Lenovo P1 Gen 3

Version: 1.0 | 07/26/2021

DOWNLOADS

Description	P1 Gen 3 HMM
Description	P1 Gen 3 Drivers & Software

SECTION I: SYSTEM OVERVIEW

Description	Premium design, powerful computing: Powerful, mobile, and visually stunning. The ThinkPad® P1 Gen3 is the perfect combination of form and function designed to be admired.

CPU

Processor Support	Intel 10th gen Comet Lake H Series Core i7, i9 Intel 10th gen Comet Lake H Series Xeon
Socket Type	BGA

Operating Systems

Preloaded	Windows 10 Pro 64-bit for Workstations (20H1) Windows 10 Pro 64-bit (20H1) Windows 10 Home 64-bit (20H1) Windows 10 Single Language Home 64-bit (20H1) Ubuntu 64-bit (Version 18.04 LTS, running the 4.15.0-1039-oem kernel) No Operating System Windows 10 China Government Edition
Supported	Windows 10 Pro 64-bit for Workstations (20H1) Windows 10 Pro 64-bit (20H1) Windows 10 Home 64-bit (20H1) Windows 10 Single Language Home 64-bit (20H1)

	Ubuntu & RedHat Linux 64-bit (Version 18.04 LTS, running the 4.15.0-1039-oem kernel) No Operating System Windows 10 China Government Edition

Memory

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

Storage

Storage Slots	2x M.2 2280-S3
SATA	None
PCIe	Solid State Drive, 2x OPAL2 PCIe-NVMe M.2 2280-S3 – TLC
SAS	None
Interface	PCIe
Security	OPAL2 for NVMe SSD
Optional Hard Disk Drive Controllers	None

Video

Integrated Graphics	For Intel® i7-10750H Processor Graphics Intel® UHD Graphics Utilized via “Hybrid Mode” in BIOS For Intel® i7-10850H Processor Graphics Intel® UHD Graphics Utilized via “Hybrid Mode” in BIOS For Intel® i7-10875H Processor Graphics Intel® UHD Graphics Utilized via “Hybrid Mode” in BIOS For Intel® i9-10885H Processor Graphics Intel® UHD Graphics Utilized via “Hybrid Mode” in BIOS For Intel® Xeon® W-10855M Processor Processor Graphics Intel® UHD Graphics Utilized via “Hybrid Mode” in BIOS

Discrete Graphics	NVIDIA Quadro T1000 with Max-Q Design & T2000 with Max-Q Design
Adapter	None
Bus Interface	PEG

Display

Resolutions	FHD / UHD

Camera

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

Keyboard

Number of Keys	US : 84 / UK : 85 / JP :89
Numpad	No
Size	100% ISO
Function Key Features	Yes
Backlit	Yes
Keyboard size	Como 2020 Full size KB without NumPad (Bottom loading)
Key stroke	1.8mm
Key pitch	19.05 mm(Vertical & Horizontal)
Keyboard thickness	4.55mm

Touchpad / Fingerprint Reader

TrackPoint Details	COMO TrackPoint module (t5.55mm)
Finger Print Reader Model	Synaptics Metallica 8x8 FPR, MoC
Multi-Touch	Yes
Resolution	1000 ppi
TouchPad/Trackpad thickness	3.3mm
TouchPad/Trackpad type	2 Buttons Clickpad

Trackpad size	100mm x 69mm
Trackpad material/finish	Glass surface

I/O – Ports and Connectors

USB	2x USB-A 3.2(Gen1) (1 powered)
Thunderbolt	2x Thunderbolt 3 (USB-C/DP/PD) (DP 1.4 for discrete, DP 1.2 for integrated graphics)
HDMI	1x HDMI (2.0)
Audio Combo Jack	1x Microphone & Headphone Combo Jack (3.5mm)
Media Card Reader	Dedicated MicroSD Card Reader (UHS-II) (MMC,SD,SDHC SDXC)
Smart Card Reader	None
Power Connector	DC-In
Docking Port	Docking Via Thunderbolt 3 / USB-C
VirtualLink	None
Network adapter	RJ-45 via USB-C to Ethernet Adapter

Power Connector

Main	DC-In
USB-C	2x Thunderbolt 3 (USB-C/DP/PD)

Ethernet

Vendor	N/A
Connectors	RJ-45 via USB-C to Ethernet Adapter

WWAN

Model	L860-GL CAT16 M.2 (On Select Model)

Near Field Communications

Model	No NFC Support

Audio

Vendor	Realtek
Type	Intel High Definition Audio (2 channel)
Internal Speaker	2 channel
Connectors	Microphone & Headphone Combo Jack (3.5mm)
Chipset	ALC3286
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 ATMOS
Digital Out (S/PDIF)	No
Speaker Power Rating	2W@4ohm/ch

Power adapter

Type	135W AC Adapter	Slim 170W AC Adapter
Dimensions	200cc (118 x 77 x 22)	240cc (142 x 77 x 22mm)
Weight	–	450g
Input Voltage	100-240V	100-240V

Security

TPM	Version 2.0
Asset ID	Yes
vPro	Intel vPro for WS

Chassis Information

Format	Thin-Light
Color	Deep Black
Thermal Solutions	Internal Dual FAN, Intelligent Cooling
Dimensions	Length 14.24 inches

	361.8 millimeters Width 9.67 inches 245.7 millimeters Height Non-Touch 0.72 inches 18.4 millimeters Touch 0.74 inches 18.7 millimeters
Weight	Non-Touch Model: 4 Cell Battery 1.70kg/3.75lbs Touch Model: 4 Cell Battery 1.80kg/3.97lbs

Packaging Parameters

Height (mm)	325
Height (inch)	12.8
Width (mm)	518
Width (inch)	20.4
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

Hardware Maintenance Manual	P1 Gen 2 HMM
Drivers & Software	P1 Gen 2 Drivers & Software
Self Healing BIOS	Yes
Access Panel	Removable bottom cover
Number of Screws	7
Swappable Components	Bottom cover, memory module, M.2 solid-state drive, coin-cell battery, TrackPoint pointing cap, SIM Tray
Storage Slots	2 slots
Memory	2 SODIMM slots
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 TMP 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™ i7-10750H processor (2.6 GHz/6 Core/12M) Intel® Core™ i7-10850H vPro processor (2.7 GHz/6 Core/12M/V-Pro) Intel® Core™ i7-10875H vPro processor (2.3 GHz/8 Core/16M/V-Pro) Intel® Core™ i9-10885H vPro processor (2.4 GHz/8 Core/16M/V-Pro) Intel® Xeon™ W-10855M v7 vPro processor (2.8 GHz/6 Core/12M/V-Pro)
Memory Support	DDR4 2933MT/s 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	Via bundled or optional USB-C to RJ-45 dongle

Memory

System Capacity Options	8GB 16GB 32GB 64GB
non-ECC	8GB DDR4 3200 SoDIMM 16GB DDR4 3200 SoDIMM 32GB DDR4 3200 SoDIMM

Brand of non-ECC Memory	Samsung SK Hynix Micron Ramaxel
ECC	8GB DDR4 2933 ECC SoDIMM 16GB DDR4 2933 ECC SoDIMM 32GB DDR4 2933 ECC SoDIMM
Brand of ECC Memory	SK Hynix Samsung
Memory Speed	2933 MT/s

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 OPAL2 PCIe 3x4 TLC (M.2 2280-S3) 512GB OPAL2 PCIe 3x4 TLC (M.2 2280-S3) 1TB OPAL2 PCIe 3x4 (M.2 2280-S3) 2TB OPAL2 PCIe 3x4 (M.2 2280-S3)
2.5″ PCIe Solid State Drive (SSD)	None
Brand of Drive	Samsung Western Digital Hynix Toshiba
Intel Optane Storage Technology	None
RAID	Optional, Selectable in BIOS
RAID Level and Requirements	RAID-0/1

Removeable Media

Media Card Reader Specifications	UHS-II

SECTION III: Supported Component Detail

CPU Specifications

CPU	Intel® Core™ i7-10750H processor (2.6 GHz/6 Core/12M)	Intel® Core™ i7-10850H vPro processor (2.7 GHz/6 Core/12M/V-Pro)	Intel® Core™ i7-10875H vPro processor (2.3 GHz/8 Core/16M/V-Pro)	Intel® Core™ i9-10885H vPro processor (2.4 GHz/8 Core/16M/V-Pro)	Intel® Xeon™ W-10855M v7 vPro processor (2.8 GHz/6 Core/12M/V-Pro)
Integrated Graphics	Intel® UHD Graphics 630	Intel® UHD Graphics 630	Intel® UHD Graphics 630	Intel® UHD Graphics 630	Intel® UHD Graphics P630
# of Cores	6	6	8	8	6
# of Threads	12	12	16	16	12
Processor Base Frequency	2.60 GHz	2.70 GHz	2.30 GHz	2.40 GHz	2.80 GHz
Max Turbo Frequency	5.00 GHz	5.10 GHz	5.10 GHz	5.30 GHz	5.10 GHz
Cache	12 MB	12 MB	16 MB	16 MB	12 MB
TDP	35 – 45 W	35 – 45 W	35 – 45 W	35 – 45 W	35 – 45 W
Intel ARK Spec Link	Intel Core i7-9750H	Intel Core i7-9850H	Intel Core i7-9850H	Intel Core i9-9880H	Intel Xeon E-2276M

Display Specifications

Model	FHD	FHD	UHD Non-Touch	OLED with Touch
Resolution	FHD (1920 x 1080)	FHD (1920 x 1080)	4K UHD (3840 x 2160)	4K UHD (3840 x 2160)
Diagonal	15.6″	15.6″	15.6″	15.6″
Aspect Ratio	Ratio 16:9	Ratio 16:9	Ratio 16:9	Ratio 16:9
Backlight	LED	LED	LED	OLED
PPI	FHD : 141	FHD : 141	UHD : 282	UHD : 282
Active Area	FHD : 344.16mm x 193.59mm	FHD : 344.16mm x 193.59mm	UHD : 344.2176mm x 193.6224mm	UHD : 344.2176mm x 193.6224
Refresh Rate	Max 60Hz	Max 60Hz	Max 60Hz	Max 60Hz
Contrast Ratio	FHD : Typ 700	FHD : Typ 800	UHD : Typ 1400	UHD : Typ 100000
Viewing Angle (*1)	FHD: 85/85/85/85 degree	FHD: 85/85/85/85 degree	UHD: 89/89/89/89 degree	UHD: 85/85/85/85 degree
Color gamut	FHD 72%NTSC	FHD 72%NTSC	UHD 100% Adobe	UHD 100% DCI-P3
Brightness	300 nits FHD w/o touch	500 nits for FHD w/o touch HDR400	600 nits w/o touch HDR400	400 cd/m2 (Peak 540 cd/m2 10% area) HDR500
Color Depth	FHD: 16M (RGB 6-bit + FRC)	FHD: Native 1B (RGB 6-bit + FRC)	UHD: Native 1B (RGB 8-bit data driver)	UHD: Native 1B (RGB 8-bit + FRC)
Interface	FHD: eDP 1.2	FHD: eDP 1.3	UHD: eDP 1.3	UHD: eDP 1.4

Panel ID Recognition	EDID in BIOS Table	EDID in BIOS Table	EDID in BIOS Table	EDID in BIOS Table
Weight	FHD: 304g	FHD: 305g	UHD: 290g	UHD: 200g
Color Calibrator	None	None	X-Rite Pantone Color Calibration	X-Rite Pantone Color Calibration
Panel Technology	IPS, Anti-Glare	IPS, Anti-Glare	IPS, Anti-Glare	OLED, Anti-Reflection / Anti-Smudge
Touch Panel	None	None	None	10-Finger Touch Panel with Pen Controller, Wacom. Pen Tilt support.

SSD Specifications

2.5″ SATA Solid State Drive (SSD)	N/A
M.2 (NGFF) PCIe Solid State Drive (SSD)	2x M.2 2280-S3 PCIe
2.5″ PCIe Solid State Drive (SSD)	N/A
Intel Optane Storage Technology	N/A

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 (512GB/1TB/2TB), 200K (256GB) Write: 240K (512GB/1TB/2TB), 190K (256GB) IOPS, 4K Random, 32 q depth, 4 threads
Bandwidth Performance	PCIe Gen3x4 (8Gb/S)
Power Consumption (Max)	5.0W
Active(AVG)	5.0W (Sequential read)
Idle	5mW (Low power state)
Min MTBF	2,000,000 (h)
Min Sequential Read	3000MB/s (512GB/1TB/2TB), 2900MB/s (256GB)
Min Sequential Write	1600MB/s (512GB/1TB/2TB), 900MB/s (256GB)
Hardware Encryption	Yes

Discrete Graphics Adapter

GPU Name	Quadro T1000 with Max-Q Design	Quadro T2000 with Max-Q Design
CUDA Processing Cores	896	1024
GPU Memory	4GB	4GB
Memory Bandwidth	128GBps	128GBps
Memory Type	GDDR6	GDDR6
Memory Interface	128-bit	128-bit
TGP Max Power Consumption	35W	35W
Display Port	1.4	1.4
OpenGL	4.6	4.6
Shader Model	5.1	5.1
DirectX	12.1	12.1
PCIe Generation	3	3
Floating-Point Performance	2.6	3.5
VR Ready	No	No
Simultaneous Multi-Projection	Yes	Yes
NVIDIA FXAA/TXAA Antialiasing	Yes	Yes
NVIDIA nView Display Management Technology	Yes	Yes
GPU Direct for Video	No	Yes
Vulkan Support	Yes	Yes
NVIDIA Optimus	Yes	Yes

WLAN

Model	Harrison Peak 2 Intel Wi-Fi 6 AX201 2*2ax+BT5.1 vPro PCIE M.2 1216 Module (CNVi)
Antenna Diversity	Supported
MIMO	Supported
Radio ON/OFF Control	Supported
Connector interface	M.2 1216
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*	BT5.1
Regulatory	All compliance
US Government	FIPS12, FISMA
Product Safety	UL,C-UL,CB (IEC 60950-1)

Battery

Dimension	L: 70mm*W: 312mm*T 7.5mm
Weight	MAX 324g
Type (Chemistry and Cell)	Li-Polymer (4S1P), 4-cell
Voltage	15.36 V
Battery Life	Up to 10hrs (Condition: FHD/16GB DIMM one NVMe/Hybrid Graphics Mode / MobileMark2014)
Battery Capacity	80.4 Wh
Charging Time	Rapid Charge On Charge Time (0- 100%) * 146 min Off Charge Time (0 – 80%) ** 60 min Off Charge Time (0 – 100%) ** 115 min
Operating Temperature Range	between 10°C (50°F) and 35°C (95°F)
Warranty	1 Year / 3 Year Available
Coin Cell Battery (Model)	CR1632

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
Memory Change Alert	N/A

Thermal Alert	N/A
Asset Tag	Yes
System/Emergency ROM Flash Recovery with Video	N/A
Remote Wakeup/Remote Shutdown	Yes, if Remote wakeup is Wake on LAN from S4/S5. I don't know the Remote shutdown situation.
Keyboard-less Operation	N/A
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
Memory Modes	N/A

EMC & Safety

EMC	Published, Certified Existing Reports 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
Safety	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 PCRB 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, Dijbouti, 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,

	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 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 â€“ 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.