

# Lenovo P16s Gen 1 AMD

Version: 2.0 | 05/05/2023

## SECTION I: Platform Overview

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Description	ThinkPad P16s A perfect mix of power and performance in a thin and light design, the ThinkPad® P16s ignites designers, engineers, and students to be creative anytime, anywhere.
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### CPU

Processor Support	AMD Pro 6650U AMD Pro 6850U
Socket Type	BGA

### Operating Systems

Preloaded	Windows 11/DG10 Pro 64 (21H2) Windows 11 Home 64 (21H2) Windows 11 Home Single Language 64(21H2) Windows 11 Home Chinese Language Edition 64(21H2) Windows 11/DG10 CMIT Government Edition Ubuntu (Version20.04)
Supported	Windows 11/DG10 Pro 64 (21H2) Windows 11 Home 64 (21H2) Windows 11 Home Single Language 64(21H2) Windows 11 Home Chinese Language Edition 64(21H2) Windows 11/DG10 CMIT Government Edition Ubuntu (Version20.04)

### Memory

Number of DIMM Slots	No
Channels	Dual Channel LPDDR5
Type	LPDDR5

ECC Support	No
Speed	6400 MHz
Max DIMM Size	No
Max System Memory	32GB
Min System Memory	8GB
Soldered Memory	8/16/32GB

## Storage

Storage Slots	1 x PCIe Gen 4 M.2 2280
SATA	/
PCIe	Solid State Drive, OPAL2 PCIe-NVMe Gen 4 M.2 2280- TLC
SAS	None
Interface	Yes->PCIe Gen 4
Security	PCIE->YES
Optional Hard Disk Drive Controllers	OPAL2 for NVMe SSD

## Video

Integrated Graphics	AMD Radeon™ Graphics
Discrete Graphics	N/A
Adapter	None
Bus Interface	NA

## Display

Resolutions	FHD+/QHD+
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## Camera

Resolution	FHD 1080p
Frames per Second	30 fps
Focus	Fixed 50cm
Camera Interface	USB 2.0
IR Camera	Yes (optional) (with WWAN co-existence), Hybrid Camera

## Keyboard

Number of Keys	US : 84 / UK : 85 / JP : 89
Numpad	Yes
Size	100% ISO
Function Key Features	Yes
Backlit	Yes
Keyboard size	CS20 KYB
Key stroke	1.5mm
Key pitch	19.05mm
Keyboard backlight	Optional
Keyboard thickness	Standard

## Touchpad / Fingerprint Reader

TrackPoint Details	COMO TrackPoint module (t5.5mm)
Finger Print Reader Model	Synaprics Metallica 8x8 FPR, MoC
Multi-Touch	Yes
Resolution	DPI≈304
TouchPad/Trackpad thickness	3.3mm
TouchPad/Trackpad type	3 BCP
Trackpad size	115mm x 61 mm
Trackpad material/finish	Mylar surface

## I/O - Ports and Connectors

USB	2x USB Type-A 3.1 Gen1, 2x Type-C (DP 1.4, USB3.2 Gen2, PD)
Thunderbolt	N/A
HDMI	1x HDMI 2.0b
Audio Combo Jack	1x Microphone & Headphone Combo Jack (3.5mm)
Media Card Reader	N/A
Smart Card Reader	Yes (optional)
Power Connector	DC-In
Docking Port	2x Type-C
VirtualLink	None
Network adapter	Gigabit Ethernet (RJ45)

## Power Connector

Main	DC-In
USB-C	2x Type-C (DP 1.4, USB3.2 Gen2, PD)

## Ethernet

Vendor	Realtek
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: CAT16/CAT4; Physical eSIM optional
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## Near Field Communications

Model	Yes, optional
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## Audio

Vendor	Realtek
Type	High Definition Audio Codec
Internal Speaker	Yes, dual speakers
Connectors	Microphone & Headphone Combo Jack (3.5mm)
Chipset	ALC3287
Number of Channels	2-channel DAC, 2-channel ADC
Number of Bits/Audio Resolution	16/20/24-bit PCM format
Sampling Rate (Recording/Playback)	n
Signal to Noise Ratio	90dB Signal-to-Noise Ratio (A-weighting) for ADC input. 100dB Signal-to-Noise Ratio (A-weighting) for DAC output

Analog Audio	None
Dolby Digital	Yes
Digital Out (S/PDIF)	No
Speaker Power Rating	2W@4ohm/ch

## Power adapter

Type	100W AC Adapter	65W AC Slim Adapter	65W AC Adapter
Dimensions	142cc (28.5 x 46 x 108 mm) 65W (*0)	142cc (28.5 x 46 x 108 mm) 65W (*0)	142cc (28.5 x 46 x 108 mm) 65W (*0)
Input Voltage	100-240V	100-240V	100-240V

## Security

TPM	Yes, TPM2.0
Asset ID	Yes
AMD Pro Technology	Yes

## Chassis Information

Color	Black/Storm Grey
Thermal Solutions	Internal Single FAN, Intelligent Cooling
Weight	with3 Cell 52.5WHr Battery, Min 3.82lbs/1.73kg

## Packaging Parameters

Height (mm)	300
Height (inch)	11.8
Width (mm)	446
Width (inch)	17.6
Depth (mm)	81
Depth (inch)	3.1
Weight (kgs)	0.32kg
Weight (lbs)	0.71lbs

## Security & Serviceability

Hardware Maintenance Manual	P14s_gen2_HMM
Drivers & Software	P14s-gen-2-type-21a0-21a1/downloads/driver-list
Self Healing BIOS	Yes
Access Panel	Removeable bottom cover
Number of Screws	6
Swappable Components	Base cover assembly, TrackPoint pointing stick, Lenovo factory recovery USB key, Power cord, ac power adapter
Storage Slots	1 storage slot
Memory	1 soldered down RAM
System Board	1190 System Board. No self-service CRU.
Restore CD/DVD/USB Set	None. Purchase via Lenovo Customer Support Center
Cable Lock Support	Security-lock slot
Power-On Password	Yes
Hard Disk Password	Yes; User and Master hard disk password
Supervisor Password	Yes
NIC LEDs (integrated)	Yes (if it means the LED for Ethernet)
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: Platform Detail

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## Supported Components

Processor	AMD Ryzen 5 RPO 6650U AMD Ryzen 7 RPO 6850U
Memory Support	LPDDR5 6400MHz
Chipset (PCH)	Integrated Soc
Size of BIOS Flash	256 Mb
Clock	Crystal
Audio	Realtek High Definition Audio
Ethernet	Realtek RTL8111EPV Co-lay Realtek RTL8111H

## Memory

System Capacity Options	R5 Pro-6650U 8C: 8/16/32GB soldered-down R7 Pro-6850U 8C: 16/32GB soldered-down
non-ECC	8/16/32GB LPDDR5 6400MHz
Brand of non-ECC Memory	SK Hynix Micron
ECC	None
Brand of ECC Memory	N/A
Memory clock frequency(MHz)	6400 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 G4 NVMe M.2 2280 512GB Opal 2 PCIe G4 NVMe M.2 2280 512GB Opal 2 PCIe G4 NVMe Performance M.2 2280 1TB Opal 2 PCIe G4 NVMe M.2 2280 1TB Opal 2 PCIe G4 NVMe Performance M.2 2280 2TB Opal 2 PCIe Gen4 Performance NVMe M.2 2280
2.5" PCIe Solid State Drive (SSD)	None

Brand of Drive	Samsung WD Hynix Kioxia Iue 256G Micron
Intel Optane Storage Technology	No
RAID	Not Supported

## Removeable Media

Media Card Reader Specifications	N/A
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## SECTION III: Supported Component Detail

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### CPU Specifications

CPU	AMD Rembrandt R5 Pro-6650U	AMD Rembrandt R7 Pro-6850U
Integrated Graphics	AMD Radeon™ Graphics + AMD Pro APU Driver	AMD Radeon™ Graphics + AMD Pro APU Driver
# of Cores	6 cores	8 cores
# of Threads	12	16
Processor Base Frequency	2.9GHz	2.7GHz
Max Turbo Frequency	4.5GHz	4.7GHz
Cache	19MB	20MB
TDP	15-30w	15-30w
AMD Spec Link	AMD Ryzen-5-pro-6650u	AMD Ryzen-7-pro-6850u

### Display Specifications

Model	FHD+	FHD+ w/oncell touch	FHD+ low power	FHD+ ePrivacy	QHD+
Resolution	1920 x 1200	1920 x 1200	1920 x 1200	1920 x 1200	2560 x 1660
Diagonal	16"	16"	16"	16"	16"
Aspect Ratio	Ratio 16:10	Ratio 16:10	Ratio 16:10	Ratio 16:10	Ratio 16:10



Backlight	LED	LED	LED	LED	LED
PPI	157	157	157	157	315
Active Area	309.37 X 174.02	309.31 X 173.99	309.37 X 174.02	309.31 X 173.99	309.31 X 173.99
Refresh Rate	48 / 60 Hz	48 / 60 Hz	60Hz	60Hz	60Hz
Contrast Ratio	700:1 (TYP)	700:1 (TYP)	800:1 (TYP)	1000:1 (TYP)	1500:1 (TYP)
Viewing Angle	85/85/85/8 5 degree	85/85/85/8 5 degree	85/85/85/8 5 degree	85/85/85/8 5 degree	85/85/85/8 5 degree
Color gamut	45% NTSC	45% NTSC	100% sRGB	100% sRGB	100% sRGB
Brightness	300nit	300nit	400nit	500nit	400nit, HDR 400
Contrast	Ratio 700:1	Ratio 700:1	Ratio 800:1	Ratio 1000:1	Ratio 1500:1
Color Depth	16M	262K	16M	16M	1064M
Interface	eDP 1.2	eDP 1.2	eDP 1.3	eDP 1.4	eDP 1.4
Panel ID Recognition	EDID in BIOS Table	EDID in BIOS Table	EDID in BIOS Table	EDID in BIOS Table	EDID in BIOS Table
Weight	290g max	290g max	220g max	340g max	220g max
Color Calibrator	None	None	None	None	X-Rite Factory Color Calibration
Panel Technology	IPS, Anti- Glare	IPS, Anti- Glare	IPS, Anti- Glare, LBL, TUV	IPS, Anti- Glare, TUV	IPS, Anti- Glare, LBL, TUV
Touch Panel	None	YES	None	None	None
2.5" SAS Hard Disk Drive (HDD)	N/A				
2.5" SATA Hard Disk Drive (HDD)	N/A				
Connector	N/A				
Transfer Rate (Gb/sec)	N/A				
Spindle Speed(RPM)	N/A				
Power off to Spindle Stop(sec)	N/A				
DC Power to Drive Ready(sec)	N/A				
Receipt of Start Unit Command to Drive Ready(sec)	N/A				
Average Latency(msec)	N/A				
Input (VDC)	N/A				
Typical (Watts)	N/A				
Idle (Watts)	N/A				
Height (mm - Max)	N/A				
Width (mm)	N/A				
Depth (mm - Max)	N/A				

Weight (grams)	N/A
Operating(C) Ambient	N/A
Operating(C) Base Casting	N/A
Non-Operating(C) Ambient	N/A
Gradient(C per Hour)	N/A
Operating(Gs @ 2ms)	N/A
Non-Operating(Gs @ 2ms)	N/A

## SSD Specifications

2.5" SATA Solid State Drive (SSD)	N/A
M.2 (NGFF) PCIe Solid State Drive (SSD)	1x M.2 2280 PCIe Gen4
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 2280S3
Interface Type	PCIe NVMe Gen4
Read/Write IOPS Specifications	Read: 250K (2TB, 1TB, 512GB), 200K (256GB) Write: 240K (2TB, 1TB, 512GB), 190K (256GB) Burst 4K Random IOPS , Measured by Crystal Disk Mark (QD32T1, Data size set 1GB)
Bandwidth Performance	PCIe Gen3x4 (8Gb/S)
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)
Min Sequential Write	1600MB/s (2TB, 1TB/512GB), 900MB/s (256GB)
Hardware Encryption	Yes

## Discrete Graphics Adapter

GPU Name	N/A
CUDA Processing Cores	N/A
GPU Memory	N/A
Memory Bandwidth	N/A
Memory Type	N/A
Memory Interface	N/A
TGP Max Power Consumption	N/A
Display Port	N/A
OpenGL	N/A
Shader Model	N/A
DirectX	N/A
PCIe Generation	N/A
Floating-Point Performance	N/A
VR Ready	N/A
Simultaneous Multi-Projection	N/A
NVIDIA FXAA/TXAA Antialiasing	N/A
NVIDIA nView Display Management Technology	N/A
GPU Direct for Video	N/A
Vulkan Support	N/A
NVIDIA Optimus	N/A

## WLAN

Model	Qualcomm NFA-725A M.2 socket based	Mediatek RZ616 M.2 socket based
Connector: Main, Aux/GNSS, GNSS	ANT1:AUX WiFi + BT; ANT2: Main WiFi	
Antenna Diversity	Supported	
MIMO	Not supported	
GNSS Bian	N/A	
Radio ON/OFF Control	Supported	
Connector interface	PCIE	
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 7*, Microsoft Windows 8.1*, Microsoft Windows 10*,	

	Linux* (limited feature support), Android
Wi-Fi Alliance	Wi-Fi CERTIFIED* a/b/g/n/ac, WMM*, WMM-PS*, WPA*, WPA2*, WPS2*, Protected Management Frames, Wi-Fi Direct* for peer to peer device connections, Wi-Fi Miracast* as Source.
IEEE WLAN Standard	IEEE 802.11a/b/g/n/ac, 802.11d, 802.11e, 802.11h, 802.11i, 802.11w; 802.11r, 802.11k, 802.11v pending OS support; Fine Timing Measurement based on 802.11REVmc
Roaming	Support seamless roaming between access points
Bluetooth*	Dual Mode Bluetooth® 5.0, BLE
Authentication	WPA and WPA2, 802.1X (EAP-TLS, TTLS, PEAP, LEAP, EAP-FAST), EAP-SIM, EAP-AKA, EAP-AKA
Authentication Protocols	PAP, CHAP, TLS, MS-CHAP*, MS-CHAPv2
Encryption	64-bit and 128-bit WEP, 128-bit AES-CCMP
Regulatory	For a list of country approvals, please contact your local Intel representatives.
US Government	FIPS10, FISMA
Product Safety	UL,C-UL,CB (IEC 60950-1)

## Battery

Dimension	266.6 mm x 86.6 mm x 5.45 mm	266.6 mm x 86.6 mm x 5.45 mm
Weight	240g	240g
Type (Chemistry and Cell)	Li-ion Polymer	Li-ion Polymer
Voltage	11.52V	11.52V
Battery Life	Max >14 hours battery life	Max >14 hours battery life
Battery Capacity	Integrated 3-cell 52.5Wh battery	Integrated 3-cell 86Wh battery
Charging Time	0% to 100% 0% to 80% Battery [Wh] 50 40 Battery Charging Time (in-operation) 2.42 hrs(45W adapter) TBC hr (65W adapter) 1.41 hrs(45W adapter) TBC hr (65W adapter) Battery Charging Time (off) 2.38hr(45W adapter) 2.1hrs (65W adapter) 1.19 hrs(45W adapter) 0.98 hr (65W adapter)	0% to 100% 0% to 80% Battery [Wh] 50 40 Battery Charging Time (in-operation) 2.42 hrs(45W adapter) TBC hr (65W adapter) 1.41 hrs(45W adapter) TBC hr (65W adapter) Battery Charging Time (off) 2.38hr(45W adapter) 2.1hrs (65W adapter) 1.19 hrs(45W adapter) 0.98 hr (65W adapter)
Operating Temperature Range	between 10°C (50°F) and 35°C (95°F)	between 10°C (50°F) and 35°C (95°F)
Warranty	1 Year / 3 Year Available	1 Year / 3 Year Available
Coin Cell Battery (Model)	CR2032	CR2032

# SECTION IV: BIOS / Certifications / Standards /

## Environmental

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### BIOS Specifications

WMI Support	Yes, if it is BIOS Setup change by WMI.
ROM-Based Setup Utility (F1)	Yes
Bootblock Recovery	N/A
Replicated Setup	Yes, it supported with SRSETUP tool.
Boot Control	Yes, it means Boot order change.
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.
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
AMD KVM	Yes
AMD Platform Security Processor	Yes
Memory Modes	N/A

### EMC & Safety

EMC	Published, Certified Existing Reports EMC - Australia EMC - Canada EMC - China EMC - EU/EFTA EMC - Japan EMC - New Zealand EMC - South Korea EMC - Taiwan EMC - USA/Territories Not Applicable / Not Required EMC - Israel EMC - Moldova EMC - Serbia EMC - Turkey
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	EMC – Uzbekistan EMC – Vietnam
Safety	To access the latest User Guide and Safety and Warranty Guide, go to: <a href="https://support.lenovo.com">https://support.lenovo.com</a> 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, 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 8.0 For more information about ENERGY STAR, go to: <a href="https://www.energystar.gov">https://www.energystar.gov</a>
EPEAT	EPEAT Declaration of Conformance For Machine Types: 20S4, 20S5
IT ECO declaration	The latest environmental information about Lenovo products is available at: <a href="https://www.lenovo.com/ecodeclaration">https://www.lenovo.com/ecodeclaration</a>
Hazardous Substances	The latest environmental information about Lenovo products is available at: <a href="https://www.lenovo.com/ecodeclaration">https://www.lenovo.com/ecodeclaration</a> 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: <a href="https://www.lenovo.com/rohs-communication">https://www.lenovo.com/rohs-communication</a>

## Manageability

Industry Standard Specifications	This product meets the following industry standard specifications for manageability functionality: Intel LAN with AMT
Remote Manageability Software Solutions	Lenovo ThinkManagement Console Microsoft System Center Configuration Manager LANDesk Management Suite for ThinkVantage Technologies ( <a href="http://www.landesk.com/lenovo">www.landesk.com/lenovo</a> )

System Software Manager	Lenovo ThinkPad supports software management tools from the Lenovo Vantage 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 to 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.