

# Lenovo P17

Version: 3.0 | 07/20/2023

## Downloads

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|                             |  |
|-----------------------------|--|
| Hardware Maintenance Manual | <a href="#">P17 Gen 1 HMM</a>                    |
| Drivers & Software          | <a href="#">P17 Gen 1 Drivers &amp; Software</a> |

## SECTION I: SYSTEM OVERVIEW

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|             |   |
|-------------|---|
| Description | Ultimate Power at Your Fingertips: Lenovo's most powerful laptop, designed as an on-the-go desktop. Maximize your workspace with the ultimate performance experience featuring the latest 10th Gen Intel® Core™ i9 processor, NVIDIA® Quadro RTX™ 5000 professional graphics, and up to 4 TB of ultra-fast M.2 paired with an outstanding 17.3" display that lets designers, creators, and engineers amplify their productivity. Go ahead, bring your desktop with you. |
|-------------|---|

## CPU

|                   |   |
|-------------------|---|
| Processor Support | Intel 10th gen Comet Lake H Series Core i7, i9<br>Intel 10th gen Comet Lake H Series Xeon |
| Socket Type       | BGA   |

## Operating Systems

|           |  |
|-----------|--|
| Preloaded | Windows 10 Pro 64-bit for Workstations (20H1)<br>Windows 10 Pro 64-bit (20H1)<br>Windows 10 Home 64-bit (20H1)<br>Windows 10 Single Language Home 64-bit (20H1)<br>Ubuntu 64-bit (Version 18.04 LTS, running the 4.15.0-1039-oem kernel) |
|-----------|--|

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

## Memory

|                      |  |
|----------------------|--|
| Number of DIMM Slots | 4 DIMM sockets: Top x2; Bot x2                                     |
| Channels             | Single Channel w/ 1DIMM<br>Dual Channel w/ 2DIMMs                  |
| Type                 | DDR4 SO-DIMM, ECC / non-ECC  |
| ECC Support          | Yes  |
| Speed                | Up to 3200 MT/s on Non-ECC Memory<br>Up to 2933 MT/s on ECC Memory |
| Max DIMM Size        | 32GB   |
| Max System Memory    | 128GB  |
| 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® i5-10400H<br>Processor Graphics Intel® UHD Graphics Utilized via "Hybrid Mode" in BIOS<br>For Intel® i7-10750H<br>Processor Graphics Intel® UHD Graphics Utilized via "Hybrid Mode" in BIOS<br>For Intel® i7-10850H<br>Processor Graphics Intel® UHD Graphics |
|---------------------|--|

|                   |   |
|-------------------|---|
|                   | Utilized via "Hybrid Mode" in BIOS<br>For Intel® i7-10875H<br>Processor Graphics Intel® UHD Graphics<br>Utilized via "Hybrid Mode" in BIOS<br>For Intel® i9-10885H<br>Processor Graphics Intel® UHD Graphics<br>Utilized via "Hybrid Mode" in BIOS<br>For Intel® i9-10980HK<br>Processor Graphics Intel® UHD Graphics<br>Utilized via "Hybrid Mode" in BIOS<br>For Intel® Xeon® W-10855M Processor<br>Processor Graphics Intel® UHD Graphics<br>Utilized via "Hybrid Mode" in BIOS<br>For Intel® Xeon® W-10885M Processor<br>Processor Graphics Intel® UHD Graphics<br>Utilized via "Hybrid Mode" in BIOS |
| Discrete Graphics | NVIDIA Quadro T1000, T2000, RTX3000, RTX4000, RTX5000   |
| Adapter           | None  |
| Bus Interface     | PEG   |

## Display

|             |           |
|-------------|-----------|
| Resolutions | FHD / UHD |
|-------------|-----------|

## Camera

|                   |                                |
|-------------------|--------------------------------|
| Resolution        | HD 720p RGB / IR Camera Hybrid |
| 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               | Yes  |
| Keyboard size         | Como 2020 Full size KB with NumPad (Top loading) |
| Key stroke            | 1.8mm  |
| Key pitch             | 19.05 mm(Vertical & Horizontal)                  |
| Keyboard backlight    | Optional   |
| Keyboard thickness    | 4.55mm   |

## 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 | 0.8mm                               |
| TouchPad/Trackpad type      | TouchPad                            |
| Trackpad size               | 99mm x 58.4mm                       |
| Trackpad material/finish    | Mylar surface                       |

## I/O - Ports and Connectors

|                   |   |
|-------------------|---|
| USB               | 3 x USB 3.2 Gen-1 Type A (1x Powered)<br>1x USB-C |
| Thunderbolt       | 2 x Thunderbolt 3 (USB Type-C)                    |
| HDMI              | 1x HDMI (2.0), DP1.4                              |
| Audio Combo Jack  | 1x Microphone & Headphone Combo Jack (3.5mm)      |
| Media Card Reader | 1x SD Card Reader (SD, SDHC, SDXC, MMC)           |
| Smart Card Reader | 1x Smart Card Reader                              |
| 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 | 2x Thunderbolt 3 (USB-C/DP/PD) |

## Ethernet

|        |  |
|--------|--|
| Vendor | Intel  |
| Count  | x1   |
| EEPROM | BIOS/MEFW SPI ROM<br>TBT FW SPI ROM<br>VBIOS SPI ROM |

|            |   |
|------------|---|
| Speeds     | 10/100/1000 Mbps  |
| Functions  | Wake On LAN<br>MAC Address Pass Through<br>PXE Boot<br>Flash Over LAN |
| Connectors | RJ45  |

## WWAN

|       |                              |
|-------|------------------------------|
| Model | L860-GL CAT16 M.2 (Optional) |
|-------|------------------------------|

## Near Field Communications

|       |      |
|-------|------|
| Model | None |
|-------|------|

## 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<br>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          | Slim 170W AC Adapter    | Slim 230W AC Adapter      |
| Dimensions    | 240cc (142 x 77 x 22mm) | 353cc (160 x 87 x 25.4mm) |
| Input Voltage | 450g                    | 710g                      |

Disclaimers

100-240V

100-240V

## Security

|          |                   |
|----------|-------------------|
| TPM      | Version 2.0       |
| Asset ID | Yes               |
| vPro     | Intel vPro for WS |

## Chassis Information

|                   |  |
|-------------------|--|
| Format            | Clamshell  |
| Color             | Midnight Black   |
| Thermal Solutions | Internal Dual FAN, Intelligent Cooling   |
| Dimensions        | Length<br>16.38 inches<br>416 millimeters<br>Width<br>11.06 inches<br>281 millimeters<br>Height<br>1.00 inches (front)<br>25.0mm (front) (Thinnest)<br>1.30 inches (rear)<br>33.25mm (rear) (Thickest) |
| Weight            | with 6 cell 94WHr Battery, Min 7.7 lbs / 3.49kg Max 7.98 lbs/3.61 kg   |

## Packaging Parameters

|             |     |
|-------------|-----|
| Height (mm) | 341 |
| Width (mm)  | 105 |
| Depth (mm)  | 493 |

## Security & Serviceability

|                             |  |
|-----------------------------|--|
| Hardware Maintenance Manual | P17 HMM  |
| Drivers & Software          | P17 Drivers & Software   |
| Self Healing BIOS           | Yes  |
| Access Panel                | Removeable bottom cover  |
| Number of Screws            | See Hardware Maintenance Manual for Details  |
| Swappable Components        | Bottom cover, memory module, M.2 solid-state drive, speaker assembly, coin-cell battery, TrackPoint pointing cap, keyboard, WLAN Card, |

|                        |  |
|------------------------|--|
|                        | WWAN Card, Power Button Cable, Hinge Caps, LCD Unit, Chassis Assembly, Dummy Smart Card Reader, System Board, SIM Tray |
| Storage Slots          | 2 slots  |
| Memory                 | 4 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)<br>- Operating: 5°C to 35°C (41°F to 95°F)                                     |
| Non Operating - Air Temperature | At altitudes up to 2438 m (8000 ft)<br>- Storage: 5°C to 43°C (41°F to 109°F)                                      |
| Humidity                        | Operating: 8% to 95% at wet-bulb temperature 23°C (73°F)<br>Storage: 5% to 95% at wet-bulb temperature 27°C (81°F) |
| Corrosive Gas                   | G1   |
| Particulates                    | P1   |

## SECTION II: SUPPORTED COMPONENTS

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### Supported Components

|                    |   |
|--------------------|---|
| Processor          | Intel® Core™ i5-10400H vPro processor (2.6 GHz/4 Core/8M/ V-Pro)<br>Intel® Core™ i7-10750H processor (2.6 GHz/6 Core/12M)<br>Intel® Core™ i7-10850H vPro processor (2.7 GHz/6 Core/12M/V-Pro)<br>Intel® Core™ i7-10875H vPro processor (2.3 GHz/8 Core/16M/V-Pro)<br>Intel® Core™ i9-10885H vPro processor (2.4 GHz/8 Core/16M/V-Pro)<br>Intel® Core™ i9-10980HK processor (2.4 GHz/8 Core/16M)<br>Intel® Xeon™ W-10855M v7 vPro processor (2.8 GHz/6 Core/12M/V-Pro) |
| Memory Support     | DDR4 3200MT/s SO-DIMM with non-ECC Memory<br>DDR4 2933MT/s SO-DIMM with ECC Memory  |
| Chipset (PCH)      | Mobile Intel® WM490 Chipset   |
| Size of BIOS Flash | 8MB for Non-vPro model, 16MB for vPro model   |

|           |                                 |
|-----------|---------------------------------|
| Super I/O | None                            |
| Clock     | Crystal                         |
| Audio     | Realtek High Definition Audio   |
| Ethernet  | Intel® Ethernet Connection I219 |

## Memory

|                             |  |
|-----------------------------|--|
| System Capacity Options     | 8GB<br>16GB<br>32GB<br>64GB<br>128GB   |
| non-ECC                     | 8GB DDR4 3200 SoDIMM<br>16GB DDR4 3200 SoDIMM<br>32GB DDR4 3200 SoDIMM             |
| Brand of non-ECC Memory     | Samsung<br>SK Hynix<br>Micron<br>Ramaxel   |
| ECC                         | 8GB DDR4 2933 ECC SoDIMM<br>16GB DDR4 2933 ECC SoDIMM<br>32GB DDR4 2933 ECC SoDIMM |
| Brand of ECC Memory         | SK Hynix<br>Samsung  |
| Memory clock frequency(MHz) | 3200MT/s with non-ECC Memory<br>2933MT/s with ECC Memory                           |

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



## Removeable Media

|                                  |        |
|----------------------------------|--------|
| Media Card Reader Specifications | UHS-II |
|----------------------------------|--------|

## SECTION III: Supported Component Detail

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### CPU Specifications

|                          |  |   |  |  |  |
|--------------------------|--|---|--|--|--|
| CPU                      | Intel® Core™ i5-10400H (2.6 GHz/4 Core/8M/V-Pro) | 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) |
| Integrated Graphics      | Intel® UHD Graphics 630                          | Intel® UHD Graphics 630                               | Intel® UHD Graphics 630  | Intel® UHD Graphics 630  | Intel® UHD Graphics 630  |
| # of Cores               | 4  | 6   | 6  | 8  | 8  |
| # of Threads             | 8  | 12  | 12   | 16   | 16   |
| Processor Base Frequency | 2.60 GHz   | 2.60 GHz  | 2.70 GHz   | 2.30 GHz   | 2.40 GHz   |
| Max Turbo Frequency      | 4.60 GHz   | 5.00 GHz  | 5.10 GHz   | 5.10 GHz   | 5.30 GHz   |
| Cache                    | 8 MB   | 12 MB   | 12 MB  | 16 MB  | 16 MB  |
| TDP                      | 35 - 45 W  | 35 - 45 W   | 35 - 45 W  | 35 - 45 W  | 35 - 45 W  |
| Intel ARK Spec Link      | Intel Core i5-9400H                              | Intel Core i7-9750H                                   | Intel Core i7-9850H  | Intel Core i7-9850H  | Intel Core i9-9880H  |

### CPU Specifications

|                     |  |  |   |
|---------------------|--|--|---|
| CPU                 | Intel® Core™ i9-10980HK processor (2.4 GHz/8 Core/16M) | Intel® Xeon™ W-10855M v7 vPro processor (2.8 GHz/6 Core/12M/V-Pro) | Intel® Xeon™ W-10885M vPro processor (2.4 GHz/8 Core/16M/V-Pro) |
| Integrated Graphics | Intel® UHD Graphics 630                                | Intel® UHD Graphics P630   | Intel® UHD Graphics P630  |
| # of Cores          | 8  | 6  | 8   |
| # of Threads        | 16   | 12   | 16  |

|                          |                     |                    |                    |
|--------------------------|---------------------|--------------------|--------------------|
| Processor Base Frequency | 2.40 GHz            | 2.80 GHz           | 2.40 GHz           |
| Max Turbo Frequency      | 5.30 GHz            | 5.10 GHz           | 5.30 GHz           |
| Cache                    | 16 MB               | 12 MB              | 16 MB              |
| TDP                      | 35 - 45 W           | 35 - 45 W          | 35 - 45 W          |
| Intel ARK Spec Link      | Intel Core i9-9880H | Intel Xeon E-2276M | Intel Xeon E-2276M |

## Display Specifications

|                      |  |   |
|----------------------|--|---|
| Model                | FHD                                      | UHD Non-Touch                             |
| Resolution           | FHD (1920 x 1080)                        | 4K UHD (3840 x 2160)                      |
| Diagonal             | 17.3"                                    | 17.3"                                     |
| Aspect Ratio         | Ratio 16:9                               | Ratio 16:9                                |
| Backlight            | LED                                      | LED                                       |
| PPI                  | FHD : 141                                | UHD : 282                                 |
| Active Area          | FHD : 381.89mm x 214.81mm                | UHD : 381.89mm x 214.81mm                 |
| Refresh Rate         | Max 60Hz                                 | Max 60Hz                                  |
| Contrast Ratio       | FHD: 800:1                               | UHD 1000:1                                |
| Viewing Angle (*1)   | FHD: 85/85/85/85 degree                  | UHD: 85/85/85/85 degree                   |
| Color gamut          | FHD 100% sRGB                            | UHD 100% Adobe                            |
| Brightness           | 300 nits FHD w/o touch                   | 500 nits w/o touch<br>HDR400              |
| Color Depth          | FHD: Native 262K (RGB 6-bit data driver) | UHD: Native 16.7M (RGB 8-bit data driver) |
| Interface            | FHD: eDP 1.2                             | UHD: eDP 1.3                              |
| Panel ID Recognition | EDID in BIOS Table                       | EDID in BIOS Table                        |
| Weight               | FHD: 550g                                | UHD: 550g                                 |
| Color Calibrator     | None                                     | X-Rite Pantone Color Calibration          |
| Panel Technology     | IPS, Anti-Glare                          | IPS, Anti-Glare                           |
| Touch Panel          | None                                     | None                                      |

## SSD Specifications

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

## Solid State Storage Devices

|  |   |
|--|---|
| Supported Types                              | M.2   |
| Dimensions<br>inches/centimeters (W x D x H) | 22.0 (+-0.15) x 80.0 (+-0.15) x 2.3 (max)   |
| Size   | M.2 2280  |
| Interface Type                               | PCIe NVMe   |
| Read/Write IOPS Specifications               | Read: 250K (512GB/1TB/2TB), 200K (256GB)<br>Write: 240K (512GB/1TB/2TB), 190K (256GB)<br>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 | Quadro T2000 | Quadro RTX3000 | Quadro RTX4000 with Max-Q Design | Quadro RTX5000 with Max-Q Design |
|-------------------------------|--------------|--------------|----------------|----------------------------------|----------------------------------|
| CUDA Processing Cores         | 768          | 1024         | 2304           | 2560                             | 3072                             |
| GPU Memory                    | 4GB          | 4GB          | 6GB            | 8GB                              | 16GB                             |
| Memory Bandwidth              | 128GBps      | 128GBps      | 336GBps        | 448GBps                          | 448GBps                          |
| Memory Type                   | GDDR5        | GDDR5        | GDDR6          | GDDR6                            | GDDR6                            |
| Memory Interface              | 128-bit      | 128-bit      | 192-bit        | 256-bit                          | 256-bit                          |
| TGP Max Power Consumption     | 50W          | 60W          | 80W            | 110W                             | 110W                             |
| Display Port                  | 1.4          | 1.4          | 1.4            | 1.4                              | 1.4                              |
| OpenGL                        | 4.6          | 4.6          | 4.6            | 4.6                              | 4.6                              |
| Shader Model                  | 5.1          | 5.1          | 5.1            | 5.1                              | 5.1                              |
| DirectX                       | 12.1         | 12.1         | 12.1           | 12.1                             | 12.1                             |
| PCIe Generation               | 3            | 3            | 3              | 3                                | 3                                |
| Floating-Point Performance    | 2.6          | 3.5          | 6.4            | 8                                | 9.4                              |
| VR Ready                      | X            | X            | Yes            | Yes                              | Yes                              |
| Simultaneous Multi-Projection | Yes          | Yes          | Yes            | Yes                              | Yes                              |
| NVIDIA FXAA/TXAA              | Yes          | Yes          | Yes            | Yes                              | Yes                              |

|  |     |     |     |     |     |
|--|-----|-----|-----|-----|-----|
| Antialiasing                               |     |     |     |     |     |
| NVIDIA nView Display Management Technology | Yes | Yes | Yes | Yes | Yes |
| GPU Direct for Video                       | X   | Yes | Yes | Yes | Yes |
| Vulkan Support                             | Yes | Yes | Yes | Yes | Yes |
| NVIDIA Optimus                             | Yes | Yes | Yes | 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 M.2 1216   |
| Connector interface                    | M.2 CNVio  |
| 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: 74.95mm*W: 204.5mm*T 13.66mm  |
| Weight                    | MAX 410g   |
| Type (Chemistry and Cell) | Li-Polymer (3S2P), 6-cell  |
| Voltage                   | 11.25V   |
| Battery Life              | On Charge Time (0- 100%) * 120 min<br>Off Charge Time (0 - 80%) ** 58 min<br>Off Charge Time (0 - 100%) ** 118 min |
| Battery Capacity          | 94Wh   |
| Charging Time             | No Quick charge capability<br>On Charge Time (0- 100%) * 131min  |

|                             |  |
|-----------------------------|--|
|                             | Off Charge Time (0 - 80%) ** 65 min<br>Off Charge Time (0 - 100%) ** 125 min       |
| Operating Temperature Range | between 10°C (50°F) and 35°C (95°F)  |
| Warranty                    | 1 Year/ 3 Year<br>SB10K97665 need new cell longevity test, plan finish 2019/07/17. |
| Coin Cell Battery (Model)   | CR2032-J056(MHLF)  |

## 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   |
| 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.<br>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    | <p>Published, Certified Existing Reports</p> <p>EMC - Australia<br/>           EMC - Belarus<br/>           EMC - Canada<br/>           EMC - China<br/>           EMC - EU/EFTA<br/>           EMC - Japan<br/>           EMC - Kazakhstan<br/>           EMC - New Zealand<br/>           EMC - Russia<br/>           EMC - South Korea<br/>           EMC - Taiwan<br/>           EMC - USA/Territories<br/>           Not Applicable / Not Required<br/>           EMC - Israel<br/>           EMC - Moldova<br/>           EMC - Serbia<br/>           EMC - Turkey<br/>           EMC - Uzbekistan<br/>           EMC - Vietnam</p>   |
| Safety | <p>To access the latest User Guide and Safety and Warranty Guide, go to:<br/> <a href="https://support.lenovo.com">https://support.lenovo.com</a></p> <p>Low Halogen Declaration of Conformance<br/>           TNOT-2017-0040<br/>           Section 9 - Low Halogen Scorecard<br/>           Izod Test - EPEAT Compliant<br/>           Homologation PCRB Compliant</p> <p>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</p> |

## Environmentals

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| Energy Star          | <p>ENERGY STAR® Version 7.1<br/>           For more information about ENERGY STAR, go to:<br/> <a href="https://www.energystar.gov">https://www.energystar.gov</a></p>  |
| EPEAT                | EPEAT Certification Available on select models  |
| IT ECO declaration   | <p>The latest environmental information about Lenovo products is available at:<br/> <a href="https://www.lenovo.com/ecodeclaration">https://www.lenovo.com/ecodeclaration</a></p>   |
| Hazardous Substances | <p>The latest environmental information about Lenovo products is available at:<br/> <a href="https://www.lenovo.com/ecodeclaration">https://www.lenovo.com/ecodeclaration</a><br/>           European Union RoHS<br/>           This Lenovo product, with included parts (cables, cords, and so on) meets the requirements of Directive</p> |

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

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|---|--|
| Industry Standard Specifications        | This product meets the following industry standard specifications for manageability functionality:   |
| Remote Manageability Software Solutions | Lenovo ThinkManagement Console<br>Microsoft System Center Configuration Manager<br>LANDesk Management Suite for Lenovo Vantage Technologies ( <a href="http://www.landesk.com/lenovo">www.landesk.com/lenovo</a> )   |
| System Software Manager                 | Lenovo ThinkStation supports software management tools from the ThinkVantage System Update suite:<br>System Update<br>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. |