® services see S-TS sheet					

See footnotes for important warranty information

US model(s) announced March 19, 2013

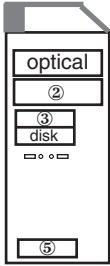
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(DEM9-2) March 2013

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
2552-E7U	Xeon E3-1230V2	1600MHz Non-ECC	1x4GB	No	1x180GB SSD	Media	DVD±RW	Quadro 410	No	No	Switch	Win8 Pro64
2552-E8U	Xeon E3-1245V2	1600MHz ECC	1x4GB	No	1x180GB SSD	Media	DVD±RW	Quadro 410	No	No	Switch	Win8 Pro64
2552-E9U	Xeon E3-1275V2	1600MHz ECC	1x4GB	No	1x256GB SSD	Media	DVD±RW	Quadro K600	No	No	Switch	Win8 Pro64

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® E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), 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)					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/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					Intel AMT Intel AMT supported on model(s) with Xeon processor						
Graphics	Some: NVIDIA® Quadro® 410 , PCIe x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W Some: NVIDIA Quadro K600 , PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W					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 • 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))						
Media reader	29-in-1 Media card reader in selected models, internal USB 2.0					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)						
Optical	DVD, DVD±RW, or Blu-ray, depending on model					More compatible accessories, please see O-DEM sheet						
Drive(s)	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 <i>(Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors)</i> 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, more Lenovo® services see S-TS sheet											

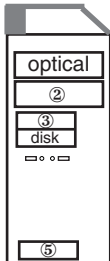
See footnotes for important warranty information

US model(s) announced March 19, 2013

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
2552-EAU	Xeon E3-1290V2	1600MHz ECC	8GBx1	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win7 Pro64(DG)
2552-EBU	Xeon E3-1290V2	1600MHz ECC	8GBx1	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win8 Pro64
2552-ECU	Xeon E3-1280V2	1600MHz ECC	8GBx1	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win8 Pro64
2552-EDU	Xeon E3-1280V2	1600MHz ECC	8GBx1	No	1x1TB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win7 Pro64(DG)

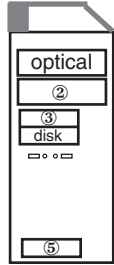
¹ Model in *italics* shows that this is a Global Model

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

Processor	Intel® Xeon® E3-1280V2 processor (4C/8T, 3.6GHz, 8MB Cache), Turbo Boost 2.0 (up to 4.0GHz), 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			
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® K2000 , PCIe x16 adapter, 2GB, two DisplayPort™, one dual-link DVI-I, 51W			
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 <i>(Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors)</i> <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 Speaker	High Definition (HD) Audio, Realtek® ALC662 codec 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, more Lenovo® services see S-TS sheet			
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 <i>(75w max, near CPU)</i> <i>* PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon/Core i5/Core i7 models</i> 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 <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 <i>(only some listed)</i> -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) • 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)				
More compatible accessories, please see O-DEM sheet				

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
2553-11U Xeon E3-1240V2		1600MHz ECC	2x2GB	No	1x1TB SATA	Media	DVD±RW	Quadro 600	No	Global		PS/2	Pro 64
2553-12U Xeon E3-1225V2		1600MHz ECC	2x2GB	No	1x1TB SATA	Media	DVD±RW	Quadro 600	No	Global	Switch		Pro 64
2553-13U Xeon E3-1270V2		1600MHz ECC	2x2GB	No	1x2TB SATA	Media	DVD±RW	Quadro 2000	No	Global			Pro 64
2553-14U Xeon E3-1275V2		1600MHz ECC	2x2GB	No	1x256GB SSD	Media	DVD±RW	Intel HD P4000	No	Global	Switch		Pro 64
2553-15U Xeon E3-1290V2		1600MHz ECC	2x2GB	No	1x256GB SSD	Media	DVD±RW	Quadro 2000	No	Global	Switch		Pro 64
2553-18U Core i3-2130		1600MHz ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	Quadro 400	No	Global	Switch	PS/2	Pro 64
2553-21U 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) 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	* PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon models
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 (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	Preloaded operating system²⁰ • Windows® 7 Professional 64
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive	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))
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"	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)
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset	ISV certifications Please visit www.lenovo.com/support/ISV
Onboard SAS	None	GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant
Chipset	Intel C216 Chipset	More compatible accessories, please see O-DEM sheet
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; more Lenovo® services see on S-TS sheet	

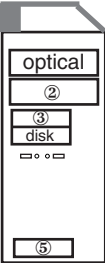
See footnotes for important warranty information
 US model(s) announced May 15 (18U/21U) or June 26 (11U/12U/13U/14U/15U), 2012

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
2553-16U	Core i7-3770	1600MHz Non-ECC	1x4GB	No	180GB SSD+1TB SATA	Media	DVD±RW	Intel HD 4000	No	Global	Switch		Pro 64
2553-17U	Xeon E3-1225V2	1600MHz ECC	1x4GB	No	1x500GB SATA		DVD±RW	Intel HD P4000	No	Global	Switch		Pro 64
2553-19U	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 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 • 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 More compatible accessories, please see O-DEM sheet	
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® 2000 , PCIe x16 adapter, 1GB, two DisplayPort™, one dual-link DVI-I, 62W		
Media reader	<i>Media:</i> 29-in-1 Media card reader, internal USB 2.0		
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive		
Disk(s)	<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)		
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		
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; more Lenovo® services see on S-TS sheet		

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

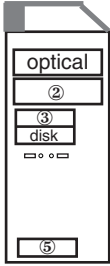
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 (DEM2-3) July 2012

ThinkStation® E31 Tower (2553) - GMP (October 2012)

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	Preload OS
2553-A4U	Core i3-2130	1600MHz ECC	1x4GB	No	1x500GB SATA	No	DVD±RW	Quadro 410	No	Global	Switch	No	Win8 Pro64

Processor	Intel® Core™ i3-2130 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) 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, 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												
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, more Lenovo® services see S-TS sheet												
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 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 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)	
More compatible accessories, please see O-DEM sheet	

See footnotes for important warranty information
US model(s) announced October 30, 2012

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(DEM3-3) November 2012

ThinkStation® E31 Tower (2553) - GMP (March 2013)

Personal Systems Reference (PSREF)

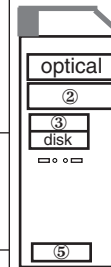
Type-model ¹	Processor	Memory (MHz/ECC)	Memory DIMMs	Pre-conf RAID	Drive(s)	Media reader	SATA optical	Graphics adapter(s)	1394 adptr	PS/2 rear I/O	Chassis intrusion switch	Preload OS ²
2553-A7U	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win7 Pro64(DG)
2553-A8U	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro K2000	No	No	Switch	Win8 Pro64
2553-A9U	Xeon E3-1245V2	1600MHz ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro K600	No	No	Switch	Win7 Pro64(DG)
2553-AAU	Xeon E3-1245V2	1600MHz ECC	1x4GB	No	1x500GB 3.5" SATA	Media	DVD±RW	Quadro K600	No	No	Switch	Win8 Pro64

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™ 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® E3-1245V2 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: NVIDIA® Quadro® K600</i> , PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W <i>Some: NVIDIA Quadro K2000</i> , PCIe x16 adapter, 2GB, two DisplayPort, one dual-link DVI-I, 51W										
Media reader	29-in-1 Media card reader in selected models, internal USB 2.0										
Optical	DVD, DVD±RW, or Blu-ray, depending on model										
Drive(s)	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 <i>(Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors)</i> 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, more Lenovo® services see S-TS sheet										

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

- 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

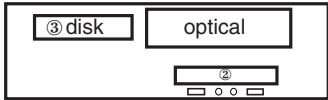
- Security chip (see information on left)
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without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

More compatible accessories, please see O-DEM sheet

ThinkStation® E31 SFF (3695) - TopSeller

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-G3U	Core i3-2120	1600MHz Non-ECC	1x4GB	No	1x250GB SATA	Media	DVD±RW	No	Intel HD 2000	No	No	No	No	Stand	Pro 64
3695-G4U	Core i3-2120	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	No	Quadro 400	No	No	No	No	Stand	Pro 64
3695-G5U	Core i3-2120	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	No	Quadro 600	No	No	No	No	Stand	Pro 64
3695-G6U	Core i3-2130	1600MHz Non-ECC	1x4GB	No	1x1TB SATA	Media	DVD±RW	No	Quadro 600	No	No	No	No	Stand	Pro 64
3695-H5U	Xeon E3-1225V2	1600MHz Non-ECC	1x4GB	No	1x250GB SATA	Media	DVD±RW	No	Intel HD P4000	No	No	No	No	Stand	Pro 64
3695-H6U	Xeon E3-1225V2	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	No	Quadro 400	No	No	No	No	Stand	Pro 64
3695-H7U	Xeon E3-1230V2	1600MHz Non-ECC	1x4GB	No	1x1TB SATA	Media	DVD±RW	No	Quadro 600	No	No	No	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) 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 E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz) One LGA1155 socket	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	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 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® 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	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) <i>* PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon models</i> Slot 2: Low Profile, PCIe 2.0 x1 Slot 3: Low Profile, 32-bit PCI 2.3 Slot 4: Low Profile, 32-bit PCI 2.3
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	Intel AMT Intel AMT supported on model(s) with Xeon processor
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	Preloaded operating system²⁰ • Windows® 7 Professional 64
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	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))
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 • 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	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, more Lenovo® services see S-TS sheet	ISV certifications Please visit www.lenovo.com/support/ISV GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant More compatible accessories, please see O-ROC sheet

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

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(ROC1-1) May 2012

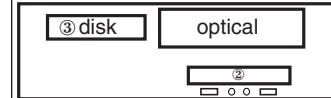
ThinkStation® E31 SFF (3695) - TopSeller (June 5, 2012)

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-G7U	Core i5-3450	1600MHz Non-ECC	1x4GB	No	1x250GB SATA	Media	DVD±RW	No	Intel HD 2500	No	No	No	No	Stand	Pro 64
3695-G8U	Core i5-3450	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	No	Quadro 400	No	No	No	No	Stand	Pro 64
3695-G9U	Core i5-3450	1600MHz Non-ECC	1x4GB	No	1x1TB SATA	Media	DVD±RW	No	Quadro 600	No	No	No	No	Stand	Pro 64
3695-H1U	Core i5-3550	1600MHz Non-ECC	2x4GB	No	1x500GB SATA	Media	DVD±RW	No	Intel HD 2500	No	No	No	No	Stand	Pro 64
3695-H2U	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	No	Intel HD 4000	No	No	No	No	Stand	Pro 64
3695-H3U	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	No	Quadro 400	No	No	No	No	Stand	Pro 64
3695-H4U	Core i7-3770	1600MHz Non-ECC	2x4GB	No	1x1TB SATA	Media	DVD±RW	No	Quadro 600	No	No	No	No	Stand	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	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® 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														
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, 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, more Lenovo® services see S-TS sheet														

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

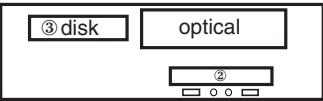
GREENGUARD® certified
 RoHS-compliant
 EPEAT™ Gold rating
 ENERGY STAR 5.2-compliant

More compatible accessories, please see O-ROC sheet

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

Personal Systems Reference (PSREF)

Type-model	Processor	Memory (MHz/ECC)	Memory Pre-conf DIMMs	RAID	Disk(s)	Media reader	SATA optical	2nd Disk bay	Graphics adapter(s)	1394 adptr	Global	Chassis intrusion switch	PS/2 rear I/O	Vertical stand	Preload OS
3695-P8U	Core i3-2120	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	No	Quadro 410	No	No	Switch	No	Stand	Win8 Pro64
3695-P9U	Core i5-3470	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	No	Quadro 410	No	No	Switch	No	Stand	Win8 Pro64
3695-PAU	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	No	Quadro 410	No	No	Switch	No	Stand	Win8 Pro64
3695-PBU	Xeon E3-1230V2	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	No	Quadro 410	No	No	Switch	No	Stand	Win8 Pro64

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 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® E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz) One LGA1155 socket	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	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	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) <i>* PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon/Core i5/Core i7 models</i> Slot 2: Low Profile, PCIe 2.0 x1 Slot 3: Low Profile, 32-bit PCI 2.3 Slot 4: Low Profile, 32-bit PCI 2.3
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, 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 Preloaded operating system²⁰ Some: Windows® 7 Professional 64 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))
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, more Lenovo® services see S-TS sheet	
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	
		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)
		More compatible accessories, please see O-ROC sheet

See footnotes for important warranty information
US model(s) announced October 30, 2012

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(ROC4-1) November 2012

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

Personal Systems Reference (PSREF)

Type-model ¹	Processor	Memory (MHz/ECC)	Memory DIMMs	Pre-conf RAID	SATA drive(s)	2nd drive bay	Media reader	SATA optical	Graphics adapter(s)	1394 adptr	Chassis intrusion switch	Vertical stand	Preload OS ²
3695-RNU	Core i3-3220	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Intel HD 2500	No	Switch	Stand	Win7 Pro64(DG)
3695-RPU	Core i3-3220	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Intel HD 2500	No	Switch	Stand	Win8 Pro64
3695-RQU	Core i3-3240	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Intel HD 2500	No	Switch	Stand	Win8 Pro64
3695-RRU	Core i3-3240	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Intel HD 2500	No	Switch	Stand	Win7 Pro64(DG)
3695-RSU	Core i3-3220	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Quadro K600	No	Switch	Stand	Win7 Pro64(DG)
3695-RTU	Core i3-3220	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Quadro K600	No	Switch	Stand	Win8 Pro64
3695-RUU	Core i3-3220	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Quadro 410	No	Switch	Stand	Win8 Pro64
3695-RVU	Core i3-3240	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Quadro K600	No	Switch	Stand	Win7 Pro64(DG)
3695-RWU	Core i3-3240	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5"	No	Media	DVD±RW	Quadro K600	No	Switch	Stand	Win7 Pro64(DG)
3695-RYU	Core i3-3220	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5"	No	Media	DVD±RW	Quadro K600	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™ i3-3220 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 ③ disk optical ②		
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 Bay 1: 5.25", 1.6" high, access, for optical/2nd disk Bay 2: 3.5", 0.5" high, access, for media reader Bay 3: 3.5", 1" high, internal, for disk		
Additional memory disclaimers	• 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; (detailed graphics model name please see Processor section, connector information please see Rear ports section) <i>Some:</i> NVIDIA® Quadro® 410, PCIe x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W <i>Some:</i> NVIDIA Quadro K600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W					
Media reader	Media: 29-in-1 Media card reader, slim, internal USB 2.0			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		
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)			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))		
Onboard SAS	None					
Chipset	Intel C216 Chipset					
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)			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)		
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			More compatible accessories, please see O-ROC sheet		
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, autosenesing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified					
Limited Warranty	3-year parts and labor, more Lenovo® services see S-TS sheet					
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
US model(s) announced March 19, 2013

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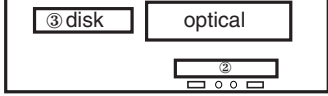
ThinkStation® E31 SFF (3695) - TopSeller (March 2013) - II

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-RZU	Core i5-3470	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Intel HD 2500	No	Switch	Stand	Win7 Pro64(DG)
3695-QAU	Core i5-3570	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Quadro 410	No	Switch	Stand	Win7 Pro64(DG)
3695-QBU	Core i5-3570	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Quadro K600	No	Switch	Stand	Win7 Pro64(DG)
3695-QCU	Core i5-3570	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Intel HD 2500	No	Switch	Stand	Win7 Pro64(DG)
3695-QDU	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Intel HD 4000	No	Switch	Stand	Win7 Pro64(DG)
3695-QEU	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5"	No	Media	DVD±RW	Quadro K600	No	Switch	Stand	Win7 Pro64(DG)
3695-QFU	Xeon E3-1225V2	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Intel HD P4000	No	Switch	Stand	Win7 Pro64(DG)
3695-QGU	Xeon E3-1230V2	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5"	No	Media	DVD±RW	Quadro K600	No	Switch	Stand	Win7 Pro64(DG)
3695-QHU	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x180GB SSD	No	Media	DVD±RW	Quadro K600	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™ 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 i5-3570 processor (4C/4T, 3.4GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.8GHz), 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® E3-1225V2 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 E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.7GHz), DDR3 memory controller (up to 1600MHz)	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
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® 410, PCIe x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W</i> <i>Some: NVIDIA Quadro K600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W</i>	Slot 1: Low Profile, PCIe* x16 (45w max, near CPU) <i>* PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon/Core i5/Core i7 models</i> Slot 2: Low Profile, PCIe 2.0 x1 Slot 3: Low Profile, 32-bit PCI 2.3 Slot 4: Low Profile, 32-bit PCI 2.3
Media reader	Media: 29-in-1 Media card reader, slim, internal USB 2.0	
Optical	DVD, slim DVD, DVD±RW, slim DVD±RW, or Blu-ray, depending on model	
SATA drive(s)	3.5": SATA 6.0Gb/s, 7200 rpm, 3.5" 2.5": SATA 6.0Gb/s, 10000 rpm, 2.5" SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"	
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID can work on models with 2nd drive bay only)	
Onboard SAS	None	
Chipset	Intel C216 Chipset	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)	
Rear ports	Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector <i>(Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors)</i>	
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: Vertical stand with retractable tongue for vertical orientation</i>	
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, more Lenovo® services see S-TS sheet	
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	
		Preloaded operating system²⁰ <i>Some: Windows® 7 Professional 64</i> <i>Some: Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit</i> <i>Some: Windows 8 Pro 64-bit</i> 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) More compatible accessories, please see O-ROC sheet

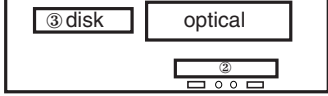
ThinkStation® E31 SFF (3695) - TopSeller (March 2013) - III

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-QJU	Core i3-3240	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Quadro K600	No	Switch	Stand	Win8 Pro64
3695-QKU	Core i3-3220	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5"	No	Media	DVD±RW	Quadro K600	No	Switch	Stand	Win8 Pro64
3695-QLU	Core i3-3240	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5"	No	Media	DVD±RW	Quadro K600	No	Switch	Stand	Win8 Pro64
3695-QMU	Core i5-3470	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Intel HD 2500	No	Switch	Stand	Win8 Pro64
3695-QNU	Core i5-3570	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Intel HD 2500	No	Switch	Stand	Win8 Pro64
3695-QPU	Core i5-3570	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Quadro 410	No	Switch	Stand	Win8 Pro64
3695-QQU	Core i5-3570	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Quadro K600	No	Switch	Stand	Win8 Pro64
3695-QRU	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Intel HD 4000	No	Switch	Stand	Win8 Pro64
3695-QSU	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Quadro 410	No	Switch	Stand	Win8 Pro64

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™ i3-3220 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) 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 i5-3570 processor (4C/4T, 3.4GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.8GHz), 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)							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						
Implementation	One LGA1155 socket							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						
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;							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))						
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							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)						
Graphics	<i>Some:</i> 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>Some:</i> NVIDIA® Quadro® 410 , PCIe x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W <i>Some:</i> NVIDIA Quadro K600 , PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W							More compatible accessories, please see O-ROC sheet						
Media reader	<i>Media:</i> 29-in-1 Media card reader, slim, internal USB 2.0													
Optical	DVD, slim DVD, DVD±RW, slim DVD±RW, or Blu-ray, depending on model													
SATA drive(s)	3.5": SATA 6.0Gb/s, 7200 rpm, 3.5" 2.5": SATA 6.0Gb/s, 10000 rpm, 2.5" SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"													
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID can work on models with 2nd drive bay only)													
Onboard SAS	None													
Chipset	Intel C216 Chipset													
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)													
Rear ports	Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors)													
IEEE 1394 adptr	No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear													
Audio	High Definition (HD) Audio, Realtek® ALC662 codec													
Speaker	Internal speaker for business audio													
Ethernet	One onboard gigabit ethernet, Intel 82579													
Security chip	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant													
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black													
Mouse	Optical Wheel Mouse (USB connector), black													
Vertical Stand	<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, more Lenovo® services see S-TS sheet													
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													

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

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-QTU	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5"	No	Media	DVD±RW	Quadro K600	No	Switch	Stand	Win8 Pro64
3695-QUU	Xeon E3-1225V2	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Intel HD P4000	No	Switch	Stand	Win8 Pro64
3695-QVU	Xeon E3-1225V2	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Quadro 410	No	Switch	Stand	Win8 Pro64
3695-QWU	Xeon E3-1230V2	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5"	No	Media	DVD±RW	Quadro K600	No	Switch	Stand	Win8 Pro64
3695-QYU	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x180GB SSD	No	Media	DVD±RW	Quadro K600	No	Switch	Stand	Win8 Pro64

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™ 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) 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	• <i>Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs</i> • <i>Mixing of ECC and non-ECC memory is not supported</i>
Graphics	<i>Some: Intel HD Graphics</i> in processor, uses main memory, works along with discrete graphics to support multi-display; <i>(detailed graphics model name please see Processor section, connector information please see Rear ports section)</i> <i>Some: NVIDIA® Quadro® 410</i> , PCIe x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W <i>Some: NVIDIA Quadro K600</i> , PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W
Media reader	<i>Media:</i> 29-in-1 Media card reader, slim, internal USB 2.0
Optical	DVD, slim DVD, DVD±RW, slim DVD±RW, or Blu-ray, depending on model
SATA drive(s)	3.5": SATA 6.0Gb/s, 7200 rpm, 3.5" 2.5": SATA 6.0Gb/s, 10000 rpm, 2.5" SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID can work on models with 2nd drive bay only)
Onboard SAS	None
Chipset	Intel C216 Chipset
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector <i>(Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors)</i>
IEEE 1394 adptr	No onboard 1394 ports; <i>1394 models:</i> additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear
Audio	High Definition (HD) Audio, Realtek® ALC662 codec
Speaker	Internal speaker for business audio
Ethernet	One onboard gigabit ethernet, Intel 82579
Security chip	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Vertical Stand	<i>Some:</i> Vertical stand with retractable tongue for vertical orientation
Power supply	240 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified
Limited Warranty	3-year parts and labor, more Lenovo® services see S-TS sheet
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

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/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
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)	
More compatible accessories, please see O-ROC sheet	

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

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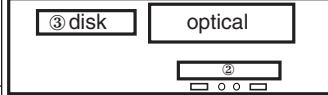
ThinkStation® E31 SFF (3695) - TopSeller (May 2013)

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-T2U	Xeon E3-1280V2	1600MHz ECC	8GBx1	No	1x1TB 3.5" SATA	No	No	DVD±RW	Quadro K600	No	Switch	Stand	Win7 Pro64(DG)
3695-T3U	Xeon E3-1280V2	1600MHz ECC	8GBx1	No	1x1TB 3.5" SATA	No	No	DVD±RW	Quadro K600	No	Switch	Stand	Win8 Pro64
3695-T4U	Xeon E3-1245V2	1600MHz ECC	8GBx1	No	1x1TB 3.5" SATA	No	No	DVD±RW	Quadro 410	No	Switch	Stand	Win8 Pro64
3695-T5U	Xeon E3-1245V2	1600MHz ECC	8GBx1	No	1x1TB 3.5" SATA	No	No	DVD±RW	Quadro 410	No	Switch	Stand	Win7 Pro64(DG)

¹ Model in *italics* shows that this is a Global Model

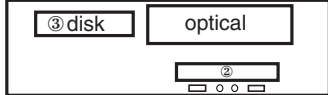
² Win7 Pro64(DG) = Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit

Processor	Intel® 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 E3-1280V2 processor (4C/8T, 3.6GHz, 8MB Cache), Turbo Boost 2.0 (up to 4.0GHz), 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 Bay 1: 5.25", 1.6" high, access, for optical/2nd disk Bay 2: 3.5", 0.5" high, access, for media reader Bay 3: 3.5", 1" high, internal, for disk	
Additional memory disclaimers	• Actual memory operating speed depends on processor memory controller speed, installed memory speed, and quantity of memory DIMMs • Mixing of ECC and non-ECC memory is not supported			
Graphics	Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; (detailed graphics model name please see Processor section, connector information please see Rear ports section) Some: NVIDIA® Quadro® 410, PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 37W Some: NVIDIA Quadro K600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W			
Media reader	Media: 29-in-1 Media card reader, slim, internal USB 2.0			
Optical	DVD, slim DVD, DVD±RW, slim DVD±RW, or Blu-ray, depending on model		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	
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"		Slot 2: Low Profile, PCIe 2.0 x1 Slot 3: Low Profile, 32-bit PCI 2.3 Slot 4: Low Profile, 32-bit PCI 2.3	
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID can work on models with 2nd drive bay only)			
Onboard SAS	None			
Chipset	Intel C216 Chipset			
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)			
Rear ports	Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors)			
IEEE 1394 adptr	No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear			
Audio	High Definition (HD) Audio, Realtek® ALC662 codec			
Speaker	Internal speaker for business audio			
Ethernet	One onboard gigabit ethernet, Intel 82579			
Security chip	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant			
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black			
Mouse	Optical Wheel Mouse (USB connector), black			
Vertical Stand	Some: Vertical stand with retractable tongue for vertical orientation			
Power supply	240 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified			
Limited Warranty	3-year parts and labor, more Lenovo® services see S-TS sheet			
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			
			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 • 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)	
			More compatible accessories, please see O-ROC sheet	

ThinkStation® E31 SFF (3690)

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
3690-E6U	Core i3-2130	1600MHz ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	No	Quadro 400	No	No	No	No	No	Pro 64
3690-E9U	Xeon E3-1230V2	1600MHz ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	No	Quadro 400	No	No	No	No	No	Pro 64
3690-F1U	Xeon E3-1245V2	1600MHz ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	No	Intel HD P4000	No	No	No	No	No	Pro 64
3690-F2U	Xeon E3-1245V2	1600MHz ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	No	Quadro 400	No	No	No	No	No	Pro 64
3690-F3U	Xeon E3-1245V2	1600MHz ECC	1x4GB	No	1x1TB SATA	Media	DVD±RW	No	Quadro 600	No	No	No	No	No	Pro 64
3690-F4U	Xeon E3-1275V2	1600MHz ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	No	Intel HD P4000	No	No	No	No	No	Pro 64
3690-F5U	Xeon E3-1275V2	1600MHz ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	No	Quadro 400	No	No	No	No	No	Pro 64
3690-F6U	Xeon E3-1275V2	1600MHz ECC	1x4GB	No	1x1TB SATA	Media	DVD±RW	No	Quadro 600	No	No	No	No	No	Pro 64

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® E3-1230V2 processor (4C/8T, 3.3GHz, 8MB Cache) , Turbo Boost 2.0 (up to 3.7GHz), 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)	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	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 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® 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	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
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 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))
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) • 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	
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, more Lenovo® services see S-TS sheet	ISV certifications Please visit www.lenovo.com/support/ISV GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant More compatible accessories, please see O-ROC sheet

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

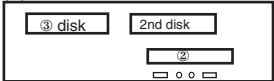
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(ROC1-2) May 2012

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
3690-E7U	Core i5-3550	1600MHz Non-ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	No	Quadro 400	No	No	No	No	No	Pro 64
3690-E8U	Core i5-3550	1600MHz Non-ECC	1x4GB	No	1x1TB SATA	Media	DVD±RW	No	Quadro 600	No	No	No	No	No	Pro 64

Processor	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)
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> NVIDIA® Quadro® 400 , PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 32W <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
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
IEEE 1394 adptr	No onboard 1394 ports; <i>1394 models:</i> additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear
Audio	High Definition (HD) Audio, Realtek® ALC662 codec
Speaker	Internal speaker for business audio
Ethernet	One onboard gigabit ethernet, Intel 82579
Security chip	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Vertical Stand	<i>Some:</i> Vertical stand with retractable tongue for vertical orientation
Power supply	240 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified
Limited Warranty	3-year parts and labor, more Lenovo® services see S-TS sheet

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/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

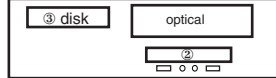
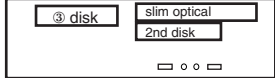
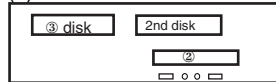
Intel AMT
Intel AMT supported on model(s) with Xeon processor
Preloaded operating system²⁰
• Windows® 7 Professional 64 Preloaded applications⁵ (only some listed) • Rescue and Recovery® • Norton® Internet Security (30 days of virus definitions) • Adobe® Reader® • Microsoft® Office 2013 preloaded; purchase 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
More compatible accessories, please see O-ROC sheet

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
3690-KQU	Core i3-2130	1600MHz ECC	1x4GB	No	1x128GB SSD	No	Slim DVD±RW	2nd	Intel HD 2000	No	No	Switch	No	Stand
3690-KRU	Core i5-3550	1600MHz Non-ECC	1x4GB	No	1x180GB SSD	No	Slim DVD±RW	2nd	Quadro 400	No	No	Switch	No	Stand
3690-KSU	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x180GB SSD	No	Slim DVD±RW	2nd	Quadro 600	No	No	Switch	No	Stand
3690-KTU	Xeon E3-1230V2	1600MHz ECC	1x4GB	No	1x180GB SSD	No	Slim DVD±RW	2nd	Quadro 400	No	No	Switch	No	Stand
3690-KUU	Xeon E3-1245V2	1600MHz ECC	1x4GB	No	1x180GB SSD	No	Slim DVD±RW	2nd	Quadro 400	No	No	Switch	No	Stand
3690-KVU	Xeon E3-1275V2	1600MHz ECC	1x4GB	No	1x256GB SSD	No	Slim DVD±RW	2nd	Quadro 600	No	No	Switch	No	Stand
3690-KWU	Core i3-2130	1600MHz ECC	1x4GB	No	1x500GB SATA	No		2nd	Intel HD 2000	No	No	Switch	No	Stand
3690-KYU	Core i5-3550	1600MHz Non-ECC	1x4GB	No	1x1TB SATA	No		2nd	Quadro 400	No	No	Switch	No	Stand
3690-KZU	Xeon E3-1230V2	1600MHz ECC	1x4GB	No	1x500GB SATA	No		2nd	Quadro 400	No	No	Switch	No	Stand
3690-J1U	Xeon E3-1245V2	1600MHz ECC	1x4GB	No	1x1TB SATA	No		2nd	Quadro 600	No	No	Switch	No	Stand
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 i5-3550 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) 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) 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	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® 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													
Media reader	Media: 29-in-1 Media card reader, slim, internal USB 2.0													
Optical	Some: DVD±RW, SATA, slim													
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) 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, more Lenovo® services see S-TS sheet													
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													
								Small Desktop (1) Optional 1.6" high optical (2) Slim optical + 2nd disk  (3) 2nd disk  Bay 1: 5.25", 1.6" high, supports one of the following: (1) optional 5.25", 1.6" high optical, access (2) 5.25" slim optical (access) and 3.5" 2nd disk drive bay (internal) (3) 3.5" 2nd disk drive bay, internal Bay 2: 3.5", 0.5" high, access, for optional media reader (not available on slim optical models) Bay 3: 3.5", 1" high, internal, for disk drive 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 • 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 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 • Norton Internet Security (30 days of virus definitions) • Norton Studio • 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 and 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) More compatible accessories, please see O-ROC sheet						

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
3690-QGU	Core i5-3570	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5"		Media	DVD±RW	Quadro K600	No	Switch	Stand	Win7 Pro64(DG)
3690-QHU	Core i5-3570	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5"		Media	DVD±RW	Quadro K600	No	Switch	Stand	Win8 Pro64
3690-QJU	Xeon E3-1245V2	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5"		Media	DVD±RW	Quadro K600	No	Switch	Stand	Win8 Pro64
3690-QKU	Xeon E3-1245V2	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5"		Media	DVD±RW	Quadro K600	No	Switch	Stand	Win7 Pro64(DG)
3690-QLU	Xeon E3-1275V2	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5"		Media	DVD±RW	Quadro K600	No	Switch	Stand	Win7 Pro64(DG)
3690-QMU	Xeon E3-1275V2	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5"		Media	DVD±RW	Quadro K600	No	Switch	Stand	Win8 Pro64
3690-QNU	Core i3-3220	1600MHz Non-ECC	1x4GB	No	1x128GB SSD	2nd		Slim 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™ i3-3220 processor (2C/4T, 3.3GHz, 3MB Cache) , integrated Intel HD Graphics 2500, DDR3 memory controller (up to 1600MHz) Intel Core i5-3570 processor (4C/4T, 3.4GHz, 6MB Cache) , integrated Intel HD Graphics 2500, 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)	Small Desktop (1) Optional 1.6" high optical  (2) Slim optical + 2nd disk  (3) 2nd disk 
Implementation	One LGA1155 socket	Bay 1: 5.25", 1.6" high, supports one of the following: (1) optional 5.25", 1.6" high optical, access (2) 5.25" slim optical (access) and 3.5" 2nd disk drive bay (internal) (3) 3.5" 2nd disk drive bay, internal Bay 2: 3.5", 0.5" high, access, for optional media reader <i>(not available on slim optical models)</i> Bay 3: 3.5", 1" high, internal, for disk drive
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC , four 240-pin DIMM sockets;	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
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	- 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
Graphics	Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; <i>(detailed graphics model name please see Processor section, connector information please see Rear ports section)</i> Some: NVIDIA® Quadro® K600 , PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W	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 - Norton Internet Security (30 days of virus definitions) - Norton Studio - Microsoft Office 2013 preloaded; purchase product key to activate - Cyberlink Power2Go (DVD±RW model(s)) - Cyberlink PowerProducer (DVD±RW model(s))
Media reader	Media: 29-in-1 Media card reader, slim, internal USB 2.0	SECURITY - Security chip (see information on left) - Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) - Power-on and 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 <i>(Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors)</i>	
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, more Lenovo® services see S-TS sheet	
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	
More compatible accessories, please see O-ROC sheet		

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
3690-QPU	Core i3-3240	1600MHz Non-ECC	1x4GB	No	1x128GB SSD	2nd	No	Slim DVD±RW	Intel HD 2500	No	Switch	Stand	Win7 Pro64(DG)
3690-QQU	Core i3-3240	1600MHz Non-ECC	1x4GB	No	1x128GB SSD	2nd	No	Slim DVD±RW	Intel HD 2500	No	Switch	Stand	Win8 Pro64
3690-QRU	Core i3-3220	1600MHz Non-ECC	1x4GB	No	1x128GB SSD	2nd	No	Slim DVD±RW	Intel HD 2500	No	Switch	Stand	Win8 Pro64
3690-QSU	Core i5-3570	1600MHz Non-ECC	1x4GB	No	1x180GB SSD	2nd	No	Slim DVD±RW	Quadro 410	No	Switch	Stand	Win7 Pro64(DG)
3690-QTU	Core i5-3570	1600MHz Non-ECC	1x4GB	No	1x180GB SSD	2nd	No	Slim DVD±RW	Quadro 410	No	Switch	Stand	Win8 Pro64
3690-QUU	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x180GB SSD	2nd	No	Slim DVD±RW	Quadro K600	No	Switch	Stand	Win7 Pro64(DG)
3690-QVU	Core i7-3770	1600MHz Non-ECC	1x4GB	No	1x180GB SSD	2nd	No	Slim DVD±RW	Quadro K600	No	Switch	Stand	Win8 Pro64

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™ i3-3220 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) Intel Core i5-3570 processor (4C/4T, 3.4GHz, 6MB Cache), integrated Intel HD Graphics 2500, Turbo Boost 2.0 (up to 3.8GHz), 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)		Small Desktop
Implementation	One LGA1155 socket		(1) Optional 1.6" high optical (2) Slim optical + 2nd disk (3) 2nd disk
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;		Bay 1: 5.25", 1.6" high, supports one of the following: (1) optional 5.25", 1.6" high optical, access (2) 5.25" slim optical (access) and 3.5" 2nd disk drive bay (internal) (3) 3.5" 2nd disk drive bay, internal Bay 2: 3.5", 0.5" high, access, for optional media reader (not available on slim optical models) Bay 3: 3.5", 1" high, internal, for disk drive
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 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
Graphics	Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; (detailed graphics model name please see Processor section, connector information please see Rear ports section) Some: NVIDIA® Quadro® 410 , PCIe x16 adapter, 512MB, one DisplayPort, one dual-link DVI-I, 37W Some: NVIDIA Quadro K600 , PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W		- Raven black color; metal case 13.35"W x 15.0"D x 3.93"H 339mm W x 381.1mm D x 99.7mm H 16.53 lb (7.5kg) max configuration 11-liter - Toolless top cover removal - Toolless disk and optical drive removal - Toolless adapter retention - Recessed power button
Media reader	Media: 29-in-1 Media card reader, slim, internal USB 2.0		
Optical	DVD, slim DVD, DVD±RW, slim DVD±RW, or Blu-ray, depending on model		
SATA drive(s)	3.5": SATA 6.0Gb/s, 7200 rpm, 3.5" 2.5": SATA 6.0Gb/s, 10000 rpm, 2.5" SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"		
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID can work on models with 2nd drive bay only)		
Onboard SAS	None		
Chipset	Intel C216 Chipset		
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)		
Rear ports	Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector (Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors)		
IEEE 1394 adptr	No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear		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
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		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 - Norton Internet Security (30 days of virus definitions) - Norton Studio - Microsoft Office 2013 preloaded; purchase product key to activate - Cyberlink Power2Go (DVD±RW model(s)) - Cyberlink PowerProducer (DVD±RW model(s))
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, more Lenovo® services see S-TS sheet		
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		SECURITY - Security chip (see information on left) - Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) - Power-on and 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) More compatible accessories, please see O-ROC sheet

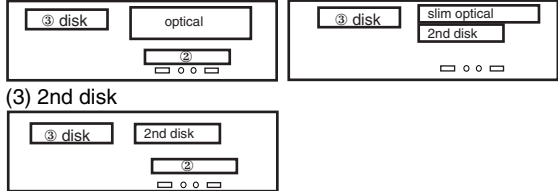
ThinkStation® E31 SFF (3690) - March 2013 - III

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
3690-QWU	Xeon E3-1275V2	1600MHz Non-ECC	1x4GB	No	1x256GB SSD	2nd	No	Slim DVD±RW	Quadro K600	No	Switch	Stand	Win7 Pro64(DG)
3690-QYU	Xeon E3-1275V2	1600MHz Non-ECC	1x4GB	No	1x256GB SSD	2nd	No	Slim DVD±RW	Quadro K600	No	Switch	Stand	Win8 Pro64
3690-QZU	Xeon E3-1245V2	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5"		No		Quadro K600	No	Switch	Stand	Win7 Pro64(DG)
3690-R1U	Xeon E3-1245V2	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5"		No		Quadro K600	No	Switch	Stand	Win8 Pro64

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) 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) One LGA1155 socket			Small Desktop (1) Optional 1.6" high optical (2) Slim optical + 2nd disk (3) 2nd disk		
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	NVIDIA Quadro K600, PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W			Bay 1: 5.25", 1.6" high, supports one of the following: (1) optional 5.25", 1.6" high optical, access (2) 5.25" slim optical (access) and 3.5" 2nd disk drive bay (internal) (3) 3.5" 2nd disk drive bay, internal Bay 2: 3.5", 0.5" high, access, for optional media reader (not available on slim optical models) Bay 3: 3.5", 1" high, internal, for disk drive		
Media reader	Media: 29-in-1 Media card reader, slim, internal USB 2.0			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		
Optical	DVD, slim DVD, DVD±RW, slim DVD±RW, or Blu-ray, depending on model			Slot 2: Low Profile, PCIe 2.0 x1		
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"			Slot 3: Low Profile, 32-bit PCI 2.3 Slot 4: Low Profile, 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 (RAID can work on models with 2nd drive bay only)			- 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		
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			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		
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black			Preloaded applications⁵ (only some listed)		
Mouse	Optical Wheel Mouse (USB connector), black			-Windows 7 models		
Vertical Stand	Some: Vertical stand with retractable tongue for vertical orientation			- 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))		
Power supply	240 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified			-Windows 8 models		
Limited Warranty	3-year parts and labor, more Lenovo® services see S-TS sheet			- Norton Internet Security (30 days of virus definitions) - Norton Studio - Microsoft Office 2013 preloaded; purchase product key to activate - Cyberlink Power2Go (DVD±RW model(s)) - Cyberlink PowerProducer (DVD±RW model(s))		
Eco-Label and environmental certifications	GREENGUARD® certified RoHS-compliant EPEAT™ Gold rating ENERGY STAR 5.2-compliant			SECURITY		
ISV certifications	See the latest list of ISV certifications at www.lenovo.com/support/ISV			- Security chip (see information on left) - Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) - Power-on and 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)		
Intel AMT	Intel AMT supported on model(s) with Xeon processor			More compatible accessories, please see O-ROC sheet		

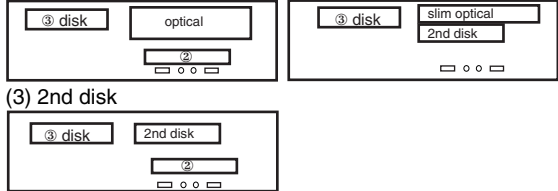
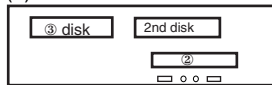
See footnotes for important warranty information
US model(s) announced March 19, 2013

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(ROC6-2) March 2013

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
3690-R2U	Xeon E3-1245V2	1600MHz ECC	8GBx1	No	1x1TB 3.5" SATA	No	No	DVD±RW	Quadro 410	No	Switch	Stand	Win7 Pro64(DG)
3690-R3U	Xeon E3-1245V2	1600MHz ECC	8GBx1	No	1x1TB 3.5" SATA	No	No	DVD±RW	Quadro 410	No	Switch	Stand	Win8 Pro64
3690-R4U	Xeon E3-1280V2	1600MHz ECC	8GBx1	No	1x1TB 3.5" SATA	No	No	DVD±RW	Quadro K600	No	Switch	Stand	Win8 Pro64
3690-R5U	Xeon E3-1280V2	1600MHz ECC	8GBx1	No	1x1TB 3.5" SATA	No	No	DVD±RW	Quadro K600	No	Switch	Stand	Win7 Pro64(DG)

¹ Model in italics shows that this is a Global Model

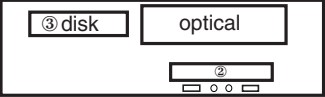
² Win7 Pro64(DG) = Windows 7 Professional 64 preinstalled through downgrade rights in Windows 8 Pro 64-bit

Processor	Intel® 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 E3-1280V2 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 (1) Optional 1.6" high optical (2) Slim optical + 2nd disk 		
Implementation	One LGA1155 socket			(3) 2nd disk 		
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC , four 240-pin DIMM sockets;			Bay 1: 5.25", 1.6" high, supports one of the following: (1) optional 5.25", 1.6" high optical, access (2) 5.25" slim optical (access) and 3.5" 2nd disk drive bay (internal) (3) 3.5" 2nd disk drive bay, internal Bay 2: 3.5", 0.5" high, access, for optional media reader <i>(not available on slim optical models)</i> Bay 3: 3.5", 1" high, internal, for disk drive		
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 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 - 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		
Graphics	Some: Intel HD Graphics in processor, uses main memory, works along with discrete graphics to support multi-display; <i>(detailed graphics model name please see Processor section, connector information please see Rear ports section)</i> Some: NVIDIA® Quadro® 410 , PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 37W Some: NVIDIA Quadro K600 , PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 41W					
Media reader	Media: 29-in-1 Media card reader, slim, internal USB 2.0					
Optical	DVD, slim DVD, DVD±RW, slim DVD±RW, or Blu-ray, depending on model					
SATA drive(s)	3.5": SATA 6.0Gb/s, 7200 rpm, 3.5" 2.5": SATA 6.0Gb/s, 10000 rpm, 2.5" SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"					
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID can work on models with 2nd drive bay only)					
Onboard SAS	None					
Chipset	Intel C216 Chipset					
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)					
Rear ports	Two USB 2.0, four USB 3.0 (blue), one serial (9-pin), one ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in), one analog VGA DB-15 connector, one DisplayPort connector <i>(Onboard VGA and DisplayPort™ are functional when the following processors are used: Xeon E3-12X5V2, Core i7, i5, i3, Pentium, and Celeron processors)</i> 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			Preloaded operating system ²⁰ 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 applications ⁵ <i>(only some listed)</i> -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 - Norton Internet Security (30 days of virus definitions) - Norton Studio - Microsoft Office 2013 preloaded; purchase product key to activate - Cyberlink Power2Go (DVD±RW model(s)) - Cyberlink PowerProducer (DVD±RW 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	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, more Lenovo® services see S-TS sheet					
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			SECURITY - Security chip (see information on left) - Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) - Power-on and 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) More compatible accessories, please see O-ROC sheet		

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
3691-B2U	Core i3-2130	1600MHz ECC	1x4GB	No	1x500GB SATA	Media	DVD±RW	No	Intel HD 2000	No	Global	No	No	No	Pro 64
3691-B3U	Xeon E3-1225V2	1600MHz ECC	1x4GB	No	1x1TB SATA	Media	DVD±RW	No	Intel HD P4000	No	Global	No	No	No	Pro 64

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

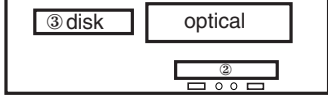
Processor	Intel® Core™ i3-2130 processor (2C/4T, 3.4GHz, 3MB Cache), integrated Intel HD Graphics 2000, DDR3 memory controller (up to 1333MHz) Intel Xeon® E3-1225V2 processor (4C/4T, 3.2GHz, 8MB Cache), Turbo Boost 2.0 (up to 3.6GHz), integrated Intel HD Graphics P4000, DDR3 memory controller (up to 1600MHz)	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	Intel HD Graphics in processor, uses main memory, can work along with discrete graphics to support multi-display; Xeon E3-1225V2/1245V2/1275V2: Intel HD Graphics P4000 Core i3-2120/2130: Intel HD Graphics 2000 Pentium/Celeron: Intel HD Graphics (connector information please see Rear ports section)	
Media reader	Media: 29-in-1 Media card reader, 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 i3-2120/2130, Pentium, and Celeron processors) PS/2 models: additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable	
IEEE 1394 adptr	No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear	
Audio	High Definition (HD) Audio, Realtek® ALC662 codec	
Speaker	Internal speaker for business audio	
Ethernet	One onboard gigabit ethernet, Intel 82579	
Security chip	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant	
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black	
Mouse	Optical Wheel Mouse (USB connector), black	
Vertical Stand	Some: Vertical stand with retractable tongue for vertical orientation	
Power supply	240 watts with variable speed fan, autosenesing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified	
Limited Warranty	3-year parts and labor, more Lenovo® services see S-TS sheet	
		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 • Core™ 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
		More compatible accessories, please see O-ROC sheet

ThinkStation® E31 SFF (3691) - GMP (October 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
3691-AAU	Core i3-2130	1600MHz ECC	1x4GB	No	1x500GB SATA	No	DVD±RW	No	Quadro 410	No	Global	Switch	No	Stand	Win8 Pro64

- 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)														
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; 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														
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 i3-2120/2130, Pentium, and Celeron processors)														
IEEE 1394 adptr	No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear														
Audio	High Definition (HD) Audio, Realtek® ALC662 codec														
Speaker	Internal speaker for business audio														
Ethernet	One onboard gigabit ethernet, Intel 82579														
Security chip	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant														
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black														
Mouse	Optical Wheel Mouse (USB connector), black														
Vertical Stand	Some: Vertical stand with retractable tongue for vertical orientation														
Power supply	240 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified														
Limited Warranty	3-year parts and labor, more Lenovo® services see S-TS sheet														
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 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)						
									More compatible accessories, please see O-ROC sheet						

See footnotes for important warranty information
US model(s) announced October 30, 2012

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(ROC2-3) November 2012

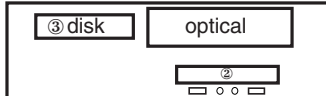
ThinkStation® E31 SFF (3691) - GMP (February 2013)

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-C4U	Xeon E3-1270V2	1600MHz Non-ECC	2x4GB	No	1x180GB SSD	Media	DVD±RW	No	Quadro 600	No	Global	Switch	No	Win7 Pro64
3691-C5U	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) 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:</i> NVIDIA® Quadro® 410 , PCIe x16 adapter, 512MB, one DisplayPort™, one dual-link DVI-I, 38W <i>Some:</i> NVIDIA Quadro 600 , PCIe x16 adapter, 1GB, one DisplayPort, one dual-link DVI-I, 40W			Slot 1: Low Profile, PCIe* x16 (45w max, near CPU) * PCIe 2.0 x16 on Core i3/Pentium/Celeron models, PCIe 3.0 x16 on Xeon models Slot 2: Low Profile, PCIe 2.0 x1 Slot 3: Low Profile, 32-bit PCI 2.3 Slot 4: Low Profile, 32-bit PCI 2.3		
Media reader	<i>Media:</i> 29-in-1 Media card reader, slim, internal USB 2.0					
Optical	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive					
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 i3-2120/2130, Pentium, and Celeron processors) <i>PS/2 models:</i> additional PS/2 keyboard and mouse connectors via PS/2 rear I/O cable					
IEEE 1394 adptr	No onboard 1394 ports; <i>1394 models:</i> additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear					
Audio	High Definition (HD) Audio, Realtek® ALC662 codec					
Speaker	Internal speaker for business audio					
Ethernet	One onboard gigabit ethernet, Intel 82579					
Security chip	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant					
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black					
Mouse	Optical Wheel Mouse (USB connector), black					
Vertical Stand	Vertical stand with retractable tongue for vertical orientation					
Power supply	240 watts with variable speed fan, autosensing, 85% PSU, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified					
Limited Warranty	3-year parts and labor, more Lenovo® services see S-TS sheet					
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		
				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 • 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)		
				More compatible accessories, please see O-ROC sheet		

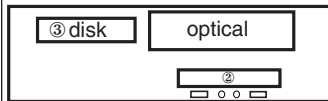
ThinkStation® E31 SFF (3691) - GMP (March 2013)

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
<i>3691-C6U</i>	Core i3-3220	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Intel HD 2500	No	Switch	Stand	Win7 Pro64(DG)
<i>3691-C7U</i>	Core i3-3220	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Intel HD 2500	No	Switch	Stand	Win8 Pro64
<i>3691-C8U</i>	Core i3-3240	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Intel HD 2500	No	Switch	Stand	Win8 Pro64
<i>3691-C9U</i>	Core i3-3240	1600MHz Non-ECC	1x4GB	No	1x500GB 3.5"	No	Media	DVD±RW	Intel HD 2500	No	Switch	Stand	Win7 Pro64(DG)
<i>3691-CAU</i>	Xeon E3-1225V2	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5"	No	Media	DVD±RW	Intel HD P4000	No	Switch	Stand	Win7 Pro64(DG)
<i>3691-CBU</i>	Xeon E3-1225V2	1600MHz Non-ECC	1x4GB	No	1x1TB 3.5"	No	Media	DVD±RW	Intel HD P4000	No	Switch	Stand	Win8 Pro64

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™ i3-3220 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) 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)		Small Desktop 	
Implementation	One LGA1155 socket		• 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	
Memory	32GB max, UDIMM, PC3-12800 1600MHz DDR3, ECC or non-ECC, four 240-pin DIMM sockets;		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	
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: Low Profile, PCIe 2.0 x1 Slot 3: Low Profile, 32-bit PCI 2.3 Slot 4: Low Profile, 32-bit PCI 2.3	
Graphics	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)			
Media reader	Media: 29-in-1 Media card reader, slim, internal USB 2.0			
Optical	DVD, slim DVD, DVD±RW, slim DVD±RW, or Blu-ray, depending on model			
SATA drive(s)	3.5": SATA 6.0Gb/s, 7200 rpm, 3.5" 2.5": SATA 6.0Gb/s, 10000 rpm, 2.5" SSD: Solid State Drive, SATA 6.0Gb/s, 2.5"			
Onboard SATA	Two SATA 6.0Gb/s connectors (red), two SATA 3.0Gb/s connectors (orange), RAID 0, 1 support via Intel C216 Chipset (RAID can work on models with 2nd drive bay only)			
Onboard SAS	None			
Chipset	Intel C216 Chipset		Intel AMT Intel AMT supported on model(s) with Xeon processor	
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)		Preloaded operating system²⁰	
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)		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	
IEEE 1394 adptr	No onboard 1394 ports; 1394 models: additional FireWire PCIe adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear		Preloaded applications⁵ (only some listed)	
Audio	High Definition (HD) Audio, Realtek® ALC662 codec		-Windows 7 models	
Speaker	Internal speaker for business audio		• 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))	
Ethernet	One onboard gigabit ethernet, Intel 82579		-Windows 8 models	
Security chip	STMicroelectronics ST33ZP24 Trusted Platform Module (TPM), TCG 1.2-compliant		• 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))	
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, more Lenovo® services see S-TS sheet			
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		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)	
			More compatible accessories, please see O-ROC sheet	

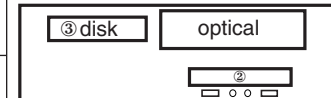
See footnotes for important warranty information
US model(s) announced March 19, 2013

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(ROC4-3) March 2013

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
3688-B7U	Core i7-3770	1600MHz Non-ECC	2x4GB	No	1x1TB SATA	Media	DVD±RW	No	Quadro 600	No	No	No	No	No	Pro 64

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)														
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® 600, PCIe x16 adapter, 1GB, one DisplayPort™, one dual-link DVI-I, 40W														
Media reader	Media: 29-in-1 Media card reader, slim, internal USB 2.0														
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) 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	1-year parts and labor, more Lenovo® services see S-TS sheet														

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

More compatible accessories, please see O-ROC sheet

Partial list of accessories supported on ThinkStation E31 Tower

Memory⁵³	
2GB PC3-12800 DDR3-1600 non-ECC UDIMM ⁵⁴	0A65728
4GB PC3-12800 DDR3-1600 non-ECC UDIMM	0A65729
8GB PC3-12800 DDR3-1600 non-ECC UDIMM	0A65730
2GB PC3-12800 DDR3-1600 ECC UDIMM	0B47376
4GB PC3-12800 DDR3-1600 ECC UDIMM	0B47377
8GB PC3-12800 DDR3-1600 ECC UDIMM	0B47378
2GB PC3-10600 DDR3-1333 ECC UDIMM	43R2033
4GB PC3-10600 DDR3-1333 ECC UDIMM	57Y4138
8GB PC3-10600 DDR3-1333 ECC UDIMM	0A65718
More information on memory and processor configuration, operation and limitation, please visit:	
www.lenovo.com/support/thinkstationaccessories	

Optical	
DVD-ROM DL SATA1.5Gb/s 16X-48X Max ⁴	41N5618
Lenovo® Super Multi-Burner SATA Drive	0A65618
Blu-ray™ Burner SATA1.5Gb/s	45K1675

Storage and removable storage	
500GB SATA 3.0Gb/s Disk (7200 rpm)	43R1990
1TB SATA 3.0Gb/s Disk (7200 rpm)	45J7918
ThinkStation 180GB Solid State Drive	0B47308
USB 2.0 Portable 500GB Hard Disk	45K1690

Keyboard	
Preferred Pro USB Keyboard	73P5220
Enhanced Performance USB Keyboard	73P2620
Lenovo USB Fingerprint Keyboard	73P4730
Lenovo USB Smartcard Keyboard	51J0155
UltraSlim Plus Wireless Keyboard and Mouse ⁵²	0A34032
More information at www.lenovo.com/support/keyboards	

Mouse	
Lenovo Optical Mouse (USB)	06P4069
Lenovo ScrollPoint Mouse (USB, Optical)	31P7405
Lenovo Laser Mouse (USB)	41U3074
Lenovo Wireless Laser Mouse ⁵²	0A36188
More information at www.lenovo.com/support/mice	

Monitors - ThinkVision®	
L1711p 17" (VGA, DVI-D)	5047HB2
LT1952p Wide 19" (VGA, DP, DVI-D) ⁶⁹	2448MB6
L2250p Wide 22" (VGA, DVI-D)	2572HB6
L2251x Wide 22" (VGA, DP)	2578HB6
LT2252p Wide 22" (VGA, DP, DVI-D) ⁶⁹	2572MB6
LT2452p Wide 24" (VGA, DP, DVI-D) ⁶⁹	4420MB2
More information at www.lenovo.com/support/monitors	

Monitor accessories⁴⁶	
Kensington® MicroSaver® Cable Lock	73P2582
Kensington Twin Head Cable Lock	45K1620
More information at www.lenovo.com/support/monitoraccessories	

Graphics	
DisplayPort™ to Single-link DVI-D Cable ⁵⁰	45J7915
DisplayPort to DisplayPort Monitor Cable ⁵⁰	0A36537
NVIDIA® NVS™ 300 512MB DMS59 ⁶⁵	0A36528
NVIDIA NVS 310 512MB	0B47074
NVIDIA NVS 510 2GB Graphics Card by Lenovo	0B47077
NVIDIA Quadro 1GB 600	0A36183
NVIDIA Quadro 1GB 2000	57Y4479
More information at www.lenovo.com/support/graphiccards	

Security	
Kensington MicroSaver Cable Lock	73P2582
Kensington Twin Head Cable Lock	45K1620
Lenovo Security Cable Lock	57Y4303
USB Gemplus GemPC Smart Card Reader	41N3040

⁴⁶ Compatible on selected Lenovo and ThinkVision monitors.

⁵⁰ Attaches to selected DisplayPort graphics cards.

⁵² Wireless via 2.4GHz technology using a micro-size USB receiver.

⁵⁴ Actual memory operating speed depend on processor memory controller speed, installed memory speed, and quantity of memory DIMMs.

⁶⁵ Contains DMS59 to dual-DVI cable and DMS59 to dual-VGA cable.

⁶⁹ DisplayPort cable is not included; use optional DisplayPort to DisplayPort Monitor Cable (0A36537).

For more information on accessories:

www.lenovo.com/accessories

Purchase Lenovo accessories

www.lenovo.com/support/accessories

Product specifications on Lenovo Support

www.lenovo.com/accessoriesguide

Option Compatibility Matrix (OCM) and accessory brochures

www.lenovoquickpick.com

An Options Compatibility Configurator for Lenovo systems

Partial list of accessories supported on ThinkStation E31 SFF

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8GB PC3-12800 DDR3-1600 non-ECC UDIMM	0A65730
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4GB PC3-12800 DDR3-1600 ECC UDIMM	0B47377
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Lenovo® Super Multi-Burner SATA Drive	0A65618
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ThinkStation 180GB Solid State Drive	0B47308

Keyboard

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Enhanced Performance USB Keyboard	73P2620
Lenovo USB Fingerprint Keyboard	73P4730
Lenovo USB Smartcard Keyboard	51J0155
Ultraslim Plus Wireless Keyboard and Mouse ⁵²	0A34032

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NVIDIA NVS 510 2GB Graphics Card by Lenovo	0B47077
NVIDIA Quadro 1GB 600	0A36183

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