

Lenovo P15v Gen 1

Version: 2.0 | 05/05/2023

DOWNLOADS

Hardware Maintenance Manual	P15v Gen 1 HMM
Drivers & Software	P15v Gen 1 Drivers & Software

SECTION I: SYSTEM OVERVIEW

Description	Accessible power: Experience the power of a mobile workstation in the budget friendly ThinkPad® P15v that doesn't compromise on features or functionality. Built with the latest 10th Gen Intel® Core™ and Xeon® processors, NVIDIA® Quadro® professional graphics, and 4K UHD1 display get a fast and visually stunning representation of your work ideal for Higher Education, Software Developers, and any user who needs a robust, reliable system at an accessible price point.
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CPU

Processor Support	Intel 10th gen Comet Lake H Series Core i5, i7
	Intel 10th gen Comet Lake H Series Xeon-W
Socket Type	BGA

Operating Systems

Preloaded	Windows 10 Pro 64-bit for Workstations (19H2) Windows 10 Pro 64 (19H2) Windows 10 Home 64 (19H2) Windows 10 Home Single Language 64(19H2) Windows 10 Home Chinese Language Edition 64(19H2)
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	Windows 10 CMIT Government Edition Ubuntu (Version20.04) No Operating System
Supported	Windows 10 Pro 64-bit for Workstations (19H2) Windows 10 Pro 64 (19H2) Windows 10 Home 64 (19H2) Windows 10 Home Single Language 64(19H2) Windows 10 Home Chinese Language Edition 64(19H2) Windows 10 CMIT Government Edition Ubuntu (Version20.04) Red Hat Enterprise Linux (Certification support, Version8.2) No Operating System

Memory

Number of DIMM Slots	Up to 2 DIMM sockets
Channels	Single Channel w/ 1DIMM
	Dual Channel w/ 2DIMMs
Type	DDR4, SO-DIMM, ECC non-ECC
ECC Support	Yes
Speed	physical 3200 MHz operational 2933MHz
Max DIMM Size	32GB
Max System Memory	64GB
Min System Memory	8GB
Soldered Memory	None

Storage

Storage Slots	2 x M.2 2280
SATA	No
PCIe	Solid State Drive, OPAL2 PCIe-NVMe M.2 2280S3 - TLC
SAS	No
Interface	PCIe
Security	OPAL
Optional Hard Disk Drive Controllers	No

Video

Integrated Graphics	Processor Graphics Intel® UHD Graphics 630 Utilized via "Hybrid Mode" in BIOS
Discrete Graphics	NVIDIA Quadro P620

Adapter	None
Bus Interface	PEG

Display

Resolutions	FHD / UHD
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Camera

Resolution	HD 720p / IR Camera
Frames per Second	30 fps
Focus	Fixed 50cm
Camera Interface	USB 2.0
IR Camera	Yes

Keyboard

Number of Keys	US : 105 / UK : 106 / JP : 110
Numpad	Yes
Size	100% ISO
Function Key Features	Yes
Backlit	Optional
Keyboard size	CS20 KYB with numberpad
Key stroke	1.8mm
Key pitch	19.05mm
Keyboard backlight	Optional
Keyboard thickness	Standard

Touchpad / Fingerprint Reader

TrackPoint Details	COMO TrackPoint module (t5.55mm)
Finger Print Reader Model	8x8 FPR, MoC w/o LED Prometheus 8x8
Multi-Touch	Yes
Resolution	1000 ppi
TouchPad/Trackpad thickness	3.3mm

TouchPad/Trackpad type	2 BCP
Trackpad size	100mm x 69mm
Trackpad material/finish	Mylar surface

I/O – Ports and Connectors

USB	2x USB-A 3.2 Gen1 (1x Powered)
Thunderbolt	1x Thunderbolt 3 (USB-C 3.2 Gen 2/DP1.2/PD)
HDMI	1x HDMI (2.0)
Audio Combo Jack	1x Microphone & Headphone Combo Jack (3.5mm)
Media Card Reader	1x 4-in-1 Media Card Reader (MMC,SD,SDHC,SDXC)
Smart Card Reader	1x Smart Card Reader (Optional-SD,SDHC SDXC)
Power Connector	DC-In
Docking Port	Docking Via Thunderbolt 3 / USB-C
VirtualLink	None
Network adapter	Gigabit Ethernet (RJ45)

Power Connector

Main	DC-In
USB-C	1x Thunderbolt 3 (USB-C/DP/PD)* (trickle charge under 65W Type-C adapter)

Ethernet

Vendor	Intel
Count	x1
EEPROM	SPI ROM (Merge with BIOS/MEFW)
Speeds	10/100/1000 Mbps
Functions	Wake On LAN MAC Address Pass Through PXE Boot Flash Over LAN
Connectors	RJ45

WWAN

Model	Optional, Fibocom L850-GL LTE CAT9
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Near Field Communications

Model	No NFC Support
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Audio

Vendor	Realtek
Type	Intel High Definition Audio (2 channel)
Internal Speaker	2 channel
Connectors	Microphone & Headphone Combo Jack (3.5mm)
Chipset	ALC3287
Number of Channels	4-channel DAC, 4-channel ADC
Number of Bits/Audio Resolution	16/20/24-bit PCM format
Sampling Rate (Recording/Playback)	44.1K/48K/96K/192KHz sample rate
Signal to Noise Ratio	Mic In: 95dB FSA Headphone Out@32ohm: 100dB FSA
Analog Audio	None
Dolby Digital	Dolby Audio Speaker System
Digital Out (S/PDIF)	No
Speaker Power Rating	2W@4ohm/ch

Power adapter

Type	135W AC Adapter
Dimensions	200cc (118 x 77 x 22)
Input Voltage	100-240V

Security

TPM	Version 2.0
Asset ID	Yes
vPro	Intel vPro for WS

Chassis Information

Color	GS Black
Thermal Solutions	Internal single FAN, Intelligent Cooling
Dimensions	Length 14.43 inches 366.5 millimeters Width 9.84 inches 250 millimeters Height 0.89 inches (Thickest 0.95 inches, Thinnest 0.83 inches) 22.7 millimeters (Thickest 24.2mm, Thinnest 21.17mm)
Weight	starting with UHD: 6 Cell Battery 4.57lbs/2.073kg

Packaging Parameters

Height (mm)	325
Height (inch)	12.8
Width (mm)	507
Width (inch)	20
Depth (mm)	80
Depth (inch)	3.1
Weight (kgs)	Standard:2.9kgs / Retail:3.4kgs
Weight (lbs)	Standard:6.4lbs / Retail:7.5lbs

Security & Serviceability

Self Healing BIOS	Yes
Access Panel	Removeable bottom cover
Number of Screws	9
Swappable Components	Bottom cover, memory module, M.2 solid-state drive, speaker assembly, coin-cell battery, TrackPoint pointing cap
Storage Slots	2 slots
Memory	2 SODIMM slots
System Board	FR4
Restore CD/DVD/USB Set	None, Restore Media available via Lenovo Customer Support Center
Cable Lock Support	Security-lock slot, Optional Kensington Cable Lock
Power-On Password	Yes
Hard Disk Password	Yes; User and Master hard disk password
Supervisor Password	Yes
NIC LEDs (integrated)	None

Security Chip	Yes (for TPM 2.0)
Access Panel Key Lock	Bottom Cover Tamper Detection
Boot Sequence Control	Yes

Operating Environment

Operating - Air Temperature	At altitudes up to 2438 m (8000 ft)
	- Operating: 5°C to 35°C (41°F to 95°F)
Non Operating - Air Temperature	At altitudes up to 2438 m (8000 ft)
	- Storage: 5°C to 43°C (41°F to 109°F)
Humidity	Operating: 8% to 95% at wet-bulb temperature 23°C (73°F)
	Storage: 5% to 95% at wet-bulb temperature 27°C (81°F)
Corrosive Gas	G1
Particulates	P1

SECTION II: SUPPORTED COMPONENTS

Supported Components

Processor	Intel® Core™ i5-10300H Non vPro 4C 2.5GHz/4.5GHz Intel® Core™ i7-10750H Non vPro 6C 2.6GHz/5.0GHz Intel® Core™ i7-10850H vPro 6C 2.7GHz/5.1GHz Intel® Core™ i7-10875H vPro 8C 2.3GHz/5.1GHz Intel® Xeon™ W-10855M vPro 6C 2.8GHz/5.1GHz
Memory Support	DDR4 2933MHz SO-DIMM
Chipset (PCH)	Mobile Intel® WM490 Chipset
Size of BIOS Flash	32MB
Super I/O	None
Clock	Crystal
Audio	Realtek High Definition Audio
Ethernet	Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro)) via bundled or optional ThinkPad Ethernet Extension Cable

Memory

System Capacity Options	8GB
	16GB
	32GB
non-ECC	8GB DDR4 3200 non-ECCSoDIMM (operational 2933MHz)
	16GB DDR4 3200 non-ECCSoDIMM (operational 2933MHz)
	32GB DDR4 3200 non-ECC SoDIMM (operational 2933MHz)
Brand of non-ECC Memory	Samsung
	SK Hynix
	Micron Ramaxel
ECC	8GB DDR4 3200 ECC SoDIMM (operational 2933MHz)
	16GB DDR4 3200 ECC SoDIMM (operational 2933MHz)
	32GB DDR4 3200 ECC SoDIMM (operational 2933MHz)
Brand of ECC Memory	SK Hynix
	Samsung
Memory clock frequency(MHz)	2933 MHz

Storage

2.5" SAS Hard Disk Drive (HDD)	None
2.5" SATA Hard Disk Drive (HDD)	None
2.5" SATA Solid State Drive (SSD)	None
M.2 (NGFF) PCIe Solid State Drive (SSD)	256GB Opal 2 PCIe TLC NVMe 3X2 (M.2 2280)
	512GB Opal 2 PCIe TLC NVMe 3X2 (M.2 2280)
	1TB Opal 2 PCIe TLC NVMe 3X2 (M.2 2280)
	2TB Opal 2 PCIe TLC NVMe 3X2 (M.2 2280)
2.5" PCIe Solid State Drive (SSD)	None
Brand of Drive	Samsung
	Toshiba
	WD
Intel Optane Storage Technology	None
RAID	Optional, Selectable in BIOS
RAID Level and	RAID-0/1

Removeable Media

Media Card Reader Specifications	UHS-II
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SECTION III: Supported Component Detail

CPU Specifications

CPU	Intel® Core™ i5-10300H Non vPro 4C 2.5GHz/4.5G Hz	Intel® Core™ i7-10750H Non vPro 6C 2.6GHz/5.0 GHz	Intel® Core™ i7-10850H vPro 6C 2.7GHz/5.1G Hz	Intel® Core™ i7-10875H vPro 8C 2.3GHz/5.1G Hz	Intel® Xeon™ W-10855M vPro 6C 2.8GHz/5.1G Hz
Integrated Graphics	Intel® UHD Graphics 630	Intel® UHD Graphics 630	Intel® UHD Graphics 630	Intel® UHD Graphics 630	Intel® UHD Graphics P630
# of Cores	4	6	6	8	6
# of Threads	8	12	12	16	12
Processor Base Frequency	2.5 GHz	2.6 GHz	2.7 GHz	2.3 GHz	2.8 GHz
Max Turbo Frequency	4.5 GHz	5.0 GHz	5.1 GHz	5.1 GHz	5.1 GHz
Cache	8 MB	12 MB	12 MB	16 MB	12 MB
TDP	35W	35W	35W	35W	35W

Display Specifications

Model	FHD	FHD w/oncell touch	UHD
Resolution	1920 x 1080	1920 x 1080	3840 x 2160
Diagonal	15.6"	15.6"	15.6"
Aspect Ratio	Ratio 16:9	Ratio 16:9	Ratio 16:9
Backlight	LED	LED	LED
PPI	141 (Pixel Pitch: 0.17925mm x 0.17925mm)	141 (Pixel Pitch: 0.17925mm x 0.17925mm)	282 (Pixel Pitch: 0.09mm x 0.09mm)
Active Area	344.16 X 193.59	344.16 X 193.59	344.22 X 193.62
Refresh Rate	48 / 60 Hz	48 / 60 Hz	60Hz

Contrast Ratio	800:1 (TYP)	800:1 (TYP)	1400:1 (TYP)
Viewing Angle (*1)	85/85/85/85 degree	85/85/85/85 degree	85/85/85/85 degree
Color gamut	45% NTSC	45% NTSC	100% Adobe
Brightness	250nit	300nit	600nit, HDR 400
	Ratio 800:1	Ratio 800:1	Ratio 1400:1
Color Depth	Native 262K (RGB 6-bit data driver)	16M	1064M
Interface	eDP 1.2	eDP 1.2	eDP 1.4
Panel ID Recognition	EDID in BIOS Table	EDID in BIOS Table	EDID in BIOS Table
Weight	max 370g	max 360g	max 300g
Color Calibrator	None	None	X-Rite Factory Color Calibration
Panel Technology	IPS, Anti-Glare	IPS, Anti-Glare	IPS, Anti-Glare
Touch Panel	None	YES	None

SSD Specifications

2.5" SATA Solid State Drive (SSD)	
M.2 (NGFF) PCIe Solid State Drive (SSD)	2x M.2 2280 PCIe
2.5" PCIe Solid State Drive (SSD)	
Intel Optane Storage Technology	

Solid State Storage Devices

Supported Types	M.2
Dimensions inches/centimeters (W x D x H)	22.0 (+-0.15) x 80.0 (+-0.15) x 2.3 (max)
Size	M.2 2280 S3
Interface Type	PCIe NVMe
Read/Write IOPS Specifications	Read: 250K (2TB, 1TB, 512GB), 200K (256GB), 320K (512GB Hybrid) Write: 240K (2TB, 1TB, 512GB), 190K (256GB), 250K (512GB Hybrid) Burst 4K Random IOPS , Measured by Crystal Disk Mark (QD32T1, Data size set 1GB)
Bandwidth Performance	PCIe Gen3x4 (8Gb/S) PCIe Gen3x2x2 for Hybrid SSD
Power Consumption (Max)	3.0A (duration for 10 us)
Active(AVG)	5W
Idle	5mW (L1.2)

Min MTBF	2,000,000 (h)
Min Sequential Read	3000MB/s (2TB, 1TB, 512GB), 2900MB/s (256GB), 1550MB/s (512GB Hybrid) 128KB Seq for hybrid
Min Sequential Write	1600MB/s (2TB, 1TB/512GB), 900MB/s (256GB), 990MB/s (512GB Hybrid) 128KB Seq for hybrid
Hardware Encryption	Yes

Discrete Graphics Adapter

GPU Name	Quadro P620
CUDA Processing Cores	512
GPU Memory	4GB
Memory Bandwidth	96GBps
Memory Type	GDDR5
Memory Interface	128-bit
TGP Max Power Consumption	25W
Display Port	1.4
OpenGL	4.5
Shader Model	5.1
DirectX	12.1
PCIe Generation	3
Floating-Point Performance	1.5
VR Ready	No
Simultaneous Multi-Projection	Yes
NVIDIA FXAA/TXAA Antialiasing	Yes
NVIDIA nView Display Management Technology	Yes
GPU Direct for Video	No
Vulkan Support	Yes
NVIDIA Optimus	Yes

WLAN

Model	Intel® Wi-Fi 6 AX201
Antenna Diversity	Supported
MIMO	Supported
Radio ON/OFF Control	Supported
Connector interface	CNVi

Operating Temperature (Adapter Shield)	0c to +80c
Humidity Non-Operating	50%~90% Rh non condensing (at temperatures of 25c to 35c)
Operating Systems	Microsoft Windows 10*, Linux*(limited feature support), Chrome*
Wi-Fi Alliance	Wi-Fi CERTIFIED* a/b/g/n/ac/ax with wave 2 features, WMM*, WMM-PS*, WPA*, WPA2*, WPS2*, Protected Management Frames, Wi-Fi Miracast* as Source, and Wi-Fi Direct (For Microsoft Windows* only)
IEEE WLAN Standard	IEEE 802.11a/b/g/n/ac/ax, 802.11d,802.11e, 802.11h, 802.11i, 802.11w, 802.11r, 802.11k, 802.11v, pending OS support; Fine Timing Measurement based on 802.11-2016
Roaming	Support seamless roaming between access points
Bluetooth*	BT5.0
Regulatory	All compliance
US Government	FIPS12, FISMA
Product Safety	UL,C-UL,CB (IEC 60950-1)

Battery

Dimension	L: 86mm*W: 242mm*T 9.1mm
Weight	Max 290g
Type (Chemistry and Cell)	Li-Polymer (3S2P), 6-cell
Voltage	11.55 V
Battery Capacity	68 Wh
Charging Time	Off Charge Time (0 - 80%) ** 60 min
Operating Temperature Range	between 10°C (50°F) and 35°C (95°F)
Warranty	1 Year / 3 Year Available
Coin Cell Battery (Model)	CR2032

SECTION IV: BIOS / Certifications / Standards / Environmental

BIOS Specifications

WMI Support	Yes, if it is BIOS Setup change by WMI.
ROM-Based Setup Utility (F1)	Yes

Replicated Setup	Yes, it supported with SRSETUP tool.
Boot Control	Yes, it means Boot order change.
Discrete Mode	Yes
Asset Tag	Yes
System/Emergency ROM Flash Recovery with Video	
Remote Wakeup/Remote Shutdown	Yes, if Remote wakeup is Wake on LAN from S4/S5.
Per-port Control	Yes, if it is I/O port enable/disable by BIOS Setup.
Adaptive Cooling	Yes, if it is thermal & fan control.
Security	Yes, BIOS password / Hard disk password / Finger print
Intel(R) AMT (includes ASF 2.0)	Yes. If you select vPro model
Intel(R) TXT	Yes. If you select vPro model

EMC & Safety

EMC	<p>Published, Certified Existing Reports</p> <p>EMC - Australia EMC - Belarus EMC - Canada EMC - China EMC - EU/EFTA EMC - Japan EMC - Kazakhstan EMC - New Zealand EMC - Russia EMC - South Korea EMC - Taiwan EMC - USA/Territories Not Applicable / Not Required EMC - Israel EMC - Moldova EMC - Serbia EMC - Turkey EMC - Uzbekistan EMC - Vietnam</p>
Safety	<p>To access the latest User Guide and Safety and Warranty Guide, go to: https://support.lenovo.com Low Halogen Declaration of Conformance TNOT-2017-0040 Section 9 - Low Halogen Scorecard Izod Test - EPEAT Compliant Homologation PCR B Compliant In the following countries: Albania, Algeria, Andorra, Angola, Antigua and Barbuda, Argentina, Armenia, Aruba, Australia, Azerbaijan, Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belize, Benin, Bermuda, Bolivia, Botswana, Burkina Faso, Burundi, Cambodia, Cameroon, Canada, Cape Verde, Cayman Islands, Central African Republic, Chad, China, Colombia, Comoros, Congo, Costa Rica, Djibouti, Dominican Republic, Egypt, El Salvador, Eritrea, Ethiopia, EU/EFTA, Fiji, Gabon, Gambia, Georgia, Ghana, Grenada, Guatemala, Guinea, Haiti, Honduras, Hong Kong, India, Indonesia, Israel, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, Laos, Lebanon, Liberia, Macau, Madagascar, Malawi, Malaysia, Mali, Mauritania, Mauritius, Mexico, Moldova, Mongolia, Morocco, Mozambique, Namibia, Nepal, New Zealand, Nicaragua, Niger, Nigeria, Oman, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Qatar, Russia, Saudi Arabia, Senegal, Serbia, Seychelles, Sierra Leone, Singapore, South Africa, South Korea, Sri Lanka,</p>

Swaziland, Taiwan, Tajikistan, Tanzania, Thailand, Togo, Tunisia, Turkey, Turkmenistan, Uganda, Ukraine, United Arab Emirates, Uruguay, USA/Territories, Uzbekistan, Venezuela, Vietnam, Zambia, Zimbabwe, Brazil – Inmetro 170 Govt Bids, Guinea-Bissau, Lesotho

Environmentals

Energy Star	ENERGY STAR® Version 7.1 For more information about ENERGY STAR, go to: https://www.energystar.gov
EPEAT	EPEAT Silver Certification Available on select models
IT ECO declaration	The latest environmental information about Lenovo products is available at: https://www.lenovo.com/ecodeclaration
Hazardous Substances	The latest environmental information about Lenovo products is available at: https://www.lenovo.com/ecodeclaration European Union RoHS This Lenovo product, with included parts (cables, cords, and so on) meets the requirements of Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (“RoHS recast” or “RoHS 2”). For more information about Lenovo worldwide compliance on RoHS, go to: https://www.lenovo.com/rohs-communication

Manageability

Industry Standard Specifications	This product meets the following industry standard specifications for manageability functionality:
Remote Manageability Software Solutions	Lenovo ThinkManagement Console Microsoft System Center Configuration Manager LANDesk Management Suite for Lenovo Vantage Technologies (www.landesk.com/lenovo)
System Software Manager	Lenovo ThinkStation supports software management tools from the ThinkVantage System Update suite: System Update Update Retriever
Service, Support, and Warranty	On-site Warranty and Service: Three-years, limited warranty and service offering delivers on-site, next business-day service for parts and labor and includes free telephone support 8am – 5pm. Global coverage ensures that any product purchased in one country and transferred to another, non-restricted country will remain fully covered under the original warranty and service offering.