Lenovo ThinkPad Laptops PSREF Product Specifications Reference Version 542, May 2019



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Summary of Changes

This section describes the technical changes made in this edition.

This edition might also include minor corrections and editorial changes which are not identified.

May 15, 2019 - Version 542

Additions in this update

► New product(s)

ThinkPad E495 models announced April 2019

ThinkPad E595 models announced April 2019

► New model(s)

ThinkPad E490 models announced April and May 2019

ThinkPad E590 models announced April and May 2019

ThinkPad L390 models announced April 2019

ThinkPad P1 models announced May 2019

ThinkPad P52 models announced April 2019

ThinkPad T480 models announced April 2019

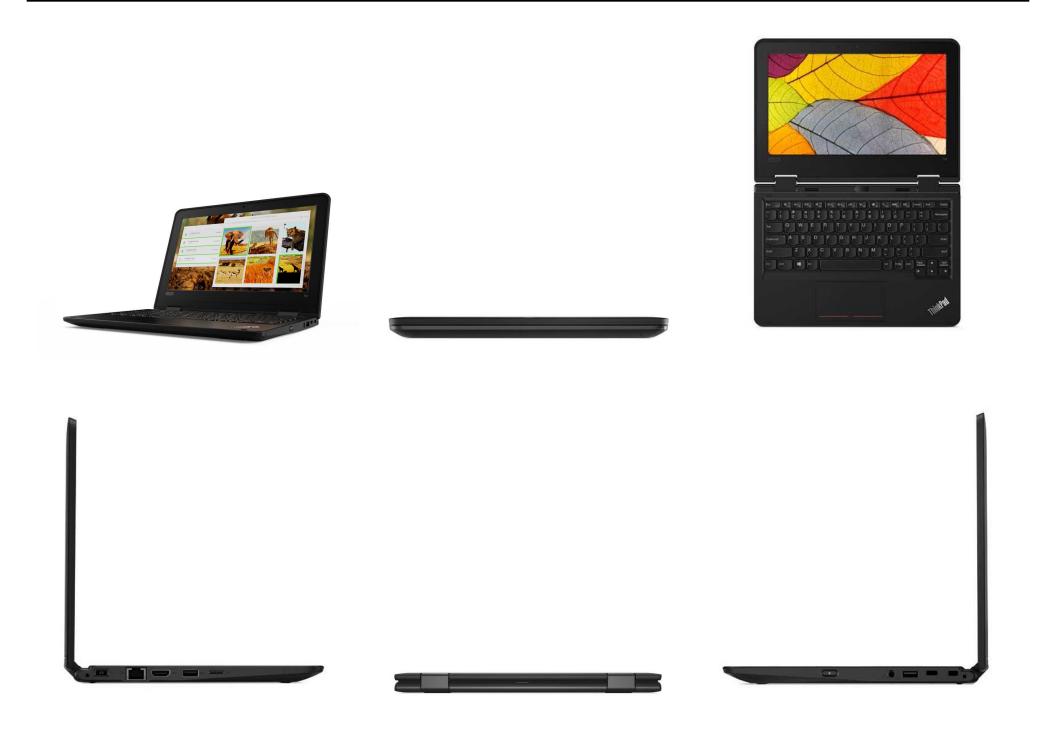
▶ Others

None

Withdrawals in this update

► Withdrawn product(s)

None



ThinkPad 11e (5th Gen) Platform Specifications

Processor	7th Generat Intel Pentiur				rocessor, I	Intel Ce	eleron® proces	sor, or	Dimensions Weight	WxDxH: 11.81" x 8.27" x 0.86"; 300mm x 210mm x 21.9mm Starting at 2.99 lb (1.36 kg)
	Processor Number	# of Cores	# of Threads	Base Frequency	Burst Frequency	Cache	Memory Types	Processor Graphics	Case color Case material	Black Display cover: PC/ABS+GF; Bottom: PC/ABS plastic
	m3-7Y30	2		1.0 GHz	2.6 GHz	4MB	LPDDR3-1866	Intel HD	Media reader	MicroSD card reader
	i5-7Y54			1.2 GHz	3.2 GHz	4MB	LI DDI13-1000	Graphics 615	Ports	Two USB 3.1 Gen 1, one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45),
	Celeron N4100		4	1.1 GHz	2.4 GHz	4MB		Intel UHD Graphics 600		headphone / microphone combo jack, microSD card reader, security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical speed
	Pentium Silver N5000	4		1.1 GHz	2.7 GHz	4MB	DDR4-2400	Intel UHD Graphics 605	Camera Audio support	HD720p camera, fixed focus HD Audio, Realtek® ALC3287 codec, stereo speakers, 2W x 2, Dolby® Audio™,
Graphics							5 in processor,			monaural digital microphone, combo audio/microphone jack
	supports ex supports du Max resolut	al inde	penden	t display;		٠.	096x2160@30	Hz (HDMI)	Keyboard Touchpad	6-row, spill-resistant, multimedia Fn keys Buttonless Mylar surface touchpad below keyboard, multi-touch
Chipset Memory	Intel SoC (S 4GB or 8GE soldered to	system 3 / 1866	on Chip 6MHz Ll) platform PDDR3 or	2400MHz	-		, ,	Security Security chip vPro Fingerprint reade	Power-on password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified None None
Display							ED backlight, ntrast ratio		NFČ	None
	Some: 11.0 250	6" (295) nits, 1	īmm) Hl 16:9 asp	D (1366x76 ect ratio, 8	68), anti-gl 00:1 contr	are, LE ast rati	ED backlight, If io, 170° viewin		Battery Max battery life	Integrated Li-ion 42Wh battery MobileMark® 2014: 13.9 hr * Battery life varies significantly with settings, usage, & other factors
Multi-touch		<i>,</i> ,		<i>′</i> '''	s 10-finger	gestu	re (HD IPS onl	y)	AC adapter	45W or 65W slim tip AC adapter
Storage	eMMC flash M.2 SSD / F				16Gh/e				Preload	Windows® 10 Home 64 or Windows 10 Pro 64
Optical	None	OIC IV	VIVIC, I	JIC 0.0 X Z	, 1000/3				Limited warranty	One of the following, configurable by model:
Ethernet	Realtek RTL	Realtek RTL8111GUS Gigabit Network Connection								1-year depot repair service3-year/1-yr battery depot repair service
WLAN +	One of the fol					Divers	- 4h		Mil-Spec test	MIL-STD-810G military certification
Bluetooth™							ooth 5.0, M.2 c ooth 5.0, M.2 c		Environment	EPEAT™ Silver; ENERGY STAR® 6.1; RoHS-compliant
WWAN	None									



ThinkPad A275 Platform Specifications

Processor	AMD PRO A-Se	eries A	PUs							er Optional: Smart card reader
	Processor	# of	# of	Base	Max Turbo	Cache	Memory	Processor	Media reader Ports	4-in-1 reader (MMC, SD, SDHC, SDXC) Two USB 3.1 Gen 1 (USB 3.0, one Always On),
	Number	Cores	Threads	Frequency	Frequency		Types	Graphics AMD	1 0110	USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort),
	PRO A10-8730B			2.4 GHz	3.3 GHz			Radeon™ R5 Graphics	Monitor cable	HDMI 1.4b, Ethernet (RJ-45) * Depending on many factors, actual data transfer speed may be lower than theoretical speed HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter
	PRO A12-8830B	4	4	2.5 GHz	3.4 GHz	2MB	DDR4-1866	AMD	(optional)	USB-C to VGA: Lenovo USB-C to VGA Adapter
	PRO A10-9700B	4		2.5 GHz	3.4 GHz			Radeon		USB-C to DP: Lenovo USB-C to DisplayPort Adapter
	PRO A12-9800B			2.7 GHz	3.6 GHz			R7 Graphics)HD720p resolution, fixed focus
	* Windows 7 is or	, ,,				O A12-8	830B		Audio support	HD Audio, Realtek ALC3268 codec / stereo speakers, 1.5W x 2 / dual array microphone, combo audio/microphone jack
Graphics	AMD Radeon F supports extern supports three i Max resolution:	nal digit indepe	tal monit ndent di	or via HDM splays;	I or USB Ty		160@2011-	(LIDMI)	Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, optional LED backlight TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
Ohinaat				`	Type-C); 4	1096X2	160@30HZ	(HDIVII)	Security	Power-on password, hard disk password, supervisor password, security keyhole
Chipset Memory	AMD SoC (Syst 16GB max / 186				SO-DIMM	socket			Security chip	dTPM 1.2: discrete TPM 1.2, TCG Certified dTPM 2.0: discrete TPM 2.0, TCG Certified
Display	Some: 12.5" (3 220 nits	317.5m s, 16:9	m) HD (1366x768), atio, 500:1	anti-glare, contrast rat	LED ba	•		Fingerprint reade	
	Some: 12.5" (3 300 nits	317.5m s, 16:9	m) FHD aspect r	(1920x108 atio, 700:1	0), anti-gla contrast rat	re, LED io, 170) backlight, ° viewing a	IPS, ngle	Internal battery External battery	Optional: Integrated Li-ion or Li-Polymer 3-cell (23Wh) Li-ion 3-cell (23Wh) or 6-cell (48Wh)
Multi-touch (opt)	On-cell touch, s	suppor	ts 10-fin	ger gesture	(FHD only,	US on	ly)		Max battery life	Models No + 3-cell 3-cell + 3-cell 3-cell + 6-cell 48Wh
Storage	System has one I								(MobileMark® 2014)	Wax battery life 3.05 III 10.1 III 15.0 III
	Some: HDD/S Some: SSD/S Some: M.2 SS	SATA 6	.0Gb/s,	2.5" wide, 7	mm high (e	e.g. xxx	rotection S GB SSD)	ystem™	AC adapter	* Battery life varies significantly with settings, usage, & other factors 45W slim tip AC adapter or 45W USB Type-C AC adapter
Optical	None	,,,,	710 11111	0, 1 010 0.0	x 2, 1000	•			Preload	Windows® 7 Professional 64 preinstalled Some: Windows 10 Home 64 through downgrade rights in Some: Windows 10 Pro 64
Ethernet	Realtek® RTL81	111EP	V Gigab	it Ethernet o	connection]	through downgrade rights in Some: Windows 10 Pro 64 Windows 10 Pro 64 Lenovo Companion
WLAN Bluetooth™	Realtek RTL882 Bluetooth 4.1 w									 Lenovo Solution Center Lenovo Setting Microsoft Office preloaded;
WWAN (optional)				by model:]	 ThinkVantage Product Recovery ThinkVantage System Update
	 Wireless WAN Integrated Mo Qualcomm® S 	bile Br	oadban	d 4G LTE-A	, Siorro Wirol	000 EM	17455)			Adobe® Reader® Microsoft® Office preloaded;
	* For non-WWAN	model.	it means	the model is	NOT WWAN	ess ⊑iv Lupgrad	able			purchase a product key to activate
SIM card (opt)	Micro-SIM card	Micro-SIM card slot, opt Verizon LTE (US) SIM card								McAfee® LiveSafe™ (30-day trial) One of the following and formula by the property of the following and following
Dimensions	<i>WxDxH:</i> 12.03								Limited warranty	One of the following, configurable by model: • 1-vear depot repair service
Weight	Models Weight 2									3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service
Case color	Black								Mil-Spec test	MIL-STD-810G military certification
Case material	Glass-Fiber Rei	Glass-Fiber Reinforced Plastic							Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant
Nister The server office									•	

Note: The specifications above may not be available in all regions.









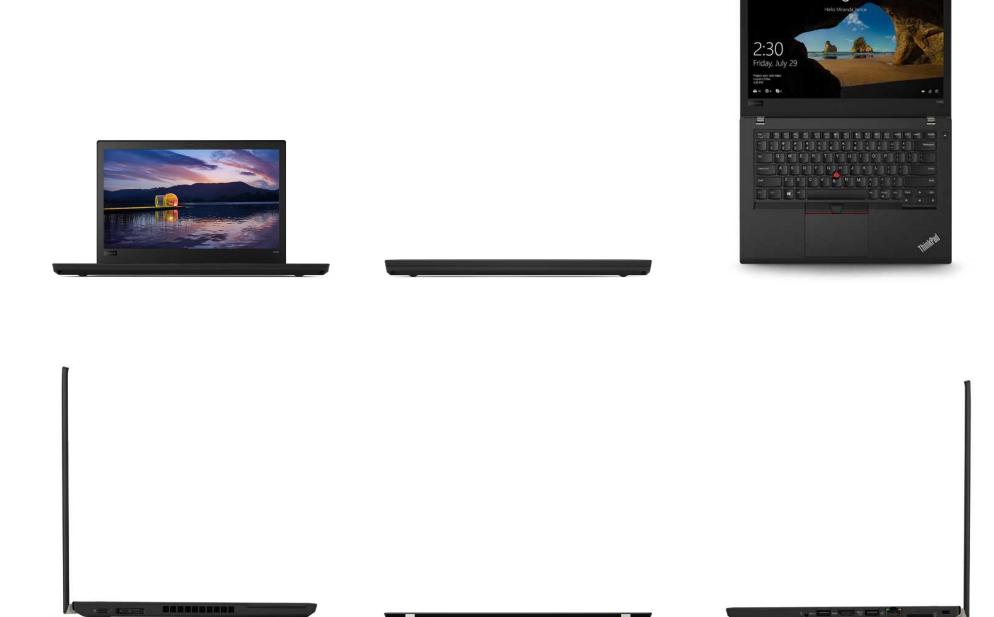
ThinkPad A285 Platform Specifications

Processor	AMD Ryzer	ı™ PRC) Mobile	Processors	s with Rade	on™ Vega	Graphics			er Optional: Smart card reader
	Processor Number	# of	# of Threads	Base	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Media reader Ports	MicroSD card reader, in the combo slot with nano-SIM card One USB 3.1 Gen 1 (Always On), one USB 3.1 Gen 2,
	Ryzen 3	Coles	4	2.0 GHz	3.4 GHz		Types	Radeon Vega		two USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 2.0, Ethernet extension connector,
	PRO 2300U		4	2.0 GHZ	3.4 GHZ	0145.10.4		6 Graphics		combo slot of nano-SIM card (WWAN models) and microSD card reader,
	Ryzen 5 PRO 2500U	4	8	2.0 GHz	3.6 GHz	2MB L2 / 4MB L3	DDR4-2400	Radeon Vega 8 Graphics		headphone / microphone combo jack, optional smart card reader, side docking connector, security keyhole
	Ryzen 7 PRO 2700U		8	2.2 GHz	3.8 GHz			Radeon Vega 10 Graphics	Monitor cable (optional)	* Depending on many factors, actuál data transfer speed may be lower than theoretical speed HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter
Graphics	supports ex	MD Radeon Vega 6, Vega 8, or Vega 10 Graphics in processor only; upports external digital monitor via HDMI or USB Type-C; upports four independent displays;								USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter Optional: ThinkPad Ethernet Extension Adapter Gen 2
	supports four independent displays; Max resolution: 5120x2880@60Hz (USB Type-C); 4096x2160@60Hz (HDMI)						2160@60H	z (HDMI)	Camera (optional	I) One of the following, configurable by model:
Chipset Memory	AMD SoC (8GB or 16G	Syster	n on Chi	o) platform					Audio support	HD720p camera with ThinkShutter camera privacy, fixed focus IR camera and HD720p camera, fixed focus HD Audio, Realtek ALC3287 codec /
Display		nits, 1	16:9 aspe	ct ratio, 40	0:1 contras	st ratio	_			stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack
Multi-touch (opt)	Some: 12.5 300 On-cell touc	nits, 1	16:9 aśpe	ect ratio, 80	0:1 contras	st ratio, 17	D backlight 0° viewing a		Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, optional LED backlight TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
Storage			•		<u> </u>	Jilly)			Security	Power-on password, hard disk password, supervisor password, security keyhole
Siolage	One of the following, configurable by model: • M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2) • M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVM								Security chip Fingerprint reade NFC	Discrete TPM 2.0, TCG Certified or Optional: Touch style match on chip fingerprint reader on the palm rest None
Optical	None				·				Battery	Integrated Li-ion 48Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
Ethernet	Gigabit Ethe via bundled				ernet Exter	sion Adap	oter Gen 2		Max battery life	with 65W USB Type-C AC adapter MobileMark® 2014: 10.55 hr
WLAN Bluetooth™	Realtek® R1 Bluetooth 4								* Battery life varies significantly with settings, usage, & other factors AC adapter 45W or 65W USB Type-C AC adapter	
WWAN (optional)	Integrated N								Preload	Windows® 10 Home 64 or Windows 10 Pro 64
SIM card (opt)	Intel XMM™ * For non-WW Nano-SIM o optional Ver	ard sl	ot, in the	combo slo					Limited warranty	One of the following, configurable by model: 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service
Dimensions	WxDxH (HL				mm x 209.8	8mm v 17	4mm		Mil-Spec test	MIL-STD-810G military certification
	WxDxH (FF	ID nor	n-touch):	,	mm x 209.8				Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant
Weight	FHD non-tou HD non-tou	FHD non-touch model: 2.49 lb / 1.13 kg; HD non-touch model: 2.78 lb / 1.26 kg; FHD multi-touch model: 2.79 lb / 1.27 kg								
Case color	FHD multi-t Black	ouch r	nodel: 2.	79 lb / 1.27	7 kg					
Case material	Display cov	Display cover: Carbon Fiber (FHD non-touch model) or PPS (HD & FHD multi-touch model);								
	Bottom:	ottom: Magnesium/Aluminum								



ThinkPad A475 Platform Specifications

Processor	AMD PRO A-Se	eries A	APUs							er Optional: Smart card reader
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Media reader Ports	4-in-1 reader (MMC, SD, SDHC, SDXC), supports SD 3.0, UHS-I Three USB 3.1 Gen 1 (USB 3.0, one Always On), USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort),
	PRO A10-8730B			2.4 GHz	3.3 GHz		AMD Radeon™ R5 Graphics	Monitor cable	HDMI 1.4b, Ethernet (RJ-45), Dock connector * Depending on many factors, actual data transfer speed may be lower than theoretical speed Optional: Lenovo USB-C to VGA Adapter	
	PRO A12-8830B PRO A10-9700B PRO A12-9800B	1	4	2.5 GHz 2.5 GHz 2.7 GHz	3.4 GHz 3.4 GHz 3.6 GHz	2MB	DDR4-1866	AMD Radeon R7 Graphics		//HD720p resolution, fixed focus HD Audio, Realtek ALC3268 codec / stereo speakers, 2W x 2 / dual array microphone, combo audio/microphone jack
	* Windows 7 is or	าly supp	ported by	PRO A10-87	30B and PR	O A12-8	830B		Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight
Graphics	AMD Radeon F supports extern supports three Max resolution:	nal digi indepe	tal monit endent di	or via HDM splays;	II or USB T		160@30Hz	(HDMI)	UltraNav™ Security Security chip	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad Power-on password, hard disk password, supervisor password, security keyhole dTPM 1.2: discrete TPM 1.2, TCG Certified dTPM 2.0: discrete TPM 2.0. TCG Certified
Chipset Memory	AMD SoC (Sys: 32GB max / 18	tem or 66MH:	n Chip) p z DDR4,	latform dual-chann	el capable	, two DI	DR4 SO-DI	MM sockets	Fingerprint reade	
Display	220 nits Some: 14.0" (3	32GB max / 1866MHz DDR4, dual-channel capable, two DDR4 SO-DIMM so Some: 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 350:1 contrast ratio Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle								Optional: Integrated Li-Polymer 3-cell (24Wh) Li-Polymer 3-cell (24Wh) or Li-ion 6-cell (48Wh) Models 3-cell 3 + 3-cell 6-cell 48Wh 3 + 6-cell 48Wh Max battery life 5.13 hr 10.26 hr 10.26 hr 15.4 hr
Multi-touch (opt) Storage	On-cell touch, s	suppor	ts 10-fin	ger gesture	(FHD only	US on	ly)		AC adapter	* Battery life varies significantly with settings, usage, & other factors 45W or 65W slim tip AC adapter, 45W or 65W USB Type-C AC adapter
Optical	Some: HDD/S	System has one HDD slot or one M.2 2280 slot exclusively for storage Some: HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™ Some: SSD / SATA 6.0Gb/s, 2.5" wide, 7mm high (e.g. xxxGB SSD) Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s							Preload	Windows® 7 Professional 64 preinstalled Some: Windows 10 Home 64 through downgrade rights in Windows 10 Pro 64 • Lenovo Companion • Lenovo Solution Center • Lenovo Setting
Ethernet	Realtek® RTL8	111EP	V Gigab	it Ethernet	connection				1	 Lenovo PowerEngage Microsoft Office preloaded;
WLAN Bluetooth™	Realtek RTL882 Bluetooth 4.1 w									 ThinkVantage Product Recovery ThinkVantage System Update Adobe® Reader®
WWAN (optional)	Wireless WANIntegrated Mo	V upgrabile B	adable roadban	d 4G LTE-A		-	17455)			 Microsoft® Office preloaded; purchase a product key to activate McAfee® LiveSafe™ (30-day trial)
SIM card (opt)	Qualcomm® S * For non-WWAN Micro-SIM card	model,	, it means	the model is	NOT WWAN	ess ⊨iv I upgrad	17455) able		Limited warranty	One of the following, configurable by model: 1-year depot repair service
Dimensions									1	 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service
Weight	Models	_	cell or 3 +		6-cell or 3		1		Mil-Spec test	MIL-STD-810G military certification
	Magnesium PPS		3.49 lb / 1. 3.63 lb / 1.		3.92 lb / 4.35 lb /				Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant
Case color Case material	Black Display cover: Magnesium Hybrid or PPS (Magnesium Hybrid for US only); Bottom: Glass-Fiber Reinforced Plastic							only);		
Note: The specifica	lote: The specifications above may not be available in all regions.									



ThinkPad A485 Platform Specifications

Processor	AMD Ryzen™ Pf	RO Mobile	Processors	with Rade	eon™ Vega	Graphics		Smart card reade	r Optional: Smart card reader	
	Processor # c			Max Turbo	Cache	Memory	Processor	Media reader Ports	4-in-1 reader (MMC, SD, SDHC, SDXC), supports SD 3.0, UHS-I One USB 3.1 Gen 1 (Always On), one USB 3.1 Gen 2,	
		es Threads	Frequency	Frequency	Odone	Types	Graphics	FOILS	two USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort),	
	Ryzen 3 PRO 2300U	4	2.0 GHz	3.4 GHz			Radeon Vega 6 Graphics		HDMI 2.0, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader.	
	Ryzen 5 PRO 2500U 4	8	2.0 GHz	3.6 GHz	2MB L2 / 4MB L3	DDR4-2400	Radeon Vega 8 Graphics		4-in-1 media reader (MMC, SD, SDHC, SDXC), side docking connector,	
	Ryzen 7				4IVID L3		Radeon Vega		security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical speed	
	PRO 2700U	8	2.2 GHz	3.8 GHz				Monitor cable(opt	HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter	
Graphics	AMD Radeon Vega 6, Vega 8, or Vega 10 Graphics in processor only;							Comera (entional	USB-C to DP: Lenovo USB-C to DisplayPort Adapter One of the following, configurable by model:	
		supports external digital monitor via HDMI or USB Type-C; supports four independent displays;							HD720p camera with ThinkShutter camera privacy, fixed focus	
	Max resolution:	5120x288	0@60Hz (l	JSB Type-0	C); 4096x2	2160@60H	z (HDMI)		IR camera and HD720p camera, fixed focus	
Chipset	AMD SoC (Syst	em on Chi	p) platform					Audio support	HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium /	
Memory	32GB max / 240	0MHz DD are actually	R4, dual-ch <i>2666MHz bi</i>	nannel capa at run at 240	able, two D OMHz due t	DR4 SO-D o AMD limita	IMM sockets		dual array microphone, headphone / microphone combo jack	
Display	Some: 14.0" (3	55mm) HE		3), anti-glar	e, LED ba			Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, optional LED backlight TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad	
	Some: 14.0" (3	55mm) FH	D (1920x1)	080), anti-g	lare, LED			Security	Power-on password, hard disk password, supervisor password, security keyhole	
Multi-touch (opt)	250 nits	, 16:9 asp	ect ratio, 70	0:1 contras	st ratio, 17	0° viewing a	angle	Security chip Fingerprint reade	Discrete TPM 2.0, TCG Certified r Optional: Touch style match on chip fingerprint reader on the keyboard bezel	
Storage		touch, supports 10-finger gesture (FHD only) as one HDD slot or one M.2 2280 slot exclusively for storage						NFC	None	
Storage	Some: HDD / S						System™	Battery	Integrated Li-ion 24Wh battery and	
	Some: SSD/S					xGB SSD)		external Li-ion 24Wh, 48Wh, or 72Wh battery		
	Some: M.2 SS Some: 128GB					o/s.		Max battery life (MobileMark® 2014)	Models 24Wh 48Wh 72Wh 24Wh + 24Wh 24Wh + 48Wh 24Wh + 72Wh Max battery life 5.37 hr 10.76 hr 16.4 hr 10.76 hr 16.4 hr 22.15 hr	
.	in WWA		2nd Storage				l	(,	Max battery life 5.37 hr 10.76 hr 16.4 hr 10.76 hr 16.4 hr 22.15 hr * Battery life varies significantly with settings, usage, & other factors	
Optical	None							AC adapter	45W or 65W USB Type-C AC adapter	
Ethernet	Realtek® RTL81		•					Preload	Windows® 10 Home 64 or Windows 10 Pro 64	
WLAN Bluetooth™	Realtek RTL882 Bluetooth 4.1 w							Limited warranty	One of the following, configurable by model:	
WWAN (optional)					Ziootii com	bo adapter		-	1-year depot repair service3-year/1-yr battery depot repair service	
vvvAiv (optional)	Intel XMM™ 736	0 (Fibocor	n L850-GL)	, M.2 card					3-year/1-yr battery limited onsite service	
SIM card (opt)	* For non-WWAN Nano-SIM card					dable		Mil-Spec test	MIL-STD-810G military certification	
Dimensions				, ,		v 19 95mm		Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant	
Weight	WxDxH: 13.25" x 9.15" x 0.79"; 336.6mm x 232.5mm x 19.95mm Models 24Wh or 24Wh + 24Wh 48Wh, 72Wh, or 24Wh + 48Wh / 72Wh								(),,	
	Magnesium		/ 1.58 kg	,	3.92 lb /					
	PPS	3.63 lb	/ 1.65 kg		4.08 lb /	.85 kg				
Case color	Black	M	ت - اماسطانا - ∵	DDC.						
Case material	Display cover: Magnesium Hybrid or PPS; Bottom: Glass-Fiber Reinforced Plastic									
	ations shows may							1	Longue	









ThinkPad E480 Platform Specifications

Processor	7th Generation Intel® Co		or		Dimensions	Aluminum (WxDxH): 12.96" x 9.53" x 0.78"; 329mm x 242mm x 19.9mm PC/ABS (WxDxH): 12.96" x 9.53" x 0.83"; 329mm x 242mm x 21.9mm
	Processor # of # of Number Cores Threads	Base Max Turbo Frequency Frequency	Cache Memory Types	Processor Graphics	Weight Case color Case material	Starting at 3.87 lb / 1.75kg Black or silver Display cover: Aluminum or PC/ABS plastic;
	i3-7020U i3-7130U 2 4	2.3 GHz -	3MB	Intel HD Graphics	Case material	Bottom: PC/ABS plastic,
	i3-7130U 2 4 i5-7200U	2.7 GHz - 2.5 GHz 3.1 GHz	3MB DDR4-213	620	Smart card reade	
	8th Generation Intel Cor			•	Media reader Ports	MicroSD card reader One USB 2.0, two USB 3.1 Gen 1 (one Always On),
		Base Max Turbo s Frequency Frequency	Types Types	Processor Graphics		one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole
	i3-8130U 2 4 i5-8250U 4 8	2.2 GHz 3.4 GHz 1.6 GHz 3.4 GHz 1.8 GHz 4.0 GHz	4MB	Intel UHD Graphics 620	Camera	* Depending on many factors, actual data transfer speed may be lower than theoretical speed HD720p camera, fixed focus
Graphics	Intel HD Graphics 620 o Intel HD Graphics 620 o	r Intel UHD Graphics 6 r Intel UHD Graphics 6	20 in processor o 20 in processor a		Audio support	HD Audio, Conexant® CX11852 codec / stereo speakers, 1.5W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack
	AMD Radeon RX 550 G supports external digital supports dual independent	monitor via HDMI or U			Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, optional LED backlight TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
	Max resolution: 1920x1	080 (HDMI)@60Hz			Security Security chip (on	Power-on password, hard disk password, supervisor password, security keyhole ht)Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified
Chipset Memory	Intel SoC (System on Cl 32GB max / 2400MHz D * System clocks down for	DÁ4, dual-channel ca			vPro	None er <i>Optional:</i> Touch style fingerprint reader on the palm rest None
Display	Some: 14.0" (355mm) F 220 nits, 16:9 as Some: 14.0" (355mm) F	spect ratio, 400:1 contra	ast ratio	•	Battery Max battery life	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter MobileMark® 2014: 13.51 hr
Multi-touch		spect ratio, 400:1 contra		g, e,	AC adapter	* Battery life varies significantly with settings, usage, & other factors 45W or 65W USB Type-C AC adapter
Storage	Up to 2 drives (one M.2 SS Some: HDD / SATA 6.0		able upgradable		Preload (optional	/) Windows® 10 Home 64 or Windows 10 Pro 64
	Active Protection	System™	abie, upgrauabie,		I	1-year depot repair service
Optical	Some: M.2 SSD / PCIe None	NVMe			Mil-Spec test	MIL-STD-810G military certification
Ethernet	Gigabit Ethernet Connec	ction, Realtek R8111G	US		Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant
WLAN + Bluetooth™	One of the following, config • Realtek® RTL8821CE, • Realtek RTL8822BE, \ • Intel Dual Band Wirele * Intel 3165ac card supp	urable by model: Wi-Fi 1x1 802.11ac + Wi-Fi 2x2 802.11ac + B ss-AC 3165, 1x1, Wi-F	Bluetooth 4.1, M.2 Bluetooth 4.1, M.2 i + Bluetooth 4.1,	card M.2 Card		
WWAN SIM card	None None					
Note: The speci	fications above may not be av	ailable in all regions.				Lenovo



ThinkPad E485 Platform Specifications

Processor	AMD Ryze	en™ Mo	obile Pro	cessors wit	h Radeon	™ Vega G	raphics		Dimensions	Aluminum (WxDxH): 12.96" x 9.53" x 0.78"; 329mm x 242mm x 19.9mm
	Processor Number		# of Threads	Base Frequency	Max Turbo Frequency		Memory Controller	Processor Graphics	Weight	PC/ABS (WxDxH): 12.96" x 9.53" x 0.86"; 329mm x 242mm x 21.9mm Starting at 3.87 lb / 1.75kg
	Ryzen 3 2200U	2	4	2.5 GHz	3.4 GHz	1MB L2 / 4MB L3		Radeon Vega 3 Graphics	Case color Case material	Black Display cover: Aluminum or PC/ABS plastic; Bottom: PC/ABS plastic
	Ryzen 5 2500U	4	8	2.0 GHz	3.6 GHz	2MB L2 / 4MB L3	DDR4-2400	Radeon Vega 8 Graphics	Smart card reade	rNone
	Ryzen 7 2700U	4		2.2 GHz	3.8 GHz	2MB L2 / 4MB L3		Radeon RX Vega 10 Graphics	Media reader Ports	MicroSD card reader One USB 2.0, two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort),
Graphics	supports of supports of	externa dual in	al digital depende	monitor via ent display;	HDMI or	Graphics USB Type	in processo e-C;	r;		HDMI 1.4b, Ethernet (RI-45), headphone / microphone combo jack, microSD card reader, security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical speed
Object				080 (HDMI)					Camera	HD720p camera, fixed focus HD Audio, Conexant® CX11852 codec /
Chipset Memory	32GB max	x / 240	00MHz D		channel ca	<u> </u>)-DIMM sockets	stereo speakers, 1.5W x 2, Dolby® Advanced Audio /	
Display	22	Some: 14.0" (355mm) HD (1366x768), anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 400:1 contrast ratio Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS,								6-row, spill-resistant, multimedia Fn keys TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
Multi-touch	None 25	50 nits	, 16:9 as	spect ratio, 4	100:1 cont	rast ratio	_		Security Security chip	Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified
Storage	Some: HI	DD`/ S	ATA 6.0	<i>D and one HI</i> Gb/s, 2.5" w		vable, up	gradable,		Fingerprint reader	rNone None
•	Some: M.			System™ NVMe					Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
Optical	None								Max battery life	MobileMark® 2014: 9.37 hr
Ethernet				ction, Realte		1GUS			AC adapter	* Battery life varies significantly with settings, usage, & other factors 45W or 65W USB Type-C AC adapter
WLAN + Bluetooth™				urable by mod		. Bluetoc	th 4.1 M.2	oard		Windows® 10 Home 64 or Windows 10 Pro 64
Didetootii	 Qualcomm QCNFA435, Wi-Fi 1x1 802.11ac + Bluetooth 4.1, M.2 card Realtek® RTL8821CE, Wi-Fi 1x1 802.11ac + Bluetooth 4.1, M.2 card 								l—————————————————————————————————————	1-year depot repair service
	Realtek	RTL88	322BE, V	Ni-Fi 2x2 80)2.11ac + l	Bluetooth	4.1, M.2 ca	rd	Mil-Spec test	None
WWAN SIM card	None None								Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

Note: The specifications above may not be available in all regions.



(intel)





















ThinkPad E490 Platform Specifications

Processor	8th Generation Intel®	® Core™ i3 / i	/ i7 Process	or				Dimensions	Aluminum (WxDxH): 12.96" x 9.53" x 0.78"; 329mm x 242mm x 19.9mm
		# of Base reads Frequen	Max Turbo ry Frequency	Cache	Memory Types		Processor Graphics	Weight Case color	PC/ABS (WxDxH): 12.96" x 9.53" x 0.83"; 329mm x 242mm x 21.9mm Starting at 3.87 lb / 1.75 kg Black or silver
	i5-8265U	4 2.1 GH 8 1.6 GH	3.9 GHz	4MB 6MB 8MB	DDR4-240	ntel l	UHD Graphics 620	Case color Case material	Display cover: Aluminum or PC/ABS plastic; Bottom: PC/ABS plastic
	i7-8565U	1.8 GH	4.6 GHz	8MB				Smart card reade	
Graphics	Intel UHD Graphics Intel UHD Graphics AMD Radeon RX 55 supports external dig supports dual indep Max resolution: 409	620 in proces 50X Graphics, gital monitor vendent displa	sor and 2GB DDR5 I ia HDMI or U T	ISB Typ	e-C;	@24Hz	(HDMI)	Media reader Ports	MicroSD card reader One USB 2.0, two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical speed None
Chipset	Intel SoC (System of	n Chip) platfo	m					Monitor cable Bundled Accv	None
Memory	32GB max / 2400MF * Installed memory is							Camera Audio support	HD720p camera, fixed focus HD Audio, Conexant® CX11880 codec /
Display	Size / Resolution		pe Brightness	Ratio	Contrast Ratio	Angle	Multi-touch	Addio Support	stereo speakers, 1.5W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack
	14.0" HD (1366x768)		N 220 nits	16:9	400:1	90°	Non-touch	Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight
	14.0" FHD (1920x1080	0) Anti-glare I	PS 250 nits	16:9	600:1	170°	Non-touch	UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
Multi-touch	None							Security	Power-on password, hard disk password, supervisor password, security keyl
Storage	 Up to two drives (one M HDD / SATA 6.0Gb M.2 SSD / SATA 6. M.2 SSD / PCIe N 	b/s, 2.5" wide, i.0Gb/s	7mm high, A	ctive Pr	otection S	System™	М	Security chip System Mgt	Integrated model: discrete TPM 2.0, TCG Certified firmware TPM 2.0 integrated in chipset None r Optional: Touch style fingerprint reader on the palm rest
Optane™ memor	v <i>Optional:</i> Intel Optai			Cle 3.0) x 2			NFC	None
Optical	None	,, .		2.5 0.0	=			Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
Ethernet	Gigabit Ethernet Cor	nnection, Rea	tek R8111G	US				1 1	with 65W USB Type-C AC adapter
WLAN +	One of the following,	, configurable	by model:					Max battery life	MobileMark® 2014: 13 hr * Battery life varies significantly with settings, usage, & other factors
Bluetooth™	 Realtek® RTL8822 Intel Wireless-AC 9 						I	AC adapter	45W or 65W USB Type-C AC adapter
WWAN	None	· · · · · · · · · · · · · · · · · · ·						l) Windows® 10 Home 64 or Windows 10 Pro 64
								Limited warranty	1-year depot repair service
								Mil-Spec test	MIL-STD-810G military certification
								Environment	EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo May 2019













ThinkPad E495 Platform Specifications

Processor	AMD Ryz	en™ Mo	obile Pro	ocessors w	ith Radeon	™ Vega G	raphics		Dimensions	Aluminum (WxDxH): 12.96" x 9.53" x 0.78"; 329mm x 242mm x 19.9mm
	Processor Number		# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Controller	Processor Graphics	Weight	PC/ABS (WxDxH): 12.96" x 9.53" x 0.83"; 329mm x 242mm x 21.9mm Starting at 3.87 lb / 1.75 kg
	Ryzen 3 3200U	2	4	2.6 GHz	3.5 GHz	1MB L2 / 4MB L3	<u>'</u>	Radeon Vega 3 Graphics	Case material	Black Display cover: Aluminum or PC/ABS plastic; Bottom: PC/ABS plastic
	Ryzen 5 3500U		8	2.1 GHz	3.7 GHz	2MB L2 / 4MB L3	DDR4-240	Radeon Vega 8 Graphics	Smart card reade	erNone
	Ryzen 7 3700U	-		2.3 GHz	4.0 GHz	2MB L2 / 4MB L3		Radeon RX Veg 10 Graphics	Media reader Ports	MicroSD card reader One USB 2.0, two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort),
Graphics	supports of supports of Max resol	externa dual in lution:	al digital depend 3840x2	monitor vi ent display 160@60H:	z (USB Type	USB Type	e-C;	sor; 30Hz (HDMI)	Monitor cable Bundled Accy	HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical speed None None
Memory	32GB ma	AMD SoC (System on Chip) platform 32GB max / 2400MHz DDR4, dual-channel capable, two DDR4 SO-DIMM socke * Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation							Camera Audio support	HD720p camera, fixed focus HD Audio, Conexant® CX11880 codec / stereo speakers, 1.5W x 2, Dolby® Advanced Audio /
Display	Size / Reso	olution	5	Surface Ty	pe Brightnes	Aspect Ratio	Contrast Vi	ewing Multi-touch		dual array microphone, headphone / microphone combo jack
	14.0" HD (nti-glare T		16:9	400:1	90° Non-touch	—⊩Uitrainav™	6-row, spill-resistant, multimedia Fn keys TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
Multi-touch	None	(1920x	(1080) A	nti-glare IP	S 250 nits	16:9	600:1	170° Non-touch	Security Security chip	Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified
Storage	• HDD / S	SATA 6	.0Gb/s,	SSD and one 2.5" wide,	7mm high, .	Active Pro	otection Sy	stem™	Fingerprint reade NFC	er None None
Optane™ memor Optical		J/PC	ie nvivie	e, PCIe 3.0	x 2 or PCI	9 3.0 x 4			Battery Max battery life	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter MobileMark® 2014: 11 hr
Ethernet	Gigabit Et	therne	t Conne	ction, Real	tek R81110	BUS				* Battery life varies significantly with settings, usage, & other factors
WLAN +				nfigurable i					AC adapter	45W or 65W USB Type-C AC adapter
Bluetooth™	 Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card 									/) Windows® 10 Home 64 or Windows 10 Pro 64
NAMA (A A I		eiess-	AC 9260), VVI-FI 2X2	2 802.11ac	+ Blueto	otn 5.0, IVI.	2 card	Limited warranty	
WWAN	None								Mil-Spec test	None
Note: The energia									Environment	EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant

Note: The specifications above may not be available in all regions.











ThinkPad E580 Platform Specifications

Processor	7th Generation Intel® Co	ore™ i3 / i5 Processo	or			WLAN +	One of the following, configurable by model:
	Processor # of # of Number Cores Threac	Base Max Turl		Memory	Processor	Bluetooth™	 Realtek® RTL8821CE, Wi-Fi 1x1 802.11ac + Bluetooth 4.1, M.2 card Realtek RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card
	i3-7020U	ls Frequency Frequen 2.3 GHz -	3MB	Types	Graphics	1	Intel Dual Band Wireless-AC 3165, 1x1, Wi-Fi + Bluetooth 4.1, M.2 Card
	i3-7130U 2 4	2.7 GHz -	3MB	DDR4-2133	Intel HD Graphics	1404/441	* Intel 3165ac card supports BT4.2 but is limited to BT4.1 by Windows OS
	i5-7200U	2.5 GHz 3.1 GH	z 3MB		620	WWAN SIM card	None None
	8th Generation Intel Co	re i3 / i5 / i7 Processo	r			Dimensions	WxDxH: 14.53" x 9.92" x 0.78"; 369mm x 252mm x 19.95mm
	Processor # of # of Number Cores Thread	Base Max Turl		Memory Types	Processor Graphics	Weight Case color	Starting at 4.7 lb / 2.1kg Black or silver
	i3-8130U 2 4	2.2 GHz 3.4 GH			Intel UHD Graphics	Case material	Display cover: Aluminum;
	i5-8250U 4 8	1.6 GHz 3.4 GH		DDR4-2400	620	Smart card reade	Bottom: PC/ABS plastic
	i7-8550U + 0	1.8 GHz 4.0 GH	Z SIVIB			Media reader	MicroSD card reader
Graphics	Intel HD Graphics 620 of Intel HD Graphics 620 of AMD Radeon RX 550 of Supports external digita	or Intel UHD Graphics or Intel UHD Graphics Graphics, 2GB DDR5 I monitor via HDMI on	620 in p memory;	rocessor ar		- Ports	One USB 2.0, two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical speed
	supports dual independ Max resolution: 1920x1	080 (HDMI)@60Hz				Camera Audio support	HD720p camera, fixed focus HD Audio, Conexant® CX11852 codec /
Chipset Memory	Intel SoC (System on C 32GB max / 2400MHz I * System clocks down for	DDŔ4, dual-channel d	apable,	two DDR4 S	O-DIMM sockets		stereo speakers, 2W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack
Display	Some: 15.6" (396mm)	HD (1366x768), anti-	glare, LE	D backlight		Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlight TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
	Some: 15.6" (396mm)	spect ratio, 400:1 cor FHD (1920x1080), a spect ratio, 600:1 cor	nti-glare,	LED backlig	ght, IPS,		Power-on password, hard disk password, supervisor password, security keyhole t)Firmware TPM 2.0 integrated in chipset or discrete TPM 2.0 TCG Certified
Multi-touch	None	,		-		vPro Fingerprint reade	None r Optional: Touch style fingerprint reader on the palm rest
Storage	Up to 2 drives (one M.2 SS Some: HDD / SATA 6.0	SD and one HDD)	wahla u	narodoblo		NFC	None
	Active Protection	n System™	ovable, u	pyrauabie,		Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
Optical	Some: M.2 SSD / PCIe None	e NVMe				Max battery life	MobileMark® 2014: 12.23 hr
Ethernet	Gigabit Ethernet Conne	ction Realtek B8111	GUS			-	* Battery life varies significantly with settings, usage, & other factors 45W or 65W USB Type-C AC adapter
Luiemet	digabit Ethernet Conne	ction, Healter Holli	a03			AC adapter	Windows® 10 Home 64 or Windows 10 Pro 64
						1	
						Mil-Spec test	1-year depot repair service MIL-STD-810G military certification
						Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant
						LUMIOUIUEUR	LI LAI GOO GIIIY), LINENGT STAN 0.1, NOTIS-COMPITANT

Note: The specifications above may not be available in all regions.



ThinkPad E585 Platform Specifications

Processor	AMD Ryzen™ N	Nobile Pro	ocessors wi	th Radeon	[™] Vega Gı	aphics		Dimensions	<i>WxDxH:</i> 14.53" x 9.92" x 0.79"; 369mm x 252mm x 19.95mm	
	Processor # of Number Core			Max Turbo Frequency	Cache	Memory Controller	Processor Graphics	Weight Case color	Starting at 4.7 lb / 2.1kg Black	
	Ryzen 3 2200U 2	4	2.5 GHz	3.4 GHz	1MB L2 / 4MB L3		Radeon Vega 3 Graphics	Case material	Display cover: Aluminum; Bottom: PC/ABS plastic	
	Ryzen 5 2500U	8	2.0 GHz	3.6 GHz	2MB L2 / 4MB L3	DDR4-2400	Radeon Vega 8 Graphics	Smart card reade Media reader	MicroSD card reader	
	Ryzen 7 4 2700U	0	2.2 GHz	3.8 GHz	2MB L2 / 4MB L3		Radeon RX Vega 10 Graphics	Ports	One USB 2.0, two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack,	
Graphics	AMD Radeon \ supports exteri	/ega 3, V	ega 8, or R	K Vega 10 i HDMI or l	Graphics JSB Type	in processo -C;	r only;		microSD card reader, security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical speed	
	supports dual i Max resolution			@60Hz				Camera Audio support	HD720p camera, fixed focus HD Audio, Conexant® CX11852 codec /	
Chipset Memory	AMD SoC (Sys 32GB max / 24				apable, tw	o DDR4 SC	-DIMM sockets		stereo speakers, 1.5W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack	
Display		s, 16:9 a	spect ratio,	400:1 cont	rast ratio	(NOT availa	ble in EMEA)	Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad	
			FHD (1920) spect ratio,			ÈD backligh	t, IPS,	Security Security chip	Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified	
Multi-touch Storage	None Up to 2 drives (o							Fingerprint reader	rNone None	
ŭ		Protection	n System™	vide, remo	vable, upo	gradable,		Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter	
Optical	Some: M.2 SS None	SD / PCle	NVMe					Max battery life	MobileMark® 2014: 8.63 hr * Battery life varies significantly with settings, usage, & other factors	
Ethernet	Gigabit Ethern	et Conne	ction, Realt	ek RTL811	1GUS			AC adapter	45W or 65W USB Type-C AC adapter	
WLAN +	One of the follow							Preload (optional)) Windows® 10 Home 64 or Windows 10 Pro 64	
Bluetooth™	Qualcomm Q Daylor BTI							Limited warranty	1-year depot repair service	
	 Realtek® RTL8821CE, Wi-Fi 1x1 802.11ac + Bluetooth 4.1, M.2 card Realtek RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card 							Mil-Spec test	None	
WWAN SIM card	None None							Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant	

























ThinkPad E590 Platform Specifications

Processor								Dimensions	<i>WxDxH</i> : 14.53" x 9.94" x 0.78"; 369mm x 252.5mm x 19.9mm				
	Processor # of Number Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types			Weight Case color Case material	Starting at 4.68 lb / 2.12 kg Black or silver Display cover: Aluminum;			
	i3-8145U 2	4	2.1 GHz	3.9 GHz	4MB		Intel I I	IHD Graphice		Bottom: PC/ABS plastic			
	i5-8265U i7-8565U 4	8	1.6 GHz 1.8 GHz	3.9 GHz 4.6 GHz	6MB 8MB	DDR4-240	o linter o	IHD Graphics 620	Smart card reade Media reader	'			
Graphics	Intel UHD Graphic Intel UHD Graphic AMD Radeon RX supports external supports dual inde Max resolution: 40	cs 620 ii 550X G digital r epender 096x23	n processor raphics, 20 nonitor via nt display; 04@60Hz (r and 3B DDR5 n HDMI or U USB Type-	SB Typ	e-C;)24Hz (HDMI)	Ports Monitor cable Bundled Accy	One USB 2.0, two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 2 (with the function of Power Delivery and DisplayPo HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack, microSD card reader, security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical sp. None None			
Chipset Memory	Intel SoC (System 32GB max / 2400l * Installed memor	MHz DE	DÁ4, dual-c	hannel cap	able, to	wo DDR4 : OMHz due	SO-DIM to Inte	MM sockets I limitation	Camera Audio support	HD720p camera, fixed focus HD Audio, Conexant® CX11880 codec / stereo speakers, 2W x 2, Dolby® Advanced Audio /			
Display	Size / Resolution	Su	rface Type	Brightness	Aspect Ratio	Contrast V Ratio	/iewing Angle	Multi-touch		dual array microphone, headphone / microphone combo jack			
	15.6" HD (1366x768		-glare TN	220 nits	16:9	400:1	90°	Non-touch	Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlight TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad			
Multi-touch	15.6" FHD (1920x10 None	080) Ant	i-glare IPS	250 nits	16:9	600:1	170°	Non-touch	Security Security chip	Power-on password, hard disk password, supervisor password, security keyhole			
Storage	Up to two drives (one • HDD / SATA 6.00 • M.2 SSD / SATA • M.2 SSD / PCle	Gb/s, 2. 6.0Gb/	5" wide, 7n s	nm high, Ad	ctive Pr	otection Sy	ystem™		System Mgt	None district TW 2.0 integrated in chipset None er Optional: Touch style fingerprint reader on the palm rest None			
Optane™ memory Optical	y <i>Optional:</i> Intel Op None				Cle 3.0) x 2			Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter			
Ethernet	Gigabit Ethernet C	Connect	ion, Realte	k R8111Gl	JS				Max battery life	MobileMark® 2014: 11 hr			
WLAN +	One of the following,								AC adapter	* Battery life varies significantly with settings, usage, & other factors 45W or 65W USB Type-C AC adapter			
Bluetooth™	 Realtek® RTL888 Intel Wireless-A0 	22BE, V C 9260.	Vi-Fi 2x2 80 Wi-Fi 2x2 8)2.11ac + E 302.11ac +	Bluetoo Blueto	th 4.2, M.2 oth 5.0, M	2 card .2 card		Preload (optional) Windows® 10 Home 64 or Windows 10 Pro 64				
WWAN	None					•			Limited warranty	1-year depot repair service			
									Mil-Spec test	MIL-STD-810G military certification			
									Environment	EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant			













ThinkPad E595 Platform Specifications

Processor AMD Ryzen™ Mobile Processors with Radeon™ Vega Graphics										Dimensions	<i>WxDxH</i> : 14.53" x 9.92" x 0.78"; 369mm x 252mm x 19.9mm		
				Weight Case color									
		Cores	Inreads	Frequency	Frequency		Controlle		Graphics	Case material	Display cover: Aluminum;		
	Ryzen 3 3200U	2	4	2.6 GHz	3.5 GHz	1MB L2 / 4MB L3		Ha	adeon Vega 3 Graphics		Bottom: PC/ABS plastic		
	Ryzen 5 3500U		8	2.1 GHz	3.7 GHz	2MB L2 / 4MB L3	DDR4-240		adeon Vega 8 Graphics	Smart card reade Media reader	MicroSD card reader		
	Ryzen 7 3700U	4	0	2.3 GHz	4.0 GHz	2MB L2 / 4MB L3			deon RX Vega 10 Graphics	Ports	One USB 2.0, two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), headphone / microphone combo jack,		
Graphics	supports e supports d	externa dual in	al digital depend	ega 8, or R monitor via ent display; 160@60Hz	HDMI or I	JSB Type	e-C;		(HDMI)	Monitor cable Bundled Accy	microSD card reader, security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical speed None None		
Chipset Memory	32GB max	κ ່/ Ź40	OMHz [Chip) platfor DDR4, dual- Illy 2666MHz	channel ca				IMM sockets	Camera Audio support	HD720p camera, fixed focus HD Audio, Conexant® CX11880 codec / stereo speakers, 2W x 2, Dolby® Advanced Audio / dual array microphone, headphone / microphone combo jack		
Display	Size / Reso	olution	5	Surface Typ	e Brightnes	s Aspect Ratio	Contrast Vi	iewing Angle	Multi-touch	Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys		
	15.6" HD (1	1366x7	68) A	nti-glare TN	220 nits	16:9	400:1	90°	Non-touch		TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad		
	15.6" FHD ((1920x	1080) A	nti-glare IPS	250 nits	16:9	600:1	170°	Non-touch	Security	Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified		
Multi-touch	None									Security chip Fingerprint reader	rNone		
Storage				SSD and one						NFČ	None		
	 M.2 SSD 	ATA 6.) / PCI	.0Gb/s, le NVMe	2.5" wide, 7 e, PCIe 3.0	mm high, <i>i</i> x 2 or PCle	Active Pro	otection Sy	stem⊺	ТМ	Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter		
Optane™ memory Optical	/None None									Max battery life	MobileMark® 2014: 10.3 hr *Battery life varies significantly with settings, usage, & other factors		
Ethernet	Gigabit Eth	hernet	t Conne	ction, Realt	ek R81110	GUS				AC adapter	45W or 65W USB Type-C AC adapter		
WLAN +	One of the	e follov	ving, co	nfigurable b	y model:					Preload (optional) Windows® 10 Home 64 or Windows 10 Pro 64			
Bluetooth™	 Realtek® RTL8822BE, Wi-Fi 2x2 802.11ac + Bluetooth 4.2, M.2 card Intel Wireless-AC 9260, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card 									Limited warranty	1-year depot repair service		
		eless-/	AC 9260), Wi-Fi 2x2	802.11ac	+ Bluetod	otn 5.0, M.:	2 card	a	Mil-Spec test	None		
WWAN	None									Environment	EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant		

Note: The specifications above may not be available in all regions.













ThinkPad L380 Platform Specifications

Processor	Intel® Celeron®	Processo	r, 7th Gene	ration Intel	Core™	i3 / i5 Proc	essor or	Dimensions	WxDxH: 12.67" x 8.83" x 0.74"; 321.8mm x 224.2mm x 18.8mm	
	Processor # of Number Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache Memory Processor Graphics		Weight Case color	Starting at 3.22 lb / 1.46 kg Black or Silver		
	Cel 3965U	2	2.2 GHz	-	2MB		Intel HD Graphics 610	Case material	Display cover: Aluminum Bottom: GFRP	
	i3-7130U i5-7200U	4	2.7 GHz 2.5 GHz	- 3.1 GHz	3MB 3MB	DDR4-2133	Intel HD Graphics 620	Smart card reade Media reader	MicroSD card reader	
	8th Generation	Intel Core					l	Ports	Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort),	
	Processor # of Number Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics		HDMI 1.4b, Ethernet extension connector, headphone / microphone combo jack, microSD card reader, security keyhole	
	i3-8130U 2 i5-8250U i5-8350U 4 i7-8550U	8	2.2 GHz 1.6 GHz 1.7 GHz 1.8 GHz	3.4 GHz 3.4 GHz 3.6 GHz 4.0 GHz	4MB 6MB 6MB 8MB	DDR4-2400	Intel UHD Graphics 620	Monitor cable (optional) Bundled Accy	* Depending on many factors, actual data transfer speed may be lower than theoretical speed HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter Optional: ThinkPad Ethernet Extension Cable	
Graphics	Intel HD Graphic supports extern supports three i Max resolution:	al digital r ndepende	monitor via ent displavs	HDMI or U	SB Typ	e-C;	•	Camera Audio support	HD720p camera, fixed focus HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ / dual array microphone, headphone / microphone combo jack	
Chipset Memory		OMHz DE	ÒŔ4, dual-c	hannel cap			O-DIMM sockets	Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, optional LED backlight TrackPoint® pointing device and buttonless Mylar surface touchpad, multi-touch	
Display	Some: 13.3" (3 250 nits Some: 13.3" (3	338mm) H s, 16:9 as 338mm) F s, 16:9 as 338mm) F	ID (1366x7) pect ratio, 5 HD (1920x pect ratio, 7 HD (1920x	68), anti-gl 500:1 contr 1080), anti 700:1 contr 1080), anti	are, LE ast ration glare, ast ration glare,	D backlight, o LED backlig o, 170° view LED backlig	ht, IPS, ring angle ht, IPS,	Security Security chip vPro (optional) Fingerprint reade NFC (optional)	Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified Intel vPro Technology Optional: Touch style fingerprint reader on the keyboard bezel, anti-spoofing technology Near Field Communication	
	250 nits on-cell		pect ratio, 8	300:1 contr	ast ratio	o, 170° view	ing angle,	Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr)	
Multi-touch (opt) Storage		ipports 10						Max battery life	with 65W USB Type-C AC adapter MobileMark® 2014: 16.1 hr * Battery life varies significantly with settings, usage, & other factors	
Storage	 M.2 SSD / SA 	TA 6.0Gb	/s (e.g. xxx)	GB SSD M	.2)	00 000		AC adapter	45W or 65W USB Type-C AC adapter	
Optane™ memory		ie NVMe,	, PCIe 3.0 x	(4, 32Gb/s	(e.g. x	XXGB SSD	M.2 PCIe NVMe)	Preload	Windows® 10 Home 64 or Windows 10 Pro 64	
Optical	None							Limited warranty	One of the following, configurable by model: • 1-year depot repair service	
Ethernet	Native Intel Ethe via optional Thir	ernet Con nkPad Eth	nection I21 ernet Exter	9-V (<i>Non-</i> v	<i>Pro</i>) oi	r I219-LM (v	rPro)		3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service	
WLAN + Bluetooth™	Intel Dual Band * Intel 8265ac car						h 4.1, M.2 card	Mil-Spec test	MIL-STD-810G military certification	
WWAN SIM card	None None							Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant	





















ThinkPad L390 Platform Specifications

Processor	8th Genera	ation Int	el® Core	™ i3 / i5 /	i7 Processo	or				Smart card reade	
	Processor # of Cores Threads Frequency Frequency						Media reader Ports	MicroSD card reader Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPo			
	i3-8145U i5-8265U i5-8365U i7-8565U	4	8	2.1 GHz 1.6 GHz 1.6 GHz 1.8 GHz	3.9 GHz 3.9 GHz 4.1 GHz 4.6 GHz	4MB 6MB 6MB 8MB	DDR4-2400	Intel UHD		Monitor cable	HDMI 1.4b, Ethernet extension connector, headphone / microphone combo jack, microSD card reader, security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical speed USB-C to VGA: Lenovo USB-C to VGA Adapter
	supports th	xternal or aree ind	digital mo	onitor via nt displav	ι HDMI or U	• •		30Hz (HD	oMI)	(optional) Bundled	USB-C to VGA + Power Adapter: USB-C to HDMI: USB-C to HDMI + Power Adapter: Lenovo USB-C to HDMI Adapter USB-C to HDMI + Power Adapter: Lenovo USB-C to HDMI plus Power Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter USB-C to RJ45: Lenovo USB-C to Ethernet Adapter
Chipset Memory	Intel SoC (32GB max	/ 24001	MHz DDF	Ŕ4, dual-	channel car	able, tv	wo DDR4 S	O-DIMM	sockets	Accessories (optional)	USB-C to USB-A: USB-C to USB-C: Lenovo USB-C to USB-A Adapter Lenovo USB-C to USB-C Cable 2M
Display	Size Resolution Surface Type Brightness Ratio Contrast Ratio A				st Ratio	Viewing Angle	Audio support	HD720p camera, fixed focus HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack			
	13.3" HD (13.3" FHD			-glare T -glare IP		16:9 16:9	700:1 (no 800:1 (mu	n-touch)	90° 170°	Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, optional LED backlight TrackPoint® pointing device and buttonless Mylar surface touchpad, multi-touch
Storage	One of the f • M.2 SSD • M.2 (224	ollowing,) / SATA (2) SSD	configura 6.0Gb/s 7 PCIe N	able by mo	Cle 3.0 x 2	only)				Security Security chip System Mgt Fingerprint reade NFC (optional)	Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified None or Optional: Touch style fingerprint reader on the palm rest Near Field Communication
Optane™ memory	• M.2 (228 None None	30) SSD	7 PCIE N	NVIVIE, P	Jie 3.0 X 4					Battery Max battery life	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter MobileMark® 2014: 14.61 hr
	Native Inte via optiona Lenovo US	d ThinkF	Pad Ethe	rnet Exte	19-V (<i>Non-v</i> ension Cable	<i>Pro</i>) or or	1219-LM (ı	vPro)		AC adapter	* Battery life varies significantly with settings, usage, & other factors 45W or 65W USB Type-C AC adapter
WLAN Bluetooth™	Intel Wirele	ess-AC 9	9560, Wi	-Fi 2x2 8	02.11ac + B n Wi-Fi + Blu					Preload Limited warranty	Windows® 10 Home 64 or Windows 10 Pro 64 One of the following, configurable by model: • 1-year depot repair service
	None]	3-year/1-yr battery depot repair service
Dimensions Weight	WxDxH: Starting at				21.8mm x 2	24.2mr	n x 18.8mn	n		Mil-Spec test	3-year/1-yr battery limited onsite service MIL-STD-810G military certification
Case color Case material	Black or Si Display co Bottom:	ilver <i>ver:</i> Alu		,						Environment	EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant

Note: The specifications above may not be available in all regions.

Lenovo May 2019



ThinkPad L470 Platform Specifications

Processor	6th Generation Intel® Core™ i3 / i5 / i7 Processor or									WWAN (optional) One of the following, configurable by model:				
	Processor Number	# of Cores	# of Threads		Max Turbo Frequency	Cache	Memory Types	Processor Graphics		 Wireless WAN upgradable Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455), M.2 card 				
	i3-6006U i3-6100U i5-6200U	2	4	2.0 GHz 2.3 GHz 2.3 GHz	2.8 GHz	3MB 3MB 3MB	DDR4-2133	Intel HD Graphics 520	SIM card (opt)	 Integrated Mobile Broadband 4G LTE, Intel XMM™ 7160 (Fibocom L831-EAU), M.2 card (EMEA only) Micro-SIM card slot, opt Verizon LTE (US) or Lenovo® Connect (EMEA) SIM card 				
	i5-6300U Intel Cele	l ron® Pr	ocessor	2.4 GHz or 7th Gen	3.0 GHz eration Inte		i3 / i5 / i7 P	rocessor	Dimensions Weight	WxDxH: 13.35" x 9.25" x 0.94"; 339mm x 235mm x 23.9mm Models 3-cell 6-cell				
	Processor Number		# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics		Integrated model 4.13 lb / 1.87 kg 4.45 lb / 2.02 kg Discrete model 4.16 lb / 1.89 kg 4.48 lb / 2.03 kg				
	Cel 3965U		2	2.2 GHz	-	2MB		Intel HD Graphics 610	Case color Case material	Black PC/ABS plastic				
	i3-7100U i5-7200U i5-7300U i7-7500U i7-7600U	2	4	2.4 GHz 2.5 GHz 2.6 GHz 2.7 GHz 2.8 GHz	- 3.1 GHz 3.5 GHz 3.5 GHz 3.9 GHz	3MB 3MB 3MB 4MB	DDR4-2133	Intel HD Graphics 620	Smart card reade Media reader Ports	er Optional: Smart card reader 4-in-1 reader (MMC, SD, SDHC, SDXC) Three USB 3.1 Gen 1 (USB 3.0, one Always On), VGA, Mini DisplayPort, Ethernet (RJ-45), Dock connector * Depending on many factors, actual data transfer speed may be lower than theoretical speed				
				ailable in El					Camera (optional) Audio support	//JHD720p resolution, fixed focus HD Audio, Realtek ALC3268 codec / stereo speakers, 1W x 2 /				
Graphics	Intel HD 6 supports 6 supports 1	araphic externa three in	s 620 in I analog depende	monitor via	and AMD F VGA and :	Radeon digital r	nonitor via	, 2GB memory; Mini DisplayPort; 200@60Hz (VGA)	Keyboard UltraNav™	dual array microphone, combo audio/microphone jack 6-row, spill-resistant, multimedia Fn keys TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad				
Chipset Memory	Intel SoC 32GB ma * System c	(Syster x / 2400 locks do	m on Chi DMHz DI wn for pro	ip) platform DR4, dual-cocessors with	hannel cap	able, to	wo DDR4 S	O-DIMM sockets	Security Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified Intel vPro (optional) Intel vPro Technology Fingerprint reader Optional: Swipe style fingerprint reader on the keyboard bezel NFC None					
Display				D (1366x76 bect ratio, 5			D backlight,		Battery					
							ED backlig		Max battery life ¹⁰ (MobileMark® 2014)	, measie				
Multi-touch	None	ou mis,	16.9 asp	bect ratio, 7	OU: I COIIIIa	เรเาสแบ	, 170° view	ing angle	(WobileWark* 2014)	/ Integrated moder				
Storage	Some: H	DD / S	ATA 6.00	one M.2 228 Bb/s, 2.5" w		,			AC adapter	Discrete model 4.34 hr 8.68 hr 13.02 hr * Battery life varies significantly with settings, usage, & other factors 45W or 65W slim tip AC adapter				
	Some: S Some: N Some: 1:	SD / SA I.2 SSD 28GB N	ATA 6.0G) / PCle I /I.2 SSD	NVMe, PCI	e 3.0 x 2, 1 Gb/s, in W\	6Gb/s	g. xxxGB SS ot as 2nd S	,	Preload	Windows® 7 Professional 64 preinstalled Some: Windows 10 Home 64 through downgrade rights in Some: Windows 10 Pro 64 Windows 10 Pro 64 Lenovo Solution Center Lenovo Solution				
Optical	None								_	 Lenovo PowerEngage ThinkVantage Product Recovery Microsoft Office preloaded; purchase a product key to activate 				
Ethernet	Non-vPro vPro mod			nernet Coni nernet Coni			cksonville) Jacksonville	e)		 ThinkVantage System Update Adobe® Reader® 				
WLAN	 Realtek Intel Dua 	RTL88	822BE, V Wireles		02.11ac + E Wi-Fi 2x2	802.11	ac + BT4.1,			 Microsoft® Office preloaded; purchase a product key to activate McAfee® LiveSafe™ (30-day trial) 				
Bluetooth™	Bluetooth	 Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter Intel 8260ac / 8265ac card support BT4.2 but is limited to BT4.1 by Windows OS 							Limited warranty	One of the following, configurable by model: 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service				
									Mil-Spec test	MIL-STD-810G military certification				
									Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant				
Note: The specif	ications above	e may n	ot be ava	ilable in all	regions.					Leno				



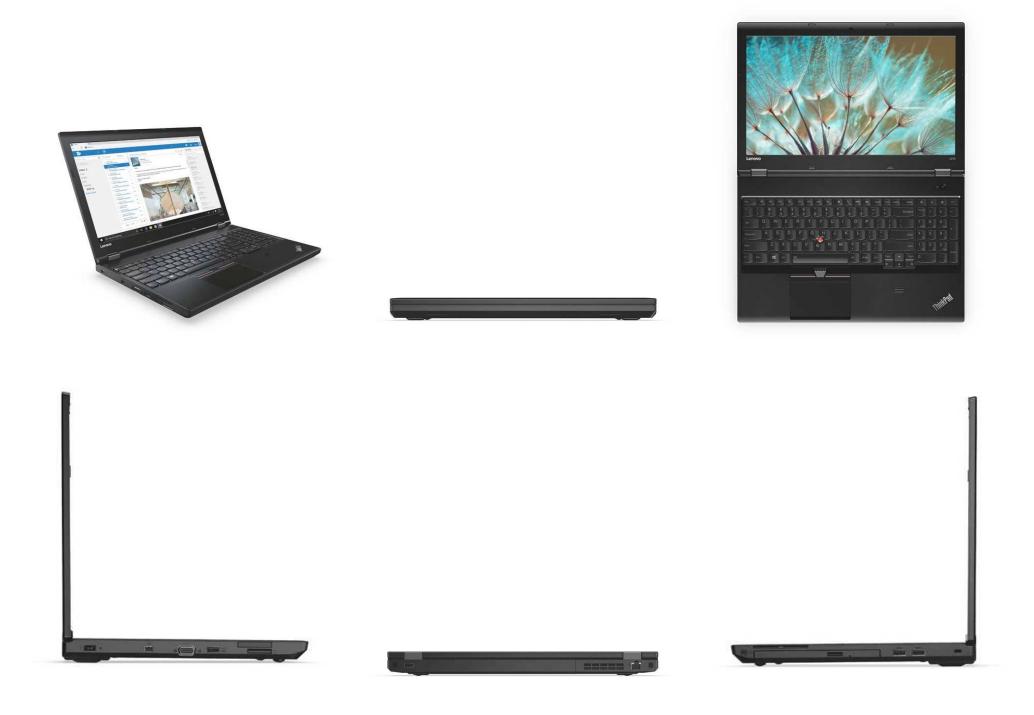






ThinkPad L480 Platform Specifications

Processor	7th Gener	ation I	ntel® Cor	e™ i3 / i5 P	rocessor o	r			WWAN (optional)	One of the following, configurable by model:
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics		 Integrated Mobile Broadband 4G LTE, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only) Integrated Mobile Broadband 4G LTE-A,
	i3-7130U i5-7200U i5-7300U	2	4	2.7 GHz 2.5 GHz 2.6 GHz	- 3.1 GHz 3.5 GHz	3MB 3MB 3MB	DDR4-2133	Intel HD Graphics 620	SIM card (opt)	Intel XMM™ 7360 (Fibocom L850-GL), M.2 card * For non-WWAN model, it means the model is NOT WWAN upgradable Nano-SIM card slot, optional Verizon LTE (US) SIM card
	8th Gener	ation I	ntel Core	i3 / i5 / i7 l	Processor	•			Dimensions	<i>WxDxH:</i> 13.19" x 9.25" x 0.89"; 335mm x 235mm x 22.5mm
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Weight Case color Case material	Starting at 3.71 lb / 1.68 kg Black PC/ABS plastic
	i3-8130U i5-8250U i5-8350U	4	8	2.2 GHz 1.6 GHz 1.7 GHz	3.4 GHz 4MB 3.4 GHz 6MB 3.6 GHz 6MB 4.0 GHz 8MB		DDR4-2400	Intel UHD Graphics 620	Consult as add	er Optional: Smart card reader MicroSD card reader Two USB 3.1 Gen 1 (one Always On),
	i7-8550U * i3-7130U	 is NOT	 available i	1.8 GHz in US and El	4.0 GHz <i>NEA</i>	8MB				two USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models),
Graphics	* i3-7130U is NOT available in US and EMEA Intel HD Graphics 620 or Intel UHD Graphics 620 in processor only Intel HD Graphics 620 or Intel UHD Graphics 620 in processor and AMD Radeon 530, 2GB GDDR5 memory (discrete models are NOT available in EMEA); supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@30l Intel SoC (System on Chip) platform							ly or d	Monitor cable (optional)	headphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical speed HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter
	supports t Max resolu	hree in ution:	idepende 4096x23	ent displays 04@60Hz	; (USB Tvpe-	·C): 409	96x2160@3	OHz (HDMI)	Camera (optional)) One of the following, configurable by model: • HD720p camera, fixed focus
Chipset Memory	Intel SoC 32GB max	(Syste x / 240	m on Chi 0MHz DI	p) platform DR4, dual-c		able, t	wo DDR4 S	O-DIMM sockets	Audio support	 IR camera and HD720p camera, fixed focus HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ / dual array microphone, headphone / microphone combo jack
Display	22	20 nits,	16:9 asp	ect ratio, 5	00:1 contra	st ratio	D backlight,) LED backlig		Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, optional LED backlight TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
Multi-touch (opt)	25	50 nits,	16:9 asp	ect ratio, 8	00:1 contra sture (FHD	ist ratio	o, 170° view	ing angle	Security Security chip	Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified
Storage	Some: HI	DD/S SD/S	ATA 6.00 ATA 6.00	ab/s, 2.5" wab/s, 2.5" w	30 slot exclus ride, 7mm h ide, 7mm h e 3.0 x 2, 1	nigh, Ad igh (e.g	ctive Protect g. xxxGB S	ion System™ SD)		Intel vPro Technology r Optional: Touch style match on chip fingerprint reader on the keyboard bezel, anti-spoofing technology Near Field Communication
	Some: 12	28GB N	M.2 SSD	/ PCIé NVI	Me, PCle 3	.0 x 2,		ΝΔΝ	Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter
Optical	None					'		VALV	Max battery life	MobileMark® 2014: 12.2 hr
Ethernet	Non-vPro vPro mode						icksonville) Jacksonville)	AC adapter	* Battery life varies significantly with settings, usage, & other factors 45W or 65W USB Type-C AC adapter
WLAN +			g, configu	rable by mod	lel:			•	Preload	Windows® 10 Home 64 or Windows 10 Pro 64
Bluetooth™ (optional)	 Intel Dua 	al Banc	Wireles	s-AC 8265,	Wi-Fi 2x2	802.11		card (US only) oth 4.1, M.2 card lows OS	Limited warranty	One of the following, configurable by model: 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service
										MIL-STD-810G military certification
-	ations above								Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant



ThinkPad L570 Platform Specifications

Processor	6th Gener	ation I	ntel® Cor	e™ i3 / i5 /	i7 Process	or or			WWAN (optional)	One of the following, configurable by model:
	Processor	# of	# of	Base	Max Turbo	Cache	Memory	Processor		 Wireless WAN upgradable Integrated Mobile Broadband 4G LTE-A,
	Number	Cores	Threads	Frequency	Frequency		Types	Graphics		Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455), M.2 card
	i3-6006U i3-6100U			2.0 GHz 2.3 GHz	-	3MB 3MB				Integrated Mobile Broadband 4G LTE.
	i5-6200U	-		2.3 GHz 2.3 GHz	2.8 GHz	3MB		Intel LID Cranbins	SIM card (opt)	Intel XMM™ 7160 (Fibocom L831-EAÚ), M.2 card (EMEA only)
	i5-6200U	2	4	2.3 GHz	3.0 GHz	3MB	DDR4-2133	Intel HD Graphics 520		Micro-SIM card slot, opt Verizon LTE (US) or Lenovo® Connect (EMEA) SIM card
	i7-6500U	1		2.4 GHz	3.1 GHz	4MB		320	Dimensions Weight	WxDxH: 14.84" x 10.04" x 1.08-1.21"; 377mm x 255mm x 27.6-30.85mm Starting at 5.25 lb / 2.38 kg
	i7-6600U	1		2.6 GHz	3.4 GHz	4MB			Case color	Black
		ron® P	rocessor				i3 / i5 / i7 P	rocessor	Case material	PC/ABS plastic
	Processor	# of	# of	Base	Max Turbo	Cache	Memory	Processor		t)One slot (ExpressCard/34)
	Number	Cores	Threads	Frequency	Frequency	Cacne	Types	Graphics	Smart card reade Media reader	er <i>Optional:</i> Smart card reader 4-in-1 reader (MMC, SD, SDHC, SDXC)
	Cel 3965U		2	2.2 GHz	-	2MB		Intel HD Graphics 610	Ports	Four USB 3.1 Gen 1 (USB 3.0, one Always On), VGA, Mini DisplayPort, Ethernet (RJ-45), Dock connector
	i3-7100U			2.4 GHz	-	змв				* Depending on many factors, actual data transfer speed may be lower than theoretical speed
	i5-7200U	2		2.5 GHz	3.1 GHz	3MB	DDR4-2133	Intel HD Graphics	Monitor cable	Optional: Lenovo Mini-DisplayPort to DisplayPort Monitor Cable (MiniDP to DP)
	i5-7300U	ļ	4	2.6 GHz	3.5 GHz	3MB		620		/)HD720p resolution, fixed focus
	i7-7500U	ł		2.7 GHz	3.5 GHz	4MB			Audio support	HD Audio, Realtek® ALC3245 codec / stereo speakers, 1.5W x 2 /
	i7-7600U * i7 process	l aria M	OT availah	2.8 GHz	3.9 GHz	4MB			Karaharanal	dual array microphone, combo audio/microphone jack
Graphics				10, or 620 i	n process	r only:			_ Keyboard - UltraNav™	6-row, spill-resistant, multimedia Fn keys, numeric keypad TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
Graphics	supports t	externa hree ir	al analog ndepende	monitor via	a VGA and∍ s:	digitál r		Mini DisplayPort; 200@60Hz (VGA)	Security Security chip vPro (optional)	Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified Intel vPro Technology
Chipset Memory	32GB max	k / 240	OMHz DE	p) platform DR4, dual-c cessors with	channel cap	able, tv	wo DDR4 S	O-DIMM sockets	Fingerprint reader NFC Battery	r Optional: Swipe style fingerprint reader on the palm rest None Li-ion 6-cell (48Wh)
Display							backlight,		Max battery life	MobileMark® 2014: 14.8 hr
ызріау	22	20 nits,	, 16:9 asr	ect ratio, 3	50:1 contra	st ratio			AC adapter	* Battery life varies significantly with settings, usage, & other factors 45W slim tip AC adapter
	22 Some: 15	20 nits, 5.6" (39	, 16:9 ́asp 96mm) Fl	ect ratio, 4 D (1920x	00:1 or 500 1080), anti-	0:1 cont glare, L		ht, IPS,	Preload	Windows® 7 Professional 64 preinstalled Some: Windows 10 Home 64 through downgrade rights in Some: Windows 10 Pro 64 Lenovo Companion
Multi-touch	None	o ilito,	, 10.5 asp	eci iallo, o	OO. I COILLE	isi ralio	, IOO VIEW	ing angle		 Windows 10 Pro 64 Lenovo Companion Lenovo Solution Center Lenovo Setting
Storage	Some: SS Some: M Some: 12	SD / S .2 SSI 28GB I	ATA 6.0G D / PCIe I M.2 SSD	ib/s, 2.5" w NVMe, PCI	ide, 7mm h e 3.0 x 2, 1 Gb/s, in W\	igh (e.g 6Gb/s	tive Protect g. xxxGB S ot as 2nd S	,		 Lenovo PowerEngage ThinkVantage Product Recovery ThinkVantage System Update Adobe® Reader® Microsoft® Office preloaded;
Optical (optional						remov	able, tray-ir	l		purchase a product key to activate • McAfee® LiveSafe™ (30-day trial)
Ethernet	Non-vPro vPro mode			nernet Coni nernet Coni			cksonville) lacksonville)	Limited warranty	One of the following, configurable by model:
WLAN	 Realtek® 	RTL8	822BE. V	rable by mod Vi-Fi 2x2 80	02.11ac + E	3T4.1, I	M.2 card (U ac + BT4.1,	S only)		 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service
	 Intel Dua 	al Band	d Wireles	s-AC 8265,	Wi-Fi 2x2	802.11	ac + BT4.1,	M.2 card	Mil-Spec test	MIL-STD-810G military certification
Bluetooth™	Bluetooth * Intel 8260	4.1 wi ac / 82	reless, in 165ac card	tegrated in support BT4	Wi-Fi + Blu .2 but is limit	etooth ed to B7	combo ada 4.1 by Windo	pter bws OS	Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant
Note: The specific	cations above	may r	not be ava	ilable in all	regions.					Lenovo









ThinkPad L580 Platform Specifications

Processor	Intel® Cele	ron® P	rocessor	r, 7th Gene	ration Intel	Core™	i3 / i5 Proc	essor or	WWAN (optional)	One of the following, configurable by model:
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics		 Integrated Mobile Broadband 4G LTE, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only)
	Cel 3965U		2	2.2 GHz	-	2MB		Intel HD Graphics 610		 Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card * For non-WWAN model, it means the model is NOT WWAN upgradable
	i3-7130U i5-7200U	2	4	2.7 GHz 2.5 GHz	- 3.1 GHz	3MB 3MB	DDR4-2133	Intel HD Graphics	SIM card (opt)	Nano-SIM card slot, optional Verizon LTE (US) SIM card
	i5-7300U		4	2.6 GHz	3.5 GHz	3MB		620	Dimensions Weight	<i>WxDxH:</i> 14.82" x 10.02" x 0.90"; 376.5mm x 254.5mm x 22.95mm Starting at 4.46 lb / 2.0 kg
	8th Genera			i3 / i5 / i7 l					Case color Case material	Black PC/ABS plastic
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics	ExpressCard	None
	i3-8130U	2	4	2.2 GHz	3.4 GHz	4MB			Smart card reade Media reader	r <i>Optional:</i> Smart card reader MicroSD card reader
	i5-8250U i5-8350U	4	8	1.6 GHz 1.7 GHz	3.4 GHz 3.6 GHz	6MB 6MB	DDR4-2400	Intel UHD Graphics 620	Ports	Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort),
	i7-8550U			1.8 GHz	4.0 GHz	8MB				HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader,
Graphics	Intel HD G	raphic raphic eon 53	s 610, 62 s 620 or 0, 2GB 0	Intel UHD GDDR5 me	JHD Graph Graphics 6 mory) in process rocessor ar		Monitor cable (optional)	microSD card reader, side docking connector, security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical speed HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter
	supports e supports tl Max resolu	externa hree in ution: 4	l digital n depende 4096x230	nonitor via ent displays 04@60Hz	HDMI or Û ; (USB Type	,,	•	30Hz (HDMI)	Audio support)HD720p camera, fixed focus HD Audio, Realtek ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ / dual array microphone, headphone / microphone combo jack
Chipset Memory	Intel SoC (32GB max * System clo	رُ \'240	MHz DE		hannel car	oable, tv	wo DDR4 S roller	O-DIMM sockets	Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlight TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
Display	22 Some: 15	:0 nits, 5.6" (39	16:9 asp 6mm) FF	ect ratio, 5 HD (1920x ⁻	00:1 contra 1080), anti-	ast ratio glare, L	D backlight, ED backlig 170° view	ht, IPS,		Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified Intel vPro Technology r Optional: Touch style match on chip fingerprint reader on the palm rest,
Multi-touch	None								NEC (antional)	anti-spoofing technology Near Field Communication
Storage				one M.2 228				ion System™	NFC (optional) Battery	Integrated Li-ion 45Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
	Some: SS	SD / SA	ATA 6.0G	b/s, 2.5" w	ide, 7mm h	nigh (e.c	g. xxxGB S		,	with 65W USB Type-C AC adapter
	Some: 12	28GB N	1.2 SSD	NVMe, PCI / PCIe NVI	Me, PCIe 3	.0 x 2,			Max battery life AC adapter	MobileMark® 2014: 12 hr * Battery life varies significantly with settings, usage, & other factors 45W or 65W USB Type-C AC adapter
Optical	None In	WWAI	N slot as	2nd Storag	je, mutually	y exclus	sive with W\	WAN	Preload	Windows® 10 Home 64 or Windows 10 Pro 64
Ethernet	Non-vPro vPro mode		Intel Eth	nernet Con	nection I21 nection I21	9-V (Ja 9-LM (J	cksonville) Jacksonville	e)	Limited warranty	One of the following, configurable by model: • 1-year depot repair service
WLAN + Bluetooth™	 Realtek® 	RTL8	322BE, V	rable by mod Vi-Fi 2x2 8	02.11ac + I	Sluetoo	th 4.1, M.2	card (US only)		3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service
(optional)							ac + Blueto 4.1 by Wind	oth 4.1, M.2 card	<u>'</u>	MIL-STD-810G military certification
	111161 020	Jac Ca	τα σαμμο	,, io D14.2 k	ou io ilitiile	u io DT	T. I DY VVIIIC		Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant









ThinkPad P1 Platform Specifications

Processor	8th Generation Intel® Core™ i5 / i7 Processor or Intel Xeon® E Processor		rt card reader Optional: Smart card reader				
	Processor Number # of Cores # of Threads Base Frequency Max Turbo Frequency Cache Memory Types Processor Graphics	ExpressCard Media reader Ports	None SD Card reader (SD, SDHC, SDXC), supports UHS-II SD card Two USB 3.1 Gen 1 (one Always On),				
	i5-8400H	1013	two USB Type-C / Thunderbolt 3 (with the function of Power Delivery and DP), HDMI 2.0, Ethernet extension connector, headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), security keyhole				
Graphics	Intel UHD Graphics 630 in processor and NVIDIA® Quadro® P1000 or P2000, 4GB GDDR5 memory; supports external digital monitor via HDMI or Thunderbolt™; supports four independent displays; Max resolution: 5120X2880@30Hz (Thunderbolt); 4096x2160@60Hz (HDMI)	Monitor cable (optional) Bundled Accy	* Power Delivery only supports power-out for charging peripherals * Depending on many factors, actual data transfer speed may be lower than theoretical speed HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter Optional: ThinkPad Ethernet Extension Cable) One of the following, configurable by model:				
Chipset Memory	Mobile Intel CM246 Chipset 64GB max / 2666MHz DDR4, ECC or non-ECC (ECC function supported only on Xeon processor), dual-channel capable, two DDR4 SO-DIMM sockets	Audio support	 HD720p camera with ThinkShutter camera privacy, fixed focus IR camera and HD720p camera, fixed focus HD Audio, Realtek® ALC3286 codec / 				
Display	Some: 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio,		stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack, Dolby Atmos® headphone				
	72% gamut, 170° viewing angle Some: 15.6" (396mm) UHD (3840x2160), anti-glare, LED backlight, IPS,	Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, LED backlight TrackPoint® pointing device and buttonless glass surface multi-touch touchpad				
Multi-touch (opt) Pen	400 nits, 16:9 aspect ratio, 1200:1 contrast ratio, 100% gamut, 170° viewing angle, multi-touch, anti-reflection (AR) Capacitive-type multi-touch, supports 10-finger gesture (4K only) Supports pen accessory, please see the accessory compatibility for details	Security Security chip vPro (optional) Fingerprint reader	Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified Intel vPro Technology Touch style match on chip fingerprint reader on the keyboard bezel				
Storage	Up to 2 drives (two M.2 SSD) M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s	Color calibration					
Optane™ memory RAID <i>(optional)</i> Optical	RAID 0/1 support None	Battery Max battery life (MobileMark 2014)	Integrated Li-ion 80Wh battery, supports Rapid Charge (charge up to 80% in 1hr) Discrete mode: 7.36 hr; Hybrid mode: 13.87 hr * Battery life varies significantly with settings, usage, & other factors				
Ethernet	Native Intel Ethernet Connection I219-V (<i>Non-vPro</i>) or I219-LM (<i>vPro</i>)) via bundled or optional ThinkPad Ethernet Extension Cable	AC adapter Preload	135W slim tip AC adapter One of the following, configurable by model:				
WLAN Bluetooth™	Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter	rieloau	 Windows® 10 Home 64 Windows 10 Pro 64 				
WWAN	None		Windows 10 Pro 64 for Workstations				
Dimensions	WxDxH (non-touch): 14.24" x 9.67" x 0.72"; 361.8mm x 245.7mm x 18.4mm WxDxH (multi-touch): 14.24" x 9.67" x 0.74"; 361.8mm x 245.7mm x 18.7mm	Limited warranty	One of the following, configurable by model: 1-year depot repair service				
Weight	Non-touch model: starting at 3.76 lb (1.7 kg); Multi-touch model: starting at 4.06 lb (1.8 kg)		3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service				
Case color	Black	Mil-Spec test	MIL-STD-810G military certification				
Case material	Display cover: CFRP/GFRP hybrid; Bottom: Aluminum alloy	Environment	EPEAT™ Gold; ENERGY STAR® 6.1; RoHS-compliant				

Note: The specifications above may not be available in all regions.

Lenovo April 2019



ThinkPad P51 Platform Specifications

Processor	6th or 7th General Intel Xeon® Pro						Dimensions	WxDxH: WxDxH(Touch):			252.3mm x 24.5-29.4mm 252.3mm x 25.8-30.7mm		
	Processor #	# of # 0	f Base	Max Turbo	ache Memory	Processor	Weight	Models	4-cell	6-cell			
	Number C	ores Thre	ads Frequency	Frequency	Types Types	Graphics		Non-touch	5.6 lb / 2.55kg	5.9 lb / 2.67kg			
	i7-6820HQ		2.7 GHz	3.6 GHz		Intel HD Graphics 530	Case color	Multi-touch Black	6.2 lb / 2.82kg	6.4 lb / 2.90kg			
	E3-1505M v5		2.8 GHz	3.7 GHz	BMB DDR4-2133	Intel HD Graphics P530	Case material	Display cover: GI	lass-Fiber Reinforced agnesium/Aluminum	Plastic;			
	i7-7700HQ	4 8	2.8 GHz		6MB	Intel HD Graphics	Smart card reade						
	i7-7820HQ		2.9 GHz	3.9 GHz	DDR4-2400	630	ExpressCard	One slot (Expres		2)	25		
	E3-1505M v6 E3-1535M v6		3.0 GHz 3.1 GHz	4.0 GHz 8	BMB BBITT 2 100	Intel HD Graphics P630	Media reader Ports	Four USB 3.1 Ge	MC, SD, SDHC, SDX0 en 1 (USB 3.0, one Al	ways On), USB Type	-C / Thunderbolt 3,		
Graphics	Intel HD Graph	ics 530 I			essor and		<u>]</u>	Mini DisplayPort	1.2a. HDMI 1.4b. Eth	ernet (RJ-45). Dock	connector wer than theoretical speed		
•	NVIDIA Quadro	o® M12Ó0	or M2200, 40	B memory;			Camera (optional)		<u> </u>	ansier speed may be io	wer than theoretical speed		
	supports exteri supports four in Max resolution	ndepende	nt displays;	•	, ,	,	Audio support	HD Audio, Realte	ek® ALC3268 codec / phone, combo audio/r		x2/		
	Wax resolution	3840x2	160@60Hz (T	hunderbolt);	4096x2160@2	4Hz (HDMI)	Keyboard				optional LED backlight		
Chipset	Mobile Intel CN						UltraNav™		oint® pointing device ar urface multi-touch tou				
Memory	64GB max / 24 Xeon processo					oported only on	Security			•	vord, security keyhole		
	* System clocks					NO 13	Security chip	Discrete TPM 2.0, TCG Certified					
Display						nt, IPS, 250 nits,	vPro <i>(optional)</i> Fingerprint reade	Intel vPro Technor	ology ch on chip fingerprint r	eader on the nalm re	est		
					viewing angle LED backlight,	IPS 300 nits	Color calibration	Optional: Pantor	ne® color calibrator by	X-Rite® color calibra	tion sensor in palm rest		
	16:9 a	spect ratio	, 1000:1 cont	rást ratio, 100	0% gamut, 170°	viewing angle	NFC	None					
Multi-touch (opt)	Capacitive-type ThinkPad Pen					FHD only)	Battery Max battery life ¹⁰		4-cell (66Wh) or 6-ce	<u> </u>			
Pen (optional) Storage	Up to 3 drives (tv		•	•	ıy		(MobileMark® 2014)	Model Discrete Graphics	4-cell 4.5 hr	6-cell 6.1 hr			
Storage					Active Protection	on Svstem™	,	Hybrid Graphics	4.5 hr	8.9 hr			
RAID (optional)	Some: M.2 SS RAID 0/1 supp	SD / PCle				•	AC adapter	, ,	s significantly with setting		s		
Optical	None			1010.11	/ L L		Preload	One of the following	g, configurable by model	:			
Ethernet	Non-vPro mod vPro model:	ei: Intel E	nernet Conne	ection 1219-V	(Jacksonville) M (Jacksonville))		Windows® 7 Pro		a in Mindaus 40 Dua	04		
WLAN	One of the follow				vi (Gaoiteonville)	/	_	Windows® 10 H	ough downgrade right Iome 64	s in Windows 10 Pro	64		
	 Intel Dual Ba 	nd Wirele	ss-AC 8260, V	Vi-Fi 2x2 802				 Windows 10 Pr 	o 64				
Bluetooth™	 Intel Dual Bar Bluetooth 4.1 v 								o 64 for Workstations				
DIGEROOFF						by Windows OS	Limited warranty	 One of the following 1-year depot re 	g, configurable by model enair service	:			
WWAN (optional)	One of the follow	ing, config	urable by mode			-	1	 3-year/1-yr bat 	tery depot repair servi				
, , ,	 Wireless WAI 			- 4					tery limited onsite ser	vice			
	 Integrated Mo Qualcomm[®] S 				eless EM7455).	. M.2 card	Mil-Spec test		military certification				
SIM card (opt)	Micro-SIM card	d slot. opt	Verizon LTF ((LIS) or Lenov	o® Connect (FI	MEA) SIM card	Environment	FPFAT™ Gold (L	JS only); ENERGY ST	AR® 6.1. BoHS-com	pliant		

September 2018









ThinkPad P51s Platform Specifications

Processor	6th Genera	ation Int	tel® Core	e™ i7 Proc	essor				Dimensions	WxDxH:	14.40" x	9.95" x 0.79-0.80	": 365.8mm x 25	52.8mm x 1	9.95-20.2mm
	Processor	# of	# of	Base	May Turba		Memory	Processor	Weight	Models	x	4 + 3-cell	6-cell	4 + 6-c	
	Number			Frequency	Frequency	Cache	Types	Graphics		Non-touch r	model	4.39 lb / 1.99 kg	4.80 lb / 2.18 kg	4.80 lb / 2.	18 kg
	i7-6500U	2	4	2.5 GHz		4MB	DDR4-2133	Intel HD Graphics		Multi-touch	model	4.44 lb / 2.01 kg	4.85 lb / 2.20 kg	4.85 lb / 2.	20 kg
	i7-6600U			2.6 GHz		4MB	DD114 2100	520	Case color	Black	01	E:	I DI .: (DDO)		
	or 7th Gen	eration	Intel Co	ore i5 / i7 P	rocessor				Case material	Case material Display cover: Glass-Fiber Reinforced Plastic (PPS); Bottom: Glass-Fiber Reinforced Plastic					
	Processor	# of	# of	Base	Max Turbo	Cache	Memory	Processor	Smart card reade				a i laotio		
	Number i5-7300U	Cores	Threads	Frequency 2.6 GHz	Frequency 3.5 GHz	3MB	Types	Graphics	Media reader	4-in-1 read	ler (MMC,	SD, SDHC, SDX		3.0, UHS-I	
	i7-7500U	2	4	2.7 GHz		4MB	DDR4-2133	Intel HD Graphics	Ports			1 (USB 3.0, one		h = w= = + /D	45)
	i7-7600U			2.8 GHz		4MB		620		Dock conn		n 2 / Thunderbolt	3, HDIVII 1.40, Eti	nernet (HJ-	45),
Graphics	Intel HD G	raphics	520 or	620 in prod	cessor and				Micia de els (eset)	* Depending	on many f	actors, actual data t	ransfer speed may	be lower thar	theoretical speed
	NVIDIA Qu	ıaḋro® N	M520, 20	GB 2.5ĠH:	z GDDR5 me				WiGig dock (opt) Monitor cable			k novo HDMI to VG/	A Monitor Adapte	ar.	
	supports ex supports th	xternal	digital n	nonitor via	HDMI or US	В Тур	e-C;		(optional)			novo USB-C to VC		,ı	
	Max resolu	ition: 4	096x230	04@60Hz	, (USB Type-C); 38	40x2160@	30Hz (HDMI)	Camera (optional	1) 720p:	HD720p	resolution, fixed f	ocus		
Chipset	Intel SoC (System	on Chi	p) platform	<u> </u>	,,		, ,	1. `´ .	′ IR & 720p:	IR came	ra and HD720p ca	amera (mutually e	exclusive wi	th WiGig)
Memory	32GB max	/2400	MHz DD	DR4, dual-c	channel capa	ble, t	wo DDR4 S	O-DIMM sockets	Audio support			ALC3268 codec / ne, combo audio/i		, 2VV X 2 /	
Dioplay					lower memor			ht IDC	Keyboard			multimedia Fn ke		nad ontiona	al I FD backlight
Display	250 250	.o (390 0 nits. 1	6:9 asp	ect ratio. 7	1080), anti-gl 00:1 contrast	are, L tratio	. 170° view	ing angle	UltraNav™	TrackPoint	pointing	device and buttor	nless Mylar surfac	ce multi-tou	ch touchpad
	Some: 15.	.6" (396	imm) 4K	(3840x21	60), anti-glar	e, LE	D backlight	, IPS, 300 nits,	Security			hard disk passwo	ord, supervisor pa	assword, se	curity keyhole
Multi-touch (opt)					ntrast ratio, 7 sture (FHD c		amut, 170°	viewing angle	Security chip			CG Certified			
Storage					30 slot exclusiv		r etorago		vPro <i>(optional)</i> Fingerprint reade	Intel vPro 1	Touch styl	y e match on chip f	ingerprint reader	on the pair	n rest
Sidiage								tion System™	NFC (optional)	Near Field	Commun	ication	gp		
	Some: SS	SD/SA	TA 6.0G	b/s, 2.5" w	ide, 7mm hig	h (e.	g. xxxGB S	SD)	Internal battery			d Li-Polymer 4-ce			
	Some: IVI.	2 55D 8GR M	/ PCIE I	NVINIE, POI / SATA 6.0	e 3.0 x 2, 16 Gb/s, in WW	GD/S AN al	ot as 2nd S	torage	External battery Max battery life	Li-Polymer Models		Wh) or Li-ion 6-c			4 0 " 7014"
	mι	utually e	exclusive	e with WW	AN and WiGi	g	ot do zna c	norago,	(MobileMark® 2014)	Max battery	_	hr 12.5 hr	18.5 hr	20.0 hr	26.8 hr
Optical	None											nificantly with setting			20.0111
Ethernet	Non-vPro i vPro mode	model:	Intel Eth	ernet Con	nection I219- nection I219-	V (Ja .i. M. (.	icksonville) Jacksonville	<u>, </u>	AC adapter	65W slim t	ip AC ada	pter or 65W USB	Type-C AC adap	ter	
WLAN					lel (WiGig can			,	Preload	Windows®	7 Profess	ional 64 preinstal			
WEAN					02.11ac + BT			•9•		through do Windows 1		rights in	Some: Windo • Lenovo Co		64
	 Intel Dua 	I Band '	Wireless	s-AC 8260,	Wi-Fi 2x2 80	02.11	ac + BT4.1			 Lenovo S 	Solution C		 Lenovo Set 	tting	
					Wi-Fi 2x2 80			, M.2 card 302.11ac + BT4.1.		• Lenovo F	PowerEng	age	Microsoft C		
	M.2 card		ii CiC33 7	10200,	Widig 002.1	rau +	VVITIZAZ	302.11ac + D14.1	'			duct Recovery tem Update	purchase a	product ke	y to activate
Bluetooth™	Bluetooth 4	4.1 wire	eless, int	tegrated in	Wi-Fi + Blue	tooth	combo ada	pter		 Adobe[®] I 	Reader®	·			
WWAN (optional)					4.2 but is limite				-	Microsof purchase		reloaded; ct kev to activate			
vv vvmin (upiiuilai)	 Wireless 	WAN u	pgradab	ole		, coex	io will widl	d)·				™ (30-day trial)			
	 Integrate 	d Mobil	le Broad	lband 4G L	TE-A,				Limited warranty	One of the fo	ollowing, co	onfigurable by mode	l:		
	QualcomIntegrate	ım™ Sna d Mobil	apdragoi le Broad	n ™ X7 LTE lhand 4G I	E-A (Śierra W TF	reles	ss ⊨M7455), M.2 card		• 1-year de	epot repaii	r service			
	Intel XMN	V I™ 716	0 (Fiboo	com L831-E	EAU), M.2 ca	rd (El	MEA only)			 3-year/1- 3-year/1- 	yr battery	depot repair serv limited onsite se	rvice		
SIM card (opt)	Micro-SIM	card sl	ot, opt V	erizon LTE	(UŚ) or Len	ovò®	Connect (E	MEA) SIM card	Mil-Spec test			ary certification	1 1100		
									Environment			only); ENERGY S	TAR® 6.1. RoHS-	compliant	
									LIMIOIIIIEIII	Li LAI " C		nily), LIVLITOT 3	1.711 0.1,110113-	σοπριιαπι	Lenovo
															Lenovo



ThinkPad P52 Platform Specifications

Processor	8th Gener	ation I	ntel® Cor	e™ i7 Proce	ssor or Inte	el Xeor	® E Proces	ssor	Dimensions	WxDxH: 14.86" x 9.93" x 0.96-1.16"; 377.4mm x 252.3mm x 24.5-29.4mm	
	Processor Number	# of Cores	# of Threads	Base Frequency		Cache	Memory Types	Processor Graphics	Weight	WxDxH(Touch): 14.86" x 9.93" x 1.02-1.21"; 377.4mm x 252.3mm x 25.8-30.7mm Non-touch model: starting at 5.4 lb (2.45kg); Multi-touch model: starting at 6.4 lb (2.9kg)	
	i7-8750H i7-8850H i9-8950HK	6	12	2.2 GHz 2.6 GHz 2.9 GHz	4.1 GHz 4.3 GHz 4.8 GHz	9MB 9MB 12MB	DDR4-2400		Case color Case material	Black Display cover: PPS; Bottom: Magnesium/Aluminum	
	E-2176M			2.7 GHz	4.4 GHz	12MB		Intel UHD Graphics P630	Smart card reade ExpressCard	r Optional: Smart card reader None	
	NVIDIA Q P3200 (60 supports 6 supports f	uadro® GB me externa four inc ution:	P1000 (mory, VR al digital r dependen 3840X21 5120X28	nonitor via it displays; 60@60Hz 80@30Hz	ry), P2000 HDMI, Min (DisplayPo	(4GB) i Displa rt via M	ayPort, or T Iini Display	or 'hunderbolt™; Port cable); 60Hz (HDMI)	Media reader Ports	4-in-1 reader (MMC, SD, SDHC, SDXC), supports UHS-II SD card Three USB 3.1 Gen 1 (one Always On), two USB Type-C / Thunderbolt 3 (with the function of Power Delivery and DP), Mini DisplayPort 1.4, HDMI 2.0, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), security keyhole * Power Delivery only supports power-out for charging peripherals * Depending on many factors, actual data transfer speed may be lower than theoretical speed	
Memory	128GB no only on Xe * Installed I	on-ECC eon pro	or 64GE ocessor), are actuall	B ECC max	nel capable out run at 24	e, four E	DDR4 SO-E	ction supported DIMM sockets limitation	Camera (optional) Audio support	One of the following, configurable by model: HD720p camera with ThinkShutter camera privacy, fixed focus IR camera and HD720p camera, fixed focus HD Audio. Realtek® ALC3286 codec /	
Display	30	00 nits,	16:9 asp	HD (1920x1 ect ratio, 7 viewing an	00:1 contra	glare, l ast ratio	_ED backlig),	ght, IPS,		stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack, Dolby Atmos® headphone	
	Some: 15 40	5.6" (39 00 nits,	96mm) 4h 16:9 asp	K (3840x21) ect ratio, 10° viewing a	60), anti-gl 000:1 cont	rast rat		t, IPS,	Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, numeric keypad, LED backlight 3-button TrackPoint® pointing device and 3-button Mylar surface multi-touch touchpad	
Multi-touch (opt) Pen	Capacitive Supports	e-type pen ac	multi-toud cessory,	ch, supports please see	s 10-finger the acces	gestur	e (4K only) mpatibility	for details	Security Security chip	Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified	
Storage Optane™ memory	Some: Some:	HDD / M.2 S	' SATA 6.0 SD / PCI	e NVMe, P0	wide, 7mn Cle 3.0 x 4	, 32Gb	/s	ection System™	vPro (optional) Fingerprint readel Color calibration NFC (optional)	Intel vPro Technology Touch style match on chip fingerprint reader on the palm rest None Near Field Communication	
RAID (optional) Optical	RAID 0/1 None	suppoi	rt	omory, r or	- 144 WIO, 1	010 0.0	,		Battery Max battery life	Li-ion 90Wh battery Discrete mode: 6.1 hr; Hybrid mode: 8.9 hr	
Ethernet	Non-vPro vPro mod		Intel Eth! Intel Eth	nernet Conr nernet Conr	nection I21 nection I21	9-V (Ja 9-LM (ง	icksonville) Jacksonvill	e)	AC adapter	* Battery life varies significantly with settings, usage, & other factors 170W slim tip AC adapter	
WLAN Bluetooth™ WWAN (optional)	Bluetooth Integrated	5.0 wi Mobil	reless, in e Broadb		Wi-Fi + Blu E-A,	uetooth			Preload	One of the following, configurable by model: Windows® 10 Home 64 Windows 10 Pro 64 Windows 10 Pro 64 for Workstations	
SIM card (opt)	Intel XMM Nano-SIM	™ 736 I card s	0 (Fiboco slot, optio	m L850-GL nal Verizon	.), M.2 card LTE (US)	d SIM ca	ırd		Limited warranty	One of the following, configurable by model: 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service	
									Mil-Spec test MIL-STD-810G military certification		
Note: The enecifies									Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant	









ThinkPad P52s Platform Specifications

Number Cores Threads Frequency Sendancy Types Graphics Sendancy Types Graphics Sendancy Types Graphics Sendancy Types Types Sendancy Types	Processor	8th Generation Intel® Core™ i5 / i7 Processor	Dimensions	<i>WxDxH:</i> 14.40" x 9.95" x 0.79-0.80"; 365.8mm x 252.8mm x 19.95-20.2mm
Graphics Bit processor and pro		Number Cores Threads Frequency Frequency Cache Types Graphics 1.7 GHz 3.6 GHz 6MB 1.8 GHz 4.0 GHz 8MB DDB4.2400 Intel UHD Graphics	Case material	Display cover: Glass-Fiber Reinforced Plastic (PPS); Bottom: Glass-Fiber Reinforced Plastic
Intel UHD Graphics 620 in processor and NVIDIA Quadro* P500, 266 GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports external digital monitor via HDMI or USB Type-C; supports external digital monitor via HDMI or USB Type-C; 4096x2160@30Hz (HDMI)				
Cripset Intel SoC (System on Crip) platform Memory 32G max 2 / 420MHz DDP4, dual-channel capable, two DDR4 SO-DIMM sockets 5/system docks down for processors with lower memory controller Display Some: 15 6" (396mm) HTb (1962\nabla Cite), anti-glare, LED backlight, IPS, 250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle Some: 15 6" (396mm) HTb (1962\nabla Cite), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 170° viewing angle Multi-touch (opt) On-cell touch, supports 10-finger gesture (FHD only). Active Protection System™ Some: BDU / SATA 6.0Gb/s, 2.5° wide, 7mm high (e.g. xxxGB SSD) Some: 128GB M.2 SSD / PCIc NVMe, PCIe 3.0 x 2, 166b/s Some: 128GB M.2 SSD / PCIc NVMe, PCIe 3.0 x 2, 166b/s Some: 128GB M.2 SSD / PCIc NVMe, PCIe 3.0 x 2, 166b/s Some: 128GB M.2 SSD / PCIc NVMe, PCIe 3.0 x 2, 166b/s Some: 128GB M.2 SSD / PCIc NVMe, PCIe 3.0 x 2, 166b/s Some: 128GB M.2 SSD / PCIc NVMe, PCIe 3.0 x 2, 166b/s Some: 128GB M.2 SSD / PCIc NVMe, PCIe 3.0 x 2, 166b/s Some: 128GB M.2 SSD / PCIC NVMe, PCIe 3.0 x 2, 166b/s Some: 128GB M.2 SSD / PCIC NVMe, PCIe 3.0 x 2, 166b/s Some: 128GB M.2 SSD / PCIC NVMe, PCIe 3.0 x 2, 166b/s Some: 128GB M.2 SSD / PCIC NVMe, PCIe 3.0 x 2, 166b/s Some: 128GB M.2 SSD / PCIC NVMe, PCIe 3.0 x 2, 166b/s Some: 128GB M.2 SSD / PCIC NVMe, PCIe 3.0 x 2, 166b/s Some: 128GB M.2 SSD / PCIC NVMe, PCIe 3.0 x 2, 166b/s Some: 128GB M.2 SSD / PCIC NVMe, PCIe 3.0 x 2, 166b/s Some: 128GB M.2 SSD / PCIC NVMe, PCIe 3.0 x 2, 166b/s Some: 128GB M.2 SSD / PCIE NVMe, PCIe 3.0 x 2, 166b/s Some: 128GB M.2 SSD / PCIE NVMe, PCIe 3.0 x 2, 166b/s Some: 128GB M.2 SSD / PCIE NVMe, PCIe 3.0 x 2, 166b/s Some: 128GB M.2 SSD / PCIE NVMe, PCIe 3.0 x 2, 166b/s Some: 128GB M.2 SSD / PCIE NVMe, PCIe 3.0 x 2, 166b/s Some: 128GB M.2 SSD / PCIE NVMe, PCIe 3.0 x 2, 166b/s Some: 128GB M.2 SSD / PCIE NVMe, PCIE 3.0 x 2, 166b/s Some: 128GB M.2 SSD / PCIE NVMe, PCIE 3.0 x 2, 166b/s Some: 128GB M.2 SSD / PCIE NVMe, PCIE 3.0 x 2, 166b/s Some: 128GB M.2 SSD / PCIE NVMe, PCIE 3.0 x 2,	Graphics	NVIDIA Quadro® P500, 2GB GDDR5 memory; supports external digital monitor via HDMI or USB Type-C; supports three independent displays;	Ports	Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack,
250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle Some: 15.6° (398mm) UHD (3840×2160), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 100:1 contrast ratio, 72% gamut, 170° viewing angle Multi-touch (opt) Storage System has one HIDD slot or one Mz 2280 siot exclusively for storage Some: SSD / SATA 6.0Gb/s, 2.5° wide, 7mm high, Active Protection System™ Some: SSD / SATA 6.0Gb/s, 2.5° wide, 7mm high, e.g. xxxGB SSD) Some: Mz SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s Some: SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s None Ethernet Non-VPro model: Intel Ethernet Connection I219-V (Jacksonville) VPro model: Intel Ethernet Connection I219-V (Jacksonville) VPro model: Intel Ethernet Connection I219-V (Jacksonville) Nine Intel Dual Band Wireless AC 8265, Wi-F1 228 802.11ac + Bluetooth 4.1, M.2 card ** Intel 8265ac card supports 814.2 bit is limited to 817.4 by Windows OS WWAN (optional) Nano-SIM card (opt) SIM card (opt) SIM card (opt) Power-on-on-WWAN model, it means the model is NOT WWAN upgradable Nano-SIM card slot, optional Verizon LTE (US) SIM card Ethernet Nano-WPro model: Intel Ethernet Connection I219-X (Jacksonville) VPro model: Nano-WPro model: Intel Ethernet Connection I219-V (Jacksonville) VPro model: Nano-WPro model: Intel Ethernet Connection I219-V (Jacksonville) VPro model: Nano-WPro model: Intel Ethernet Connection I219-V (Jacksonville) VPro model: Nano-WPro model: Intel Ethernet Connection I219-V (Jacksonville) VPro model: Nano-WPro model: Intel Ethernet Connection I219-V (Jacksonville) VPro model: Nano-WPro model: Intel Ethernet Connection I219-V (Jacksonville) VPro model: Nano-WPro model: Intel Ethernet Connection I219-V (Jacksonville) VPro model: Nano-WPro model: Intel Ethernet Connection I219-V (Jacksonville) VPro poplinal: Nano-WPro model: Intel Ethernet Connection I219-V (Jacksonville) VPro poplinal: Nano-WPro model: Intel Ethernet Connection I219-V (Jacksonville) VPro poplinal: Nano-WPro model: Intel Ethernet Connection I219-V (Macksonville) VPro popl	Memory	32GB max / 2400MHz DDA4, dual-channel capable, two DDR4 SO-DIMM sockets * System clocks down for processors with lower memory controller		side docking connector, security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical speed HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter
Storage System has one HDD / SATA 6.0Gb/s, 2.5° wide, 7mm high, (e.g. xxxGB SSD) Some: M.2 SSD / PCle NVMe, PCle 3.0 x 2, 16Gb/s Some: M.2 SSD / PCle NVMe, PCle 3.0 x 2, 16G	Бізріаў	250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle Some: 15.6" (396mm) UHD (3840x2160), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 1000:1 contrast ratio, 72% gamut, 170° viewing angle	<u> </u>	One of the following, configurable by model: HD720p camera with ThinkShutter camera privacy, fixed focus
Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s, Some: 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s, in WWAN slot as 2nd Storage, mutually exclusive with WWAN Optional None Ethernet Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville) VPro model: Intel Ethernet Connection I219-LM (Jacksonville) VPro model: Intel S265ac card supports B74.2 but is limited to B74.1 by Windows OS WWAN (optional) One of the following, configurable by model: Intel Externet Mobile Broadband 4G LTE, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only) Intel S265ac Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only) Intel S265ac Intel XMM™ 7360 (Fibocom L850-GL), M.2 card (EMEA only) Intel S265ac Intel XMM™ 7360 (Fibocom L850-GL), M.2 card (EMEA only) Intel XMM™ 7360 (Fibocom L850-GL), M.2 card (EMEA only) Intel XMM™ 7360 (Fibocom L850-GL), M.2 card (EMEA only) Intel XMM™ 7360 (Fibocom L850-GL), M.2 card (EMEA only) Intel XMM™ 7360 (Fibocom L850-GL), M.2 card (EMEA only) Intel XMM™ 7360 (Fibocom L850-GL), M.2 card (EMEA only) Intel XMM™ 7360 (Fibocom L850-GL), M.2 card (EMEA only) Intel XMM™ 7360 (Fibocom L850-GL), M.2 card (EMEA only) Intel XMM™ 7360 (Fibocom L850-GL), M.2 card (EMEA only) Intel XMM™ 7360 (Fibocom L850-GL), M.2 card (EMEA only) Intel XMM™ 7360 (Fibocom L850-GL), M.2 card (EMEA only) Intel XMM™ 7360 (Fibocom L850-GL), M.2 card (EMEA only) Intel XMM™ 7360 (Fibocom L850-GL), M.2 card (EMEA only) Intel XMM™ 7360 (Fibocom L850-GL), M.2 card (EMEA only) Intel XMM™ 7360 (Fibocom L850-GL), M.2 card (EMEA only) Intel XMM 7360 (Fibocom L850-GL), M.2 card (EMEA only) Intel XMM 7360 (Fib		System has one HDD slot or one M.2 2280 slot exclusively for storage Some: HDD / SATA 6.0Gb/s, 2.5" wide, 7mm high, Active Protection System™	Audio support	HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium /
Optical None Ethernet Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville) WLAN + Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card Bluetooth™ Nore the following, configurable by model: WWAN (optional) One of the following, configurable Broadband 4G LTE. Intel XMM™ 7360 (Fibocom L830-EB), M.2 card *For non-WWAN model, it means the model is NOT WWAN upgradable Nano-SIM card slot, optional Verizon LTE (US) SIM card SIM card (opt) Security chip vPro (optional) Discrete TPM 2.0, TCG Certified Intel vPro Technology (Intel vPro Technology Optional: Touch style match on chip fingerprint reader on the palm rest anti-spoofing technology Near Field Communication NFC (optional) NeT (optional) Net of the following, configurable by model: WWAN (optional) One of the following, configurable by model: NFC (optional) Net of the following optional integrated Li-ion 32Wh battery and external Li-ion 24Wh, 48Wh, or 72Wh battery life (MobileMark® 2014) Max battery life varies significantly with settings, usage, & other factors 65W USB Type-C AC adapter Preload Windows® 10 Home 64 or Windows 10 Pro 64 Limited warranty One of the following, configurable by model: 1-year depot repair service 3-year/1-yr battery		Some: M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s Some: 128GB M.2 SSD / PCIe NVMe, PCIe 3.0 x 2, 16Gb/s,	UltraNav™	, , , , , , , , , , , , , , , , , , , ,
Non-VPG model: Intel Ethernet Connection I219-V (Jacksonville) WLAN + Bluetooth™ Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card * Intel B265ac card supports BT4.2 but is limited to BT4.1 by Windows OS WWAN (optional) WWAN (optional) One of the following, configurable by model: Intel XMM™ 7360 (Fibocom L830-EB), M.2 card (EMEA only) Intel XMM™ 7360 (Fibocom L850-GL), M.2 card * For non-WWAN model, it means the model is NOT WWAN upgradable Nano-SIM card slot, optional Verizon LTE (US) SIM card Mil-Spec test Mil-Spec test Mil-STD-810G military certification AR Field Communication Near Field C		y <i>Optional:</i> Intel Optane memory, PCle NVMe, PCle 3.0 x 2	Security chip vPro (optional)	Discrete TPM 2.0, TCG Certified Intel vPro Technology
Bluetooth™ * Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS WWAN (optional) One of the following, configurable by model: * Wireless WAN upgradable Integrated Mobile Broadband 4G LTE, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only) Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card * Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card * For non-WWAN model, it means the model is NOT WWAN upgradable Nano-SIM card slot, optional Verizon LTE (US) SIM card * Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card * For non-WWAN model, it means the model is NOT WWAN upgradable Nano-SIM card slot, optional Verizon LTE (US) SIM card * Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card * For non-WWAN model, it means the model is NOT WWAN upgradable Nano-SIM card slot, optional Verizon LTE (US) SIM card * Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card * Battery life varies significantly with settings, usage, & other factors 65W USB Type-C AC adapter Preload Windows® 10 Home 64 or Windows 10 Pro 64 Limited warranty * Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card * For non-WWAN model, it means the model is NOT WWAN upgradable Nano-SIM card slot, optional Verizon LTE (US) SIM card * Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card * Battery life varies significantly with settings, usage, & other factors 65W USB Type-C AC adapter Preload Windows® 10 Home 64 or Windows 10 Pro 64 Limited warranty * Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card * Battery life varies significantly with settings, usage, & other factors * Battery life varies significantly with settings, usage, & other factors * Battery life varies significantly with settings, usage, & other factors * Battery life varies significantly with settings, usage,		Non-vPro model: Intel Ethernet Connection I219-V (Jacksonville) vPro model: Intel Ethernet Connection I219-LM (Jacksonville)	• .	anti-spoofing technology
* Wireless WAN upgradable Integrated Mobile Broadband 4G LTE, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only) Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card * For non-WWAN model, it means the model is NOT WWAN upgradable Nano-SIM card slot, optional Verizon LTE (US) SIM card * Max battery life 12.2 hr 18.5 hr 13.5 hr 20.1 hr 26.3 hr * Battery life varies significantly with settings, usage, & other factors 65W USB Type-C AC adapter Preload Windows® 10 Home 64 or Windows 10 Pro 64 Limited warranty * One of the following, configurable by model: • 1-year depot repair service • 3-year/1-yr battery depot repair service • 3-year/1-yr battery limited onsite service Mil-Spec test MIL-STD-810G military certification Environment EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant		Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + Bluetooth 4.1, M.2 card * Intel 8265ac card supports BT4.2 but is limited to BT4.1 by Windows OS	Battery	Optional integrated Li-ion 32Wh battery and external Li-ion 24Wh, 48Wh, or 72Wh battery
SIM card (opt) Intel XMM™ 7360 (Fibocom L850-GL), M.2 card *For non-WWAN model, it means the model is NOT WWAN upgradable Nano-SIM card slot, optional Verizon LTE (US) SIM card *Mil-Spec test MIL-STD-810G military certification Preload Windows® 10 Home 64 or Windows 10 Pro 64	WWAN (optional)	 Wireless WAN upgradable Integrated Mobile Broadband 4G LTE, Intel XMM™ 7262 (Fibocom L830-EB), M.2 card (EMEA only) 	(MobileMark® 2014)	Max battery life 12.2 hr 18.5 hr 13.5 hr 20.1 hr 26.3 hr * Battery life varies significantly with settings, usage, & other factors
SIM card (opt) Nano-SIM card slot, optional Verizon LTE (US) SIM card • 1-year depot repair service • 3-year/1-yr battery limited onsite service • Mil-Spec test • Mil-STD-810G military certification Environment EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant		Intel XMM™ 7360 (Fibocom L850-GL), M.2 card	Preload	Windows® 10 Home 64 or Windows 10 Pro 64
Environment EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant	SIM card (opt)		Limited warranty	1-year depot repair service 3-year/1-yr battery depot repair service
			Mil-Spec test	MIL-STD-810G military certification
			Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant Lenovo











ThinkPad P72 Platform Specifications

Nu i7- i7-	7-8750H	# of	Base						
		Tilledas	Frequency 2.2 GHz	Max Turbo Frequency 4.1 GHz	9MB	Memory Types	Processor Graphics Intel UHD Graphics	Weight Case color Case material	Starting at 7.5 lb (3.4kg) Black Display cover: GFRP + PPS; Bottom: Magnesium/Aluminum
E-	7-8850H E-2176M E-2186M	12	2.6 GHz 2.7 GHz 2.9 GHz	4.3 GHz 4.4 GHz 4.8 GHz	9MB 12MB 12MB	DDR4-2400	630 Intel UHD Graphics P630	ExpressCard Media reader	r Optional: Smart card reader None 4-in-1 reader (MMC, SD, SDHC, SDXC), supports UHS-II SD card
. NV P3 su su Ma		P600 (40 nory), P4 digital m ependent 840X216 120X288	GB memory 200 (8GB r nonitor via h t displays; 50@60Hz (30@30Hz (v), P2000 (memory), d HDMI, Min DisplayPo	(4GB m or P520 i Displa ort via M	00 (16ĠB r yPort, or T lini Display	「hunderbolt™;	Ports Monitor cable	Four USB 3.1 Gen 1 (one Always On), two USB Type-C / Thunderbolt 3 (with the function of Power Delivery and DP), Mini DisplayPort 1.4, HDMI 2.0, Ethernet (RJ-45), headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), security keyhole * Power Delivery only supports power-out for charging peripherals * Depending on many factors, actual data transfer speed may be lower than theoretical speed Optional: Lenovo Mini-DisplayPort to DisplayPort Monitor Cable
Memory 12 on * II	Mobile Intel CM24 28GB non-ECC only on Xeon prod Installed DIMMs ar	or 64ĠB cessor), re actually	ECC max dual-chann 2666MHz b	el capable ut run at 24	e, four D 100MHz	DR4 SO-I due to Intel	DIMM sockets limitation)IR camera and HD720p camera, fixed focus HD Audio, Realtek® ALC3286 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack, Dolby Atmos® headphone
	16:9 aspe Some: 17.3" (439	ct ratio, 8 9mm) 4K	300:1 contr	ast ratio, 7 60), anti-gl	72% gar are, LE	mut, 170° i D backligh		Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, numeric keypad, LED backlight 3-button TrackPoint® pointing device and 3-button Mylar surface multi-touch touchpad
Pen Su Storage Up	170° viewi None Supports pen acc Up to 3 drives (two Nome: HDD / S	essory, postable angle essory, postable angle essory, postable essory, postable essory	e olease see and one HDL Gb/s, 2.5" v	the acces	sory co	mpatibility	•	Color calibration	Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified Intel vPro Technology rTouch style match on chip fingerprint reader on the palm rest None
Optane™ memory <i>Optane</i> RAID <i>(optional)</i> RAID Optical No	Some: M.2 SSE Optional: Intel Op RAID 0/1 support None	D / PCIe otane me	NVMe, PC emory, PCIe	le 3.0 x 4, e NVMe, P	32Gb/s Cle 3.0	s x2	,	NFC (optional) Battery Max battery life AC adapter	Near Field Communication Li-ion 99Wh battery, supports Rapid Charge (charge up to 80% in 1hr) MobileMark® 2014: 18 hr * Battery life varies significantly with settings, usage, & other factors 230W slim tip AC adapter
WLAN Int	Non-vPro model: vPro model: ntel Wireless-AC Bluetooth 5.0 wire	Intel Eth 9560, W	ernet Conn 'i-Fi 2x2 802	ection I21 2.11ac + E	9-LM (J Bluetoot	lacksonvill h 5.0, M.2	e) card	Preload	One of the following, configurable by model: • Windows® 10 Home 64 • Windows 10 Pro 64
WWAN No	lone lone	,	<u> </u>					Limited warranty	 Windows 10 Pro 64 for Workstations One of the following, configurable by model: 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service
								Mil-Spec test	MIL-STD-810G military certification
Note: The specification								Environment	EPEAT™ Gold (US only); ENERGY STAR® 7.0; RoHS-compliant









ThinkPad T470 Platform Specifications

Processor	6th Gener	ation Ir	ntel® Core	=™ i5 / i7 P	rocessor o	r			Dimensions	WxDxH:	13.25" x 9.15" x 0.79"; 336.6mm x 232.5mm x 19.95mm			
	Processor	# of	# of	Base	Max Turbo		Memory	Processor	Weight	Models	3-cell or 3 + 3-cell 6-cell or 3 + 6-cell			
	Number	-	-	Frequency	Frequency	Cache	Types	Graphics		Magnesium	3.49 lb / 1.58 kg 3.92 lb / 1.78 kg			
	i5-6200U			2.3 GHz	2.8 GHz	змв				PPS	3.63 lb / 1.65 kg 4.35 lb / 1.85 kg			
	i5-6300U	2	, [2.4 GHz	3.0 GHz	3MB	DDD4 0100	Intel HD Graphics	Case color	Black				
	i7-6500U	1 2	4	2.5 GHz	3.1 GHz	4MB	DDR4-2133	520	Case material		over: Magnesium Hybrid or PPS;			
	i7-6600U]		2.6 GHz	3.4 GHz	4MB				Bottom:	Glass-Fiber Reinforced Plastic			
	7th Gener	ation Ir	itel Core	i3 / i5 / i7 F	Processor	•				rOptional:	Smart card reader			
	Processor	# of	# of	Base	Max Turbo	Cache	Memory	Processor	Media reader Ports	4-In-1 read	der (MMC, SD, SDHC, SDXC), supports SD 3.0, UHS-I B 3.1 Gen 1 (USB 3.0, one Always On),			
	Number	Cores	Threads	Frequency	Frequency	Cache	Types	Graphics	Forts		ype-C Gen 2 / Thunderbolt 3 (w/ the function of Power Delivery and DF			
	i3-7100U			2.4 GHz	-	3MB					b, Ethernet (RJ-45), Dock connector			
	i5-7200U			2.5 GHz	3.1 GHz	3MB		Intel HD Graphics		* Depending	g on many factors, actual data transfer speed may be lower than theoretical spee			
	i5-7300U	2	4	2.6 GHz	3.5 GHz	3MB	DDR4-2133	620	WiGig dock (opt)		WiGig dock			
	i7-7500U			2.7 GHz	3.5 GHz	4MB		020	Monitor cable		Lenovo USB-C to VGA Adapter			
	i7-7600U			2.8 GHz	3.9 GHz	4MB			Camera (optional) 720p:	HD720p resolution, fixed focus			
	* i7-6500U	is NOT a	available ii	n EMEA					Audio support		: IR camera and HD720p camera (mutually exclusive with WiGig) Realtek ALC3268 codec / stereo speakers, 2W x 2 /			
Graphics				620 in prod			rce® 940M)	,			microphone, combo audio/microphone jack			
								x, e in EMEA);	Keyboard		I-resistant, multimedia Fn keys, optional LED backlight			
	supports e	externa	l digital n	nonitor via	HDMI or U			- //	UltraNav™		pointing device and buttonless Mylar surface multi-touch touchpad			
	supports t	hree in	depende	nt displays	; on	0\ 10	00.0400	0.41.1- (1.10.141)	Security		password, hard disk password, supervisor password, security keyhole			
						C); 40	96X2160@	24Hz (HDMI)	Security chip vPro (optional)		PM 2.0, TCG Certified Technology			
Chipset	Intel SoC	(Syster	n on Chi	p) platform			DDD4.0	O DIMM	Fingerprint reade	r Optional:	Touch style match on chip fingerprint reader on the keyboard bezel			
Memory				ora, quai-c cessors with				O-DIMM sockets	NFC (optional)		Communication			
Display							D backlight,		Internal battery					
, ,	22	20 nits,	16:9 asp	ect ratio, 4	00:1 contra	st ratio			External battery Max battery life		r 3-cell (24Wh) or Li-ion 6-cell (48Wh or 72Wh)			
							ED backlig	ht,	(MobileMark® 2014)	Models Integrated	3-cell 3+3-cell 6-cell 48Wh 6-cell 72Wh 3+6-cell 48Wh 3+6-cell 72Wh			
				ect ratio, 4			ED backlig	ht IPS	(
	25	50 nits.	16:9 asp	ect ratio. 7	00:1 contra	ist ratio	. 170° view	ing angle		Discrete 6.9 hr 13.9 hr 14.3 hr 21.6 hr 21.2 hr * Battery life varies significantly with settings, usage, & other factors				
Multi-touch (opt)	On-cell to	uch, sú	pports 10	0-finger ge	sture (FHD	IPS pa	nel with PF	S cover only)	AC adapter		Will slim tip AC adapter, 45W or 65W USB Type-C AC adapter			
Storage				one M.2 228					Preload		7 Professional 64 preinstalled <i>Some</i> : Windows 10 Home 64			
	Some: HI	DD / S/	ATA 6.0G	ib/s, 2.5" w	ide, 7mm h	nigh, Ad	tive Protect	ion System™			owngrade rights in Some: Windows 10 Pro 64			
	Some: Si	20/2F	11A 6.0G	NVMe, PCI	ae, /mm r	ign (e.(g. xxxGB S	5D)		Windows 1				
							ot as 2nd S	torage.			Solution Center • Lenovo Setting			
				e with WWA							PowerEngage • Microsoft Office preloaded; ntage Product Recovery purchase a product key to activate			
Optical	None										ntage System Update			
Ethernet							cksonville)			 Adobe[®] I 	Reader® .			
-	vPro mode						Jacksonville	<u> </u>			ft® Office preloaded;			
WLAN	One of the	following	g, configur	able by mod	el (WiGig ca	n coexis	t with WWAN	I):			e a product key to activate ▷ LiveSafe™ (30-day trial)			
	Realtek®							M O oord	Limited warrant:		, ,			
							ac + BT4.1, ac + BT4.1,		Limited warranty		following, configurable by model: epot repair service			
								302.11ac + BT4.1,			-yr battery depot repair service			
	M.2 card	t			ŭ						-yr battery limited onsite service			
Bluetooth™	Bluetooth	4.1 wir	eless, int	egrated in	Wi-Fi + Blu	etooth	combo ada 3T4.1 by Wind	pter	Mil-Spec test	MIL-STD-8	810G military certification			
WWAN (optional)							ist with WiGig		Environment	EPEAT™ C	Gold (US only); ENERGY STAR® 6.1; RoHS-compliant			
vv vvniv (upiiuilai)	 Wireless 				CI (VVVVAIV C	an ooex	S. WILL WIGH	<i>y</i> .						
	• Integrate				TE-A,									
	Qualcom	nm® Sn	apdragoi	n™ X7 LTE	-A (Sierra	Wireles	s EM7455)	, M.2 card						
	 Integrate 						4 - 4							
SIM card (opt)				com L831-E				MEA) SIM card						
J Gara (Opt)	IVIIOI O OIIVI	i Jaia S	ioi, opi v	CHZOH LI L	(30) 01 L0	,,,ovo	Connect (L	wierty Olivi Galu			Lenc			



ThinkPad T470s Platform Specifications

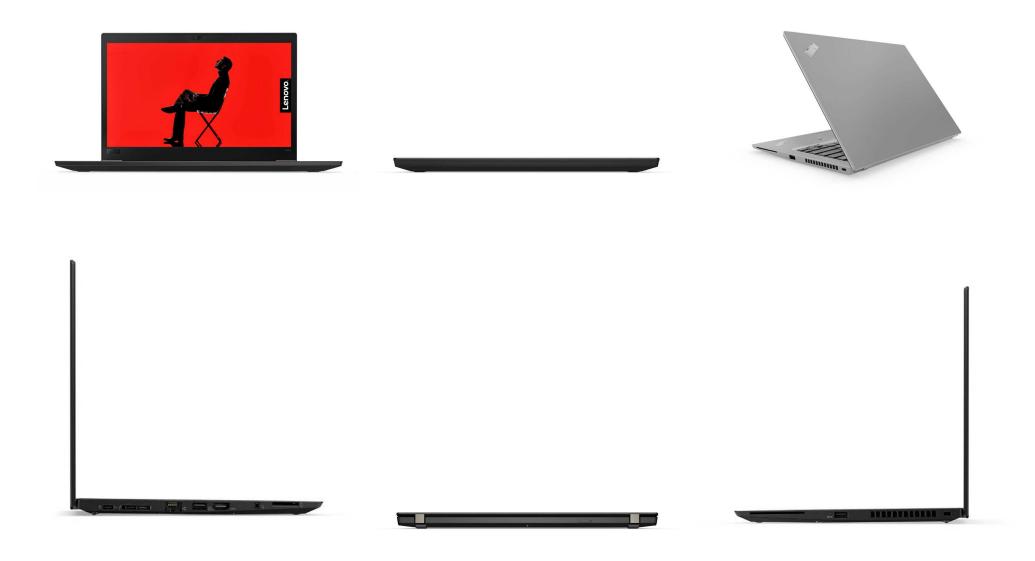
Processor	6th Generation Intel® Co	ore™ i5 / i7 Processor			Dimensions	WxDxH: 13.03" x 8.93" x 0.67-0.74"; 331mm x 226.8mm x 16.9-18.8mm
	Processor # of # of Threads i5-6200U i5-6300U 2 4	2.3 GHz 2.8 GHz 3MB	Memory Types DDR4-2133	Processor Graphics	Weight Case color Case material	Starting at 2.9 lb (1.32kg) Black or Silver Display cover: CFRP Hybrid; Bottom: Magnesium
	i7-6600U	2.6 GHz 3.4 GHz 4MB	_DDR4-2133	520	Smart card reade Media reader	er <i>Optional:</i> Smart card reader 4-in-1 reader (MMC, SD, SDHC, SDXC)
	or 7th Generation Intel C		1		Ports	Three USB 3.1 Gen 1 (USB 3.0, one Always On), USB 3.1 Type-C Gen 2 / Thunderbolt 3 (w/ the function of Power Delivery and DP),
	Processor # of # of Number Cores Threads		Memory Types	Processor Graphics		HDMI 1.4b, Ethernet (RJ-45), Dock connector * Depending on many factors, actual data transfer speed may be lower than theoretical speed
	i5-7200U i5-7300U i7-7500U i7-7600U 2 4	2.5 GHz 3.1 GHz 3MB 2.6 GHz 3.5 GHz 3MB 2.7 GHz 3.5 GHz 4MB 2.8 GHz 3.9 GHz 4MB	DDR4-2133	Intel HD Graphics 620	Monitor cable (optional)	ThinkPad WiGig dock, mutually exclusive with WWAN HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter
					Camera (optional	I)HD720p resolution, fixed focus (models without camera are NOT available in EMEA)
•	supports three independ	monitor via HDMI or USB Tyldent displays;	,		Audio support	HD Audio, Realtek® ALC3268 codec / stereo speakers, 1W x 2 / dual array microphone, combo audio/microphone jack
	Max resolution: 4096x23 Intel SoC (System on Ch	304@60Hz (USB Type-C); 40 hip) platform	096x2160@	24Hz (HDMI)	Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, optional LED backlight TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
Memory	20GB or 24GB max ⁷ / 24 4GB or 8GB memory so	400MHz DDR4, dual-channel oldered to systemboard, one Expressors with lower memory con	DR4 SÓ-D	IMM socket	Security Security chip vPro (optional)	Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified Intel vPro Technology
	250 nits, 16:9 as	FHD (1920x1080), anti-glare, spect ratio, 700:1 contrast rati	o, 160° view	ving angle	Fingerprint reade NFC (optional)	er <i>Optional:</i> Touch style match on chip fingerprint reader on the palm rest Near Field Communication
	300 nits, 16:9 as	ŴQHD (2560x1440), anti-glar spect ratio, 700:1 contrast rati 10-finger gesture, 250 nits (F	o, 160° view	klight, IPS, ving angle	Internal battery Max battery life	Front Li-Polymer 3-cell (23Wh) and rear Li-ion 3-cell (26Wh), both Integrated MobileMark® 2014: up to 10.5 hr * Battery life varies significantly with settings, usage, & other factors
	One of the following, configu				AC adapter	45W slim tip AC adapter, 45W or 65W USB Type-C AC adapter
	 M.2 SSD / SATA 6.0Gb M.2 SSD / PCIe NVMe 	b/s (e.g. xxxGB SSD M.2) e, PCle 3.0 x 4, 32Gb/s (e.g. x	vvGB SSD	M 2 PCIe NVMe)	Preload	Windows® 7 Professional 64 preinstalled Some: Windows 10 Home 64 through downgrade rights in Some: Windows 10 Pro 64
	None	2, 1 Ole 0.0 x 4, 0200/3 (e.g. 7	AXGD GGD	WI.Z T OIC WVIVIC)		Windows 10 Pro 64 • Lenovo Companion
		thernet Connection I219-V (Jathernet Connection I219-LM (Lenovo Solution Center Lenovo PowerEngage ThinkVantage Product Recovery Lenovo Setting Microsoft Office preloaded; purchase a product key to activate
	 Intel Dual Band Wireles Intel Dual Band Wireles Intel Tri-Band Wireless-M.2 card 	urable by model (WiGig is mutual ss-AC 8260, Wi-Fi 2x2 802.11 ss-AC 8265, Wi-Fi 2x2 802.11 -AC 18265, WiGig 802.11ad	ac + BT4.1 ac + BT4.1 Wi-Fi 2x2	, M.2 card , M.2 card 802.11ac + BT4.1,		 ThinkVantage Product Necovery ThinkVantage System Update Adobe® Reader® Microsoft® Office preloaded; purchase a product key to activate McAfee® LiveSafe™ (30-day trial)
	* Intel 8265ac / 18265ac ca	ntegrated in Wi-Fi + Bluetooth ard support BT4.2 but is limited to	BT4.1 by Win	dows OS	Limited warranty	One of the following, configurable by model: • 1-year depot repair service
(-7/	One of the following, configuWireless WAN upgradaIntegrated Mobile Broa		ve with WiGig	1):		3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service
		adband 4G LTE-A, Jon™ X7 LTE-A (Sierra Wirele	ss EM7455), M.2 card	Mil-Spec test	MIL-STD-810G military certification
SIM card (opt)		pt Verizon LTE (ÙS) or Lenove			Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant

April 2019



ThinkPad T480 Platform Specifications

Processor	7th Gener	ation Ir	ntel® Cor	e™ i5 Proc	essor				Dimensions	WxDxH:	13.25" x 9	.15" x 0.79"; 336.6mm		
	Processor	# of	# of	Base	Max Turbo	Cache	Memory	Processor	Weight	Models		24Wh or 24Wh + 24Wh	48Wh, 72Wh, or 24Wh +	
	Number	Cores	Threads	 	Frequency		Types	Graphics	4	Integrated N		3.49 lb / 1.58 kg	3.92 lb / 1.78	
	i5-7200U	2	4	2.5 GHz	3.1 GHz	3MB	DDR4-2133	Intel HD Graphics 620		Integrated F		3.63 lb / 1.65 kg	4.08 lb / 1.85	
	i5-7300U	L		2.6 GHz	3.5 GHz	3MB		620	_	Discrete Ma		3.53 lb / 1.60 kg	3.97 lb / 1.80	
				ore i3 / i5 /		or				Discrete PF	S	3.68 lb / 1.67 kg	4.12 lb / 1.87	кд
	Processor Number i3-8130U	# of Cores 2	# of Threads 4	Base Frequency 2.2 GHz	Max Turbo Frequency 3.4 GHz	Cache 4MB	Memory Types	Processor Graphics	Case color Case material	Black Display co Bottom:		esium Hybrid or PPS; -Fiber Reinforced Plasti	С	
	i5-8250U i5-8250U i5-8350U i7-8550U i7-8650U	4	8	1.6 GHz 1.7 GHz 1.8 GHz 1.9 GHz	3.4 GHz 3.6 GHz 4.0 GHz 4.2 GHz	6MB 6MB 8MB 8MB	DDR4-2400	Intel UHD Graphics 620	Smart card reade Media reader Ports	4-in-1 read Two USB 3 one USB 3 one USB 3	er (MMC, 8 8.1 Gen 1 (6.1 Type-C (6.1 Type-C (SD, SDHC, SDXC) one Always On), Gen 1 (with the function Gen 2 / Thunderbolt 3 (v	with the function of PD	DisplayPort), and DP),
Graphics	Intel HD G NVIDIA® ((discrete g supports e supports t	Graphic GeForc graphic externa hree in	s 620 or e® MX15 s is avai dl digital r depende	Intel UHD 50, 2GB GD lable only on monitor via ent displays	Graphics 6 DR5 mem In i7 model HDMI or U	20 in p ory <i>s in EM</i> ISB Typ	e-Ć;		Monitor cable (optional)	headphone 4-in-1 med side dockir * Depending HDMI to V USB-C to I	e / microphe ia reader (la ng connecte on many fact GA: Lenov DP: Lenov	(RJ-45), nano-SIM card one combo jack, optiona MMC, SD, SDHC, SDXO or, security keyhole ctors, actual data transfer s to HDMI to VGA Monito vo USB-C to DisplayPor	al smàrt card reader, C), peed may be lower than th r Adapter	neoretical speed
Chipset Memory	32GB max	k / 240	OMHz DI		channel cap		wo DDR4 S ory controlle	O-DIMM sockets	Camera (optional Audio support	HD720pIR camer	camera wit a and HD7	h ThinkShutter camera 20p camera, fixed focus		
Display		220 nit	ts, 16:9 a	aspect ratio	, 400:1 cor	trast ra	ED backligh tio LED backli		- Audio Support	stereo spe	akers, 2W	LC3287 codec / x 2, Dolby® Audio™ Prei e, headphone / microph		
	Some: 1	250 nii 14.0" (3	ts, 16:9 a 355mm) \	aspect ratio WQHD (25	, 700:1 cor 60x1440),	ıtrast ra anti-gla	itio, 170° vie re, LED bac io, 72% gan	ewing angle cklight, IPS,	Keyboard UltraNav™ Security	TrackPoint	pointing d	multimedia Fn keys, opt evice and buttonless My nard disk password, sup	ylar surface multi-touch	<u> </u>
Multi-touch (opt)		170° vi	ewing an	ģle			, g	,	Security chip vPro (optional)	ecurity chip Discrete TPM 2.0, TCG Certified				
Storage	System has Some: H	one Hi	DD slot or ATA 6.00	one M.2 228 Bb/s, 2.5" w	30 slot exclusion	sively for		ion System™ SD)	Fingerprint reade	r <i>Optional:</i> Rear Field	anti-spoófir	match on chip fingerpri ng technology cation	nt reader on the keybo	ard bezel,
	Some: M Some: 12	.2 SSE 28GB N) / PCle I M.2 SSD	NVMe, PCI / PCIe NVI	e 3.0 x 2, 1 Me. PCle 3	6Gb/s .0 x 2.	3	,	Battery Max battery life			-ion 24Wh battery and 48Wh, or 72Wh battery h 48Wh 72Wh 24W	ı /h + 24Wh 24Wh + 48Wh	0.414/6 . 7014
Optane™ memory Optical	Optional: None	Intel O	ptane m	emory, PC	e NVMe, F	Cle 3.0) x 2	7/114	(MobileMark® 2014	Integrated n	nodel 7.2 h	nr 14.4 hr 21.8 hr	14.4 hr 21.8 hr 13.6 hr 19.8 hr	29.0 hr 26.4 hr
Ethernet	Non-vPro vPro mod						cksonville) Jacksonville)	AC adapter	* Battery I	fe varies s	ignificantly with settings be-C AC adapter		
WLAN + Bluetooth™							+ Bluetoot 4.1 by Wind	h 4.1, M.2 card lows OS	Preload	Windows®	10 Home 6	64 or Windows 10 Pro 6	4	
WWAN (optional)	Integrate Intel XMIntegrate	ed Mob M™ 72 ed Mob	ile Broad 62 (Fibo ile Broad	dband 4G L com L830-l dband 4G L	TE, EB), M.2 ca TE-A,	ırd (EM		ptane memory):	Limited warranty	1-year de3-year/1-3-year/1-	epot repair yr battery o yr battery l	depot repair service imited onsite service		
	Intel XM	M™ 73	60 (Fibo	com I 850-0	31). M.2 ca	ırd			Mil-Spec test	MIL-STD-8	10G milita	ry certification		
SIM card (opt)				neans the mo					Environment	EPEAT™ C	old (US or	nly); ENERGY STAR® 6.	1; RoHS-compliant	



ThinkPad T480s Platform Specifications

Processor	7th Genera	ation Ir	ntel® Cor	e™ i5 Proc	essor				Dimensions WxDxH: 13.03" x 8.93" x 0.73"; 331mm x 226.8mm x 18.45mm				
	Processor Number	Number Cores Threads Frequency Frequency Cache Types Graphics							Weight Case color	Starting at 2.9 lb (1.32kg) Black or Silver			
	i5-7200U i5-7300U	2	4	2.5 GHz 2.6 GHz	3.1 GHz 3.5 GHz	3MB 3MB	DDR4-2133	Intel HD Graphics 620	Case material	Display cover: CFRP Hybrid; Bottom: Magnesium			
	or 8th Gen	neration	n Intel Co			02		Smart card reade Media reader	<i>Optional:</i> Smart card reader 4-in-1 reader (MMC, SD, SDHC, SDXC)				
	Processor	# of	# of	Base	Max Turbo	Cache	Memory	Processor	Ports	Two USB 3.1 Gen 1 (one Always On),			
	Number	Cores	Threads	_ ,	Frequency		Types	Graphics		one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP),			
	i5-8250U i5-8350U			1.6 GHz 1.7 GHz	3.4 GHz 3.6 GHz	6MB 6MB		Intel UHD Graphics		HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models),			
	i7-8550U	4	8	1.8 GHz	4.0 GHz	8MB	DDR4-2400	620		headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC),			
	i7-8650U			1.9 GHz	4.2 GHz	8MB				side docking connector, security keyhole			
Graphics	Intel UHD	Graphi	ics 620 iı	n processo	r and NVID)IA® Ge	ocessor on Force® MX1 able in EME	50,	Monitor cable (optional)	* Depending on many factors, actual data transfer speed may be lower than theoretical speed USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter			
	supports e	externa	l digitàl r	nonitor via	HDMI or U			Α),	Camera	One of the following, configurable by model:			
		ution: 4	4096x23	04@60Hz	; (USB Type	-C); 40	96x2160@3	BOHz (HDMI)	Audio support	 HD720p camera with ThinkShutter camera privacy, fixed focus IR camera and HD720p camera, fixed focus HD Audio, Realtek® ALC3287 codec / 			
Chipset Memory	Intel SoC (System on Chip) platform 20GB or 24GB max / 2400MHz DDR4, dual-channel capable,								Audio support	stereo speakers. 1W x 2. Dolbv® Audio™ Premium /			
WEITIOLY	4GB or 8G	B men	norv solo	dered to sv	stemboard	. one D	DR4 SO-DI	MM socket		dual array microphone, headphone / microphone combo jack			
Disales				cessors with				+ ID0	Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, optional LED backlight TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad			
Display							ED backligh 170° viewii		Security	Power-on password, hard disk password, supervisor password, security keyhole			
	sup	oports ⁻	ThinkPao	d Privacy G	luard on so	ome mo	dels	0 0 ,	Security chip	Discrete TPM 2.0, TCG Certified			
							LED backl 72% gamu		vPro (optional)	Intel vPro Technology Optional: Touch style match on chip fingerprint reader on the palm rest,			
	170	0° view	ing anġl	e		,	J	-,		anti-spoofing technology			
	On-cell tou					nits (FF	ID only)		NFC (optional)	Near Field Communication			
Storage	One of the f				ei:				Battery	Integrated Li-ion 57Wh battery, supports Rapid Charge (0-80% in 60 mins) with 65W USB Type-C AC adapter			
.	 M.2 SSD 				4, 32Gb/s	;			Max battery life	MobileMark® 2014: 15.6 hr			
Optane™ memory Optical	/None None								AC adapter	* Battery life varies significantly with settings, usage, & other factors 45W or 65W USB Type-C AC adapter			
Ethernet	Non-vPro								Operating system	Windows® 10 Home 64 or Windows 10 Pro 64			
-	vPro mode						lacksonville	<u> </u>	Limited warranty	One of the following, configurable by model:			
WLAN + Bluetooth™							+ Bluetootl 4.1 by Wind	n 4.1, M.2 card		 1-year depot repair service 3-year/1-yr battery depot repair service 			
WWAN (optional)						u to DT	t. I by Willa	000	<u> </u>	3-year/1-yr battery limited onsite service			
(optional)	 Wireless 	WAN	upgradal	ole					Mil-Spec test	MIL-STD-810G military certification			
	 Integrate 	ed Mobi	ile Broad 62 (Fibor	lband 4G L com L830-E	TE, FR) M 2 ca	ard (EM	EA only)		Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant			
	 Integrate 	d Mob	ile Broad	lband 4G L	TÉ-A,								
SIM card (opt)	Intel XMI Nano-SIM			com L850-0			rd						
Note: The specifica					` '	Cilvi ca	ıu			Leno			



ThinkPad T490 Platform Specifications

Processor	8th Generation Intel®	Core	™ i5 / i7 Pr	ocessor					Dimensions	WxDxH: 12.95" x 8.94" x 0.74"; 329mm x 227mm x 18.9mm				
	Processor # of # of	of	Base		ache	Memory Types	Proces Graph		Weight	Models FHD FHD Low Power / WQHD Weight 3.41 lb / 1.55 kg 3.23 lb / 1.46 kg				
	i5-8265U i5-8365U i7-8565U 4 8		1.6 GHz 1.6 GHz 1.8 GHz	4.1 GHz 6 4.6 GHz 8	MB	DR4-2400	ntel UHD (620			Black Display cover: PPS / 50% GF; Bottom: PA / 50% GF				
	i7-8665U		1.9 GHz	4.8 GHz 8	MB					er <i>Optional:</i> Smart card reader MicroSD card reader				
·	Intel UHD Graphics 6: Intel UHD Graphics 6: NVIDIA® GeForce® M supports external digi supports three indepe Max resolution: 4096:	20 in X250 tal m nder	processor , 2GB GDE onitor via H It displavs:	and DR5 memory IDMI or Thu	nderbo	•	lHz (HDN	ΛI)	Media reader Ports	Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPor one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader.				
Chipset Memory	Intel SoC (System on 48GB max / 2400MHz 8GB or 16GB memory * Installed memory is act	z DĎI / solo	Á4, dual-ch dered to sy:	stemboard,	one DI			et	microSD card reader, side docking connector, security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical speed (optional) Monitor cable (optional) Wight in the properties of the prop					
Display	Size Resolution	Тур	e Surface	Brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle	Bundled Accy	USB-C to DP: Lenovo USB-C to DisplayPort Adapter None				
	14.0" HD (1366x768)	T1	N Anti-glare	220 nits	16:9	400:1	45%	90°	Camera (optional) One of the following, configurable by model: • HD720p camera with ThinkShutter camera privacy, fixed focus				
	14.0" FHD (1920x1080)	IP	S Anti-glare	250 nits (non-touch) 300 nits (multi-touch)	16:9	700:1	45%	170°	Audio support	 IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / 				
	14.0" FHD (1920x1080) Low Power	IP	S Anti-glare	400 nits	16:9	800:1	72%	170°	Keyboard	dual array far-field microphone, headphone / microphone combo jack 6-row, spill-resistant, multimedia Fn keys, optional LED backlight				
	FHD (1920x1080) 14.0" ThinkPad Privacy Guard	IP	S Anti-glare	400 nits	16:9	1000:1	72%	170°	UltraNav™ Security Security chip	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0. TCG Certified				
	14.0" WQHD (2560x144 Dolby Vision™ HDI	0) R	S Glossy	500 nits	16:9	1500:1	100% Adobe	170°	System Mgt (opt) Fingerprint reade	Intel vPro Technology r <i>Optional:</i> Touch style match on chip fingerprint reader on the palm rest				
	On-cell touch, suppor			ture (FHD o	าly)				NFC (optional)	Near Field Communication				
	 M.2 2280 SSD / SA M.2 2280 SSD / PC M.2 2242 SSD / PC 	le N\ le N\	/Me, PCle /Me, PCle	3.0 x 2					Battery Max battery life	Integrated Li-ion 50Wh battery, supports Rapid Charge (charge up to 80% in 1hr) MobileMark® 2014: 16.11 hr * Battery life varies significantly with settings, usage, & other factors				
Optane™ memory Optical	Optional: Intel Optano None	e mei	mory, PCIe	NVMe, PCI	e 3.0 x	(2			AC adapter	45W or 65W USB Type-C AC adapter				
	Non-vPro model: Inte	E+h/	arnot Conn	action IO10	V / Ioo	koonvillo)			Preload	Windows® 10 Home 64 or Windows 10 Pro 64				
-	vPro model: Intel Intel Wireless-AC 956	Ethe	ernet Conn	ection I219-	LM (Ja	acksonville)			Limited warranty	One of the following, configurable by model: 1-year depot repair service 3-year/1-yr battery depot repair service				
WLAN (<i>optional)</i> Bluetooth™	Bluetooth 5.0 wireless						ter			3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service				
	One of the following, con			l:					Mil-Spec test	MIL-STD-810G military certification				
	 Wireless WAN upgra Integrated Mobile B Integrated Mobile B Integrated Mobile B * For non-WWAN model, 	oadb oadb oadb it me	and 4G LT and 4G LT and 4G LT	E-A, Fiboco E-A, Fiboco lel is NOT WM	m L85 m L86	0-GL, M.2 c 0-GL. MIMC	card		Environment	EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant				

















ThinkPad T490s Platform Specifications

									8th Generation Intel® Core™ i5 / i7 Processor										
		ores Threa	ds Fr	requency F	requericy	ache MB	Memory Types	Proces Graph		_	12.94" x 8.90" x 0.66"; 328.8mm x 226.15mm x 1 WxDxH (black with FHD Low Power / WQHD): 12.95" x 8.89" x 0.63"; 329.0mm x 225.8mm x 16								
	i5-8365U i7-8565U	4 8	1	1.6 GHz 1.8 GHz	4.1 GHz 6 4.6 GHz 8	MB D	DR4-2400 Int	tel UHD (620	Graphics)	Weight	MxDxH (s	ilver): 12.96" x 8	B.92" x 0.68"; 329.15mm x Black with FHD Low Power / WQHD / Privacy Guard	226.45mm x 17.2mm Silver					
	i7-8665U					MB				_	Weight	2.98 lb / 1.35 kg	2.81 lb / 1.27 kg	3.29 lb / 1.49 kg					
Graphics	Intel UHD Go supports ext supports thre Max resolution	ernal digita ee indenen	al mor	nitor via H	lDMÍ or Thui			Hz (HDM	Case color Case material	Black or Silver Display cover: CFRP Hybrid (black) or Aluminum (silver); Bottom: Magnesium er Optional: Smart card reader									
Chipset Memory	Intel SoC (Sy 8GB, 16GB of * Installed men	ystem on C or 32GB / 2	Chip) 2400N	platform MHz DDR	4 / soldered	to sys	temboard, n	o socke		Media reader Ports	MicroSD card reader Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPor								
Display	Size Resoluti	on	Туре	Surface	brightness	Aspect Ratio	Contrast Ratio	Color Gamut	Viewing Angle		one USB 3.1 Type-C Gen 2 Thunderbolt 3 (with the function of PD and DI HDMI 1.4b, Ethernet extension connector, nano-SIM card slot (WWAN monheadphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole *Depending on many factors, actual data transfer speed may be lower than theoretic HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter Optional: ThinkPad Ethernet Extension Adapter Gen 2								
	14.0" FHD (19	20x1080)	IPS	Anti-glare	250 nits (non-touch) 300 nits (multi-touch)	16:9	700:1	45%	170°	Monitor cable (optional)									
		920x1080) ver	IPS	Anti-glare	400 nits	16:9	800:1	72%	170°	Bundled Accy									
	14.0" FHD (19 ThinkPa Guard	920x1080) d Privacy	IPS	Anti-glare	400 nits	16:9	1000:1	72%	170°	Camera	One of the following, configurable by model: • HD720p camera with ThinkShutter camera privacy, fixed focus			xed focus					
		(2560x1440) ision™ HDR		Glossy	500 nits	16:9	1500:1	100% Adobe	170°	Audio support	 IR camera and HD720p camera with ThinkShutter camera privacy, fixed focular 								
Multi-touch (opt)				<u> </u>	ture (FHD or	nly)					dual array	far-field micropho	one, headphone / micropho	ne combo jack					
		TAP / DPS			3.0 x 4					Keyboard			nedia Fn keys, optional LED	hacklight					
Storage	 M.2 2280 3 M.2 2280 3 M.2 2280 3 	SSD / PCIe								UltraNav™	macki omi	pointing device	and buttonless Mylar surfac						
Storage Optane™ memory Optical	M.2 2280 \$M.2 2242 \$	SSD / PCIe SSD / PCIe	NVN	Me, PCle :	3.0 x 2	e 3.0 x	2			Security Security chip	Power-on Discrete T	password, hard d PM 2.0, TCG Cer	isk password, supervisor pa	e multi-touch touchpad					
Optane™ memory	 M.2 2280 \$ M.2 2242 \$ y Optional: Int 	SSD / PCIe SSD / PCIe el Optane Ethernet Ce	mem onne	Me, PCIe 3 nory, PCIe ction I219	3.0 x 2 NVMe, PCI 9-V (<i>Non-vPr</i>	ு) or l2	219-LM (<i>vPr</i>	ro)		Security Security chip System Mgt (opt) Fingerprint reader	Power-on Discrete T Intel vPro	password, hard d PM 2.0, TCG Cer Technology	isk password, supervisor pa	e multi-touch touchpad assword, security keyho					
Optane™ memory Optical	M.2 2280 3 M.2 2242 3 Optional: Int None Native Intel E via bundled of One of the foll Intel Wirele	SSD / PCIe SSD / PCIe SSD / PCIe sel Optane Ethernet Co or optional owing, config sss-AC 956	onned Think	Me, PCIe of nory, PCIe of nory, PCIe of nory, PCIe of norm, PCIE of norm	3.0 x 2 NVMe, PCI O-V (Non-vPr ernet Extens of: 02.11ac + Bl	o) or l2 ion Ad	219-LM (<i>vPr</i> apter Gen 2 h 5.0	70)		Security Security chip System Mgt (opt) Fingerprint reader	Power-on Discrete T Intel vPro Optional: Near Field Integrated MobileMai	password, hard d PM 2.0, TCG Cer Technology Touch style matcl Communication Li-ion 57Wh batt rk® 2014: 20 hr	isk password, supervisor pa tified n on chip fingerprint reader ery, supports Rapid Charge	ee multi-touch touchpad assword, security keyho on the palm rest c (charge up to 80% in 1					
Optane™ memory Optical Ethernet WLAN (optional)	M.2 2280 3 M.2 2242 3 Optional: Int None Native Intel E via bundled of One of the following the solution of the following the solution of the	SSD / PCIe SSD / PCIe sel Optane Ethernet Corroptional owing, configuress-AC 956 ess-AC 956	onned Think gurable 60, Wi	Me, PCIe of hory, PCIE of hory	3.0 x 2 NVMe, PCI O-V (<i>Non-vPr</i> ernet Extens ol: 02.11ac + BI 802.11ax + E	o) or 12 ion Ada uetoot	219-LM (<i>vPr</i> apter Gen 2 h 5.0 oth 5.0	•		Security Security chip System Mgt (opt) Fingerprint reader NFC (optional) Battery	Power-on Discrete T Intel vPro Optional: Near Field Integrated MobileMai * Battery life	password, hard d PM 2.0, TCG Cer Technology Touch style matcl Communication Li-ion 57Wh batt rk® 2014: 20 hr	isk password, supervisor partified n on chip fingerprint reader ery, supports Rapid Charge with settings, usage, & other fo	ee multi-touch touchpad assword, security keyho on the palm rest c (charge up to 80% in 1					
Optane™ memory Optical Ethernet WLAN (optional)	M.2 2280 3 M.2 2242 3 Optional: Int None Native Intel E via bundled One of the following Intel Wirele Intel Wirele Bluetooth 5.0 One of the following of the following Intel Wirele	SSD / PCIe SSD / PCIe SSD / PCIe I Optane Ethernet Co or optional owing, configures, AC 956 SSS-AX 222 O wireless, owing, configure	onned Think gurable 60, Wi 160, Wi integ	Me, PCIe sory, PCIe ction I219 kPad Ethe by model i-Fi 2x2 80 Wi-Fi 2x2 8 grated in Wele by model	3.0 x 2 NVMe, PCI P-V (<i>Non-vPr</i> ernet Extens <i>I:</i> 02.11ac + Bl 802.11ax + E Vi-Fi + Bluet	o) or 12 ion Ada uetoot	219-LM (<i>vPr</i> apter Gen 2 h 5.0 oth 5.0	•		Security Security chip System Mgt (opt) Fingerprint reader NFC (optional) Battery Max battery life	Power-on Discrete T Intel vPro Optional: Near Field Integrated MobileMai * Battery lift 45W or 65	password, hard d PM 2.0, TCG Cer Technology Touch style matcl Communication Li-ion 57Wh battrik [®] 2014: 20 hr ie varies significantly W USB Type-C A	isk password, supervisor partified n on chip fingerprint reader ery, supports Rapid Charge with settings, usage, & other fo	ee multi-touch touchpad assword, security keyho on the palm rest c (charge up to 80% in 1					
Optane™ memory Optical Ethernet	M.2 2280 3 M.2 2242 3 Optional: Int None Native Intel E via bundled of One of the following Intel Wirele Intel Wirele Bluetooth 5.6	SSD / PCIe SSD / PCIe SSD / PCIe el Optane Ethernet Corroptional owing, configures- ss-AC 956 ss-AX 222 D wireless, owing, configures- MObile Bro Mobile Bro	onned Think gurable 60, Wi 160, W integ gurable dable badba	Me, PCIe anory, PCIe ction I219 kPad Ethewale by modeli-Fi 2x2 8 Wi-Fi 2x2 8 grated in Wale by modelism and 4G LT and 4G LT	3.0 x 2 NVMe, PCI D-V (Non-vPr ernet Extens d: 02.11ac + Bl 802.11ax + E Vi-Fi + Bluet d: E, Fibocom E-A, Fibocom	ro) or I2 ion Adduction uetoot Bluetoo ooth co	219-LM (<i>vPr</i> apter Gen 2 h 5.0 oth 5.0 ombo adapte	er I (EMEA	only)	Security Security chip System Mgt (opt) Fingerprint reader NFC (optional) Battery Max battery life AC adapter	Power-on Discrete T Intel vPro Optional: Near Field Integrated MobileMan * Battery lift 45W or 65 Windows® One of the fi • 1-year di • 3-year/1	password, hard d PM 2.0, TCG Cer Technology Touch style matcl Communication Li-ion 57Wh battrik 20 hr ie varies significantly W USB Type-C A	isk password, supervisor partified n on chip fingerprint reader ery, supports Rapid Charge with settings, usage, & other for C adapter Vindows 10 Pro 64 ble by model: e repair service	ee multi-touch touchpad assword, security keyho on the palm rest c (charge up to 80% in 1					
Optane™ memory Optical Ethernet WLAN (optional)	M.2 2280 \$ M.2 2242 \$ y Optional: Int None Native Intel E via bundled of One of the foll Intel Wireles Bluetooth 5.0 One of the foll Wireless Wireless one of the foll Wireless of the Integrated of Integrated Integrated	SSD / PCIe SSD / PCIe SSD / PCIe el Optane Ethernet Corroptional owing, configures- ss-AC 956 ss-AX 222 D wireless, owing, configures- MObile Bro Mobile Bro	onned Think gurable 60, Wi 160, W integ gurable dable badba	Me, PCIe anory, PCIe ction I219 kPad Ethewale by modeli-Fi 2x2 8 Wi-Fi 2x2 8 grated in Wale by modelism and 4G LT and 4G LT	3.0 x 2 NVMe, PCI D-V (Non-vPr ernet Extens d: 02.11ac + Bl 802.11ax + E Vi-Fi + Bluet d: E, Fibocom E-A, Fibocom	ro) or I2 ion Adductoot Bluetoo ooth co	219-LM (<i>vPr</i> apter Gen 2 h 5.0 oth 5.0 ombo adapte	er I (EMEA	only)	Security Security chip System Mgt (opt) Fingerprint reader NFC (optional) Battery Max battery life AC adapter Preload	Power-on Discrete T Intel vPro of Optional: Near Field Integrated MobileMan * Battery life 45W or 65 Windows® One of the it • 1-year de • 3-year/1 • 3-year/1	password, hard d PM 2.0, TCG Cer Technology Touch style matcl Communication Li-ion 57Wh battr *\text{\text{\$\text{\$}}} 2014: 20 hr *\text{\$\text{\$\text{\$}}} 2015 CA *\text{\$\text{\$\text{\$}} 2015 CA *\text{\$\text{\$\text{\$}}} 2015 CA *\text{\$\text{\$\text{\$\text{\$}}} 2015 CA *\text{\$\text{\$\text{\$}}} 2015 CA *\tex	isk password, supervisor patified n on chip fingerprint reader ery, supports Rapid Charge with settings, usage, & other for C adapter Vindows 10 Pro 64 ble by model: e repair service I onsite service	ee multi-touch touchpad assword, security keyho on the palm rest c (charge up to 80% in 1					



ThinkPad T570 Platform Specifications

Processor	6th Gener	ation Ir	ntel® Core	e™ i5 / i7 P	rocessor				Dimensions				30"; 365.8mr	n x 252.8mm x	19.95-20.2mm
	Processor # or # or base Max rurbo Cache Memory Processor								Weight	Weight Starting at 4.34 lb / 1.97 kg Case color Black					
	Number i5-6200U	Cores	Threads	Frequency 2.3 GHz	Frequency 2.8 GHz	3MB	Types	Graphics	Case material	Display co		Fiber Reinford		PS);	
	i5-6300U	2	4	2.4 GHz	3.0 GHz	3MB	DDR4-2133	Intel HD Graphics 520		Bottom:		Fiber Reinford	ed Plastic		
	i7-6600U			2.6 GHz	3.4 GHz	4MB		520	Smart card reader <i>Optional:</i> Smart card reader Media reader 4-in-1 reader (MMC, SD, SDHC, SDXC), supports SD 3.0, UHS-I						
	or 7th Ger	neration	Intel Co	ore i5 / i7 P	rocessor				Ports	orts Three USB 3.1 Gen 1 (USB 3.0, one Always On),					
	Processor Number	# of Cores	# of Threads	Base Frequency	Max Turbo Frequency	Cache	Memory Types	Processor Graphics		USB 3.1 Type-C Gen 2 / Thunderbolt 3 (w/ the function of Power Delivery HDMI 1.4b, Ethernet (RJ-45), Dock connector					Delivery and DP),
	i5-7200U	00103	Tilledas	2.5 GHz	3.1 GHz	3MB	Турсз	Стартноз	MiCin de els (emt)	* Depending	on manv fac	tors. actual data		l may be lower tha	n theoretical speed
	i5-7300U 2.6 GHz 3.5 GHz 3MB DDB4-2133 Intel HD Graphics				WiGig dock <i>(opt)</i> Monitor cable		MGIG GOCK GA: Leno	(US only) vo HDMI to V(GA Monitor A	dapter					
	i7-7500U i7-7600U	-	•	2.7 GHz	3.5 GHz	4MB 4MB	BB111 2100	620	(optional)			vo USB-C to \			
				2.8 GHz	3.9 GHz				Camera (optional	Camera (optional) 720p: HD720p resolution, fixed focus IR & 720p: IR camera and HD720p camera (mutually exclusive with WiGig)					iith MiCia)
Graphics	Intel HD G	araphic	s 520 or	620 in prod	cessor only cessor and	,			Audio support	HD Audio,	Realtek AL	C3268 codec	/ stereo spea	kers, 2W x 2 /	ntii widig)
					HDML or LI				Karaha a wal		<u> </u>	, combo audio	<u>'</u>	<u>, </u>	
	supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI)							DAHZ (HDMI)	Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backligh TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad					
Chipset	Intel SoC				` ''	0), 40	30,2100@	E4112 (LIDIVII)	Security Security chip				word, supervi	sor password, s	ecurity keyhole
Memory	32GB max	x / 2400	MHz DE	DR4, dual-c	channel cap			O-DIMM sockets	vPro (optional)	Discrete TPM 2.0, TCG Certified Intel vPro Technology					
Display	* System clocks down for processors with lower memory controller								Fingerprint reade NFC <i>(optional)</i>	er <i>Optional:</i> Touch style match on chip fingerprint reader on the palm rest Near Field Communication					
Бізріаў	Some: 15.6" (396mm) HD (1366x768), anti-glare, LED backlight, 220 nits,16:9 aspect ratio, 400:1 contrast ratio								Internal battery	Optional: Integrated Li-Polymer 4-cell (32Wh)					
	Some: 15	5.6" (39 50 nits	6mm) FF 16·9 asn	ID (1920x1	1080), anti- 00:1 contra	glare, L	ED backlig	ht, IPS, ng angle	External battery	Li-Polymer	3-cell <i>(24</i> И	<i>/h)</i> or Li-ion 6-	-celÌ <i>(48Wh o</i>		
	250 nits, 16:9 aspect ratio, 700:1 contrast ratio, 170° viewing angle Some: 15.6" (396mm) 4K (3840x2160), anti-glare, LED backlight, IPS, 300 nits,							, IPS, 300 nits,	(MobileMark® 2014)	ax battery life Models 4 + 3-cell 6-cell 48Wh 6-cell 72Wh 4 + 6-cell 48Wl MobileMark® 2014) Integrated 13.8 hr 12.5 hr 18.5 hr 20.3 hr					4 + 6-cell 72Wh 27.1 hr
Multi-touch (opt)	16 On-cell to	i:9 aspe uch, su	ect ratio, pports 1	1000:1 cor 0-finger ge	ntrast ratio, sture (FHD	72% ga only)	amut, 170°	viewing angle	,	discrete	13.8 hr	12.5 hr	18.5 hr	20.3 III 20.0 hr	26.8 hr
Storage					30 slot exclus		storage			* Battery life	e varies signit	icantly with sett	ings, usage, &	other factors	
J								ion System™	AC adapter					SB Type-C AC a	<u> </u>
					iae, 7mm r e 3.0 x 2, 1		g. xxxGB S	(טט	Preload	Windows® 7 Professional 64 preinstalled <i>Some:</i> Windows 10 Home 64 through downgrade rights in <i>Some:</i> Windows 10 Pro 64					
	Some: 12	28GB N	1.2 SSD	/ SATA 6.0	Gb/s, in W	NAN sle	ot as 2nd S	torage,		Windows 1	0 Pro 64	•		o Companion	
Optical	None	utuany	exclusive	e with vvvv	AN and Wi	aig					Solution Cer PowerEngac			o Setting soft Office prelo	oaded:
Ethernet							cksonville)	`	-	 ThinkVar 		ct Recovery		ase a product ke	
WLAN	vPro mode						lacksonville t with WWAN	,	<u> </u> -	 Adobe[®] I 	Reader®				
WLAIN							M.2 card (U			Microsoft® Office preloaded; purchase a product key to activate					
	 Intel Dua 	al Band	Wireless	s-AC 8260,	Wi-Fi 2x2	802.11	ac + BT4.1,	M.2 card				(30-day trial)	·		
	• Intel Tri-	Band W	Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card /ireless-AC 18265, WiGig 802.11ad + Wi-Fi 2x2 802.11ac + BT						Limited warranty		•	igurable by mod	del:		
Bluetooth™	M.2 card					ntor		 1-year depot repair service 3-year/1-yr battery depot repair service 							
	* Intel 8265	5ac / 182	265ac card	d support BT	4.2 but is lim	ited to E	BT4.1 by Wind	lows OS		• 3-year/1	yr battery li	mited onsite s			
WWAN (optional)	One of the	following	g, configui	able by mod	lel (WWAN d	an coex	ist with WiGig	ŋ):	Mil-Spec test			y certification			
	WirelessIntegrate				TE-A				Environment	EPEAT™ C	Gold (US on	ly); ENERGY	STAR® 6.1; R	oHS-compliant	
	Qualcom	nm® Sn	apdrago	n™ X7 LTE	E-A (Śierra	Wireles	s EM7455)	, M.2 card							
	 Integrate Intel XMI 				TE, EAU), M.2 (ard (FI	MFA only)								
SIM card (opt)								MEA) SIM card							
															Lenovo









ThinkPad T580 Platform Specifications

Processor	7th Generation Int	tel® Core	e™ i5 Proc	essor			Dimensions	WxDxH: 14.40" x 9.95" x 0.79-0.80"; 365.8mm x 252.8mm x 19.95-20.2mm				
	Processor # of	# of	Base	Max Turbo Cache	Memory	Processor	Weight	Integrated model: starting at 4.29 lb / 1.95 kg; Discrete model: starting at 4.39 lb / 1.99 kg				
	i5-7200LI	Tiffeaus	Frequency 2.5 GHz	Frequency 3.1 GHz 3MB	Types	Graphics Intel HD Graphics	Case color	Black				
	i5-7300U 2	4	2.6 GHz	3.5 GHz 3MB	DDR4-2133	620	Case material	Display cover: Glass-Fiber Reinforced Plastic (PPS); Bottom: Glass-Fiber Reinforced Plastic				
	or 8th Generation	Intel Co	re i5 / i7 P	rocessor			Smart card reade	er Optional: Smart card reader				
	Processor # of Number Cores	# of	Base Frequency	Max Turbo Frequency Cache	Memory Types	Processor Graphics	Media reader Ports					
	i5-8250U	Tilleaus	1.6 GHz	3.4 GHz 6MB	Types	Grapines	1 0/13	one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort),				
	i5-8350U 4	8	1.7 GHz	3.6 GHz 6MB	DDR4-2400	Intel UHD Graphics	;	one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models),				
	i7-8550U	°	1.8 GHz	4.0 GHz 8MB	DDN4-2400	620		headphone / microphone combo jack, optional smart card reader,				
	i7-8650U		1.9 GHz	4.2 GHz 8MB			_	4-in-1 reader (MMC, SD, SDHC, SDXC), side docking connector, security keyhole				
Graphics	Intel HD Graphics						Monitor cable	* Depending on many factors, actual data transfer speed may be lower than theoretical speed HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter				
	Intel HD Graphics NVIDIA® GeForce				processor an	a	(optional)	USB-C to DP: Lenovo USB-C to DisplayPort Adapter				
	supports external	digital m	onitor via	HDMI or USB Typ	oe-C;		Camera (optional	I) One of the following, configurable by model:				
	supports three ind Max resolution: 4	depender .096x230	nt displays 14@60Hz	; (USB Type-C): 4(096x2160@:	30Hz (HDMI)		HD720p camera with ThinkShutter camera privacy, fixed focus IR camera and HD720p camera, fixed focus				
Chipset	Intel SoC (System			· 71 //	JOONE 100 C	50112 (1151111)	Audio support	HD Audio, Realtek® ALC3287 codec /				
Memory	32GB max / 2400	MHz DD	Ŕ4, dual-c	channel capable,	two DDR4 S	O-DIMM sockets		stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack				
	* System clocks d						 Keyboard	6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlight				
Display	Some: 15.6" (396 250 nits, 1	8mm) FH 16:9 aspe	D (1920x1 ect ratio. 7	l 080), anti-glare, 00:1 contrast rati	LED backlig 5. 170° view	ht, IPS, ing angle	UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad				
	Some: 15.6" (396	8mm) UH	ID (3840x2	2160), anti-glare,	LED backlig	ht, IPS, 300 nits,	Security	Power-on password, hard disk password, supervisor password, security keyhole				
Multi-touch (opt)	16:9 aspector On-cell touch, sup			ntrasť ratio, 72% (sture (FHD only)	gamut, 170°	viewing angle	Security chip vPro (optional)	Discrete TPM 2.0, TCG Certified Intel vPro Technology				
Storage	System has one HD	•		. ,,	or storage		Fingerprint reader Optional: Touch style match on chip fingerprint reader on the palm rest,					
Ciolago	Some: HDD / SA	TA 6.0GI	b/s, 2.5" w	ride, 7mm high, A	ctive Protect	ion System™	NFC (optional)	anti-spoofing technology Near Field Communication				
	Some: SSD/SA Some: M.2 SSD					SD)	Battery	Optional integrated Li-ion 32Wh battery and				
	Some: 128GB M	I.2 SSD /	PCIe NVI	Me, PCIe 3.0 x 2,	16Gb/s,			external Li-ion 24Wh, 48Wh, or 72Wh battery				
Ontana TM mamari	in WWAN y <i>Optional:</i> Intel Op	I slot as 2	2nd Storag	ge, mutually exclu	sive with W\	VAN	Max battery life (MobileMark® 2014)	Models 24Wh 48Wh 72Wh 32Wh + 24Wh 32Wh + 48Wh 32Wh + 72Wh				
Optical	y <i>Optional.</i> The Op None	nane me	illory, FCI	e invivie, Pole 3.	0 X Z		(Mobile Wark* 2014)	Wax battery line 3.0111 12.3111 10.1111 13.0111 20.3111 20.1111				
Ethernet	Non-vPro model:						AC adapter	* Battery life varies significantly with settings, usage, & other factors 45W or 65W USB Type-C AC adapter				
				nection I219-LM	\	/	Preload	Windows® 10 Home 64 or Windows 10 Pro 64				
WLAN + Bluetooth™	Intel Dual Band W * Intel 8265ac card s	Tireless-A supports E	AC 8265, V 3 <i>T4.2 but is</i>	Vi-Fi 2x2 802.11a limited to BT4.1 by	.c + Bluetoot <i>Windows OS</i>	h 4.1, M.2 card	Limited warranty	One of the following, configurable by model: • 1-year depot repair service				
WWAN (optional)	One of the following,						1	3-year/1-yr battery depot repair service				
	Integrated Mobil Intel YMMTM 726			.TE, EB), M.2 card (EN	MEA only			3-year/1-yr battery limited onsite service				
	 Integrated Mobil 	le Broadl	band 4G L	TÉ-A,	ILA OHIY)		Mil-Spec test	MIL-STD-810G military certification				
	Intel XMM™ 736	0 (Fiboc	om L850-0	GL). M.2 card	! - !-!		Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant				
SIM card (opt)	* For non-WWAN me Nano-SIM card sle											
. , ,	ations above may no							Lenovo				

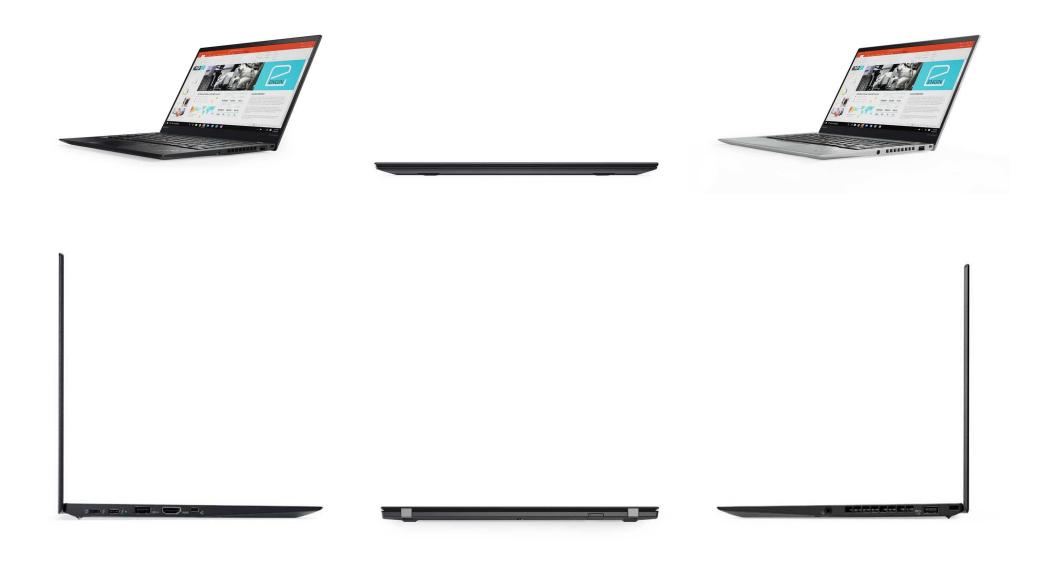






ThinkPad T590 Platform Specifications

Processor	8th Genera	ation Ir	ntel® Cor	e™ i5 / i7 P	rocessor				Dimensions	WxDxH: 14.40" x 9.76" x 0.79"; 365.8mm x 248.0mm x 19.95mm
	Processor Number	# of Cores	# of Threads		Max Turbo Frequency	Cache	Memory Types	Processor Graphics	Weight Case color Case material	FHD model: 3.87 lb / 1.75 kg; UHD model: 3.86 lb / 1.75 kg Black Biscley assert BBC / 500/ CF.
	i5-8265U			1.6 GHz	3.9 GHz	6MB				Display cover: PPS / 50% GF; Bottom: PA / 50% GF
	i5-8365U i7-8565U	4	8	1.6 GHz 1.8 GHz	4.1 GHz 4.6 GHz	6MB DDR4-2400 Ir	Intel UHD Graph 620	Smart card reade	er Optional: Smart card reader	
	i7-8565U			1.0 GHz	4.8 GHz	8MB		020	Media reader Ports	MicroSD card reader Two USB 3.1 Gen 1 (one Always On),
	Intel UHD Graphics 620 in processor only or Intel UHD Graphics 620 in processor and NVIDIA® GeForce® MX250, 2GB GDDR5 memory; supports external digital monitor via HDMI or Thunderbolt; supports three independent displays; Move recolution: 4006x3204@60Hz (Thunderbolt); 4006x3160@34Hz (HDMI) "Depending on many factors, actual data transfer spe									one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet (RJ-45), nano-SIM card slot (WWAN models), headphone / microphone combo jack, optional smart card reader, microSD card reader, side docking connector, security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical speed HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter
Chipset				p) platform					(optional)	USB-C to VGA: Lenovo USB-C to VGA Adapter
				DR4, dual-c Idered to s			DB4 SO-E	IMM socket	Bundled Accy	USB-C to DP: Lenovo USB-C to DisplayPort Adapter None
	* Installed n	nemory	is actually	2666MHz b	ut run at 24	DOMHz a	ue to Intel lin	nitation		I) One of the following, configurable by model:
Display	Size Reso	lution	Ту	/pe Surface	Brightnes	s Aspec	t Contrast Ratio	Color Viewin Gamut Angle	g	HD720p camera with ThinkShutter camera privacy, fixed focus IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus
	15.6" FHD	(1920x	1080) II	PS Anti-glar	e 250 nits	16:9	700:1	45% 170°	Audio support	HD Audio, Realtek® ALC3287 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium /
	15.6" UHD Dolby	(3840x	2160) ™ HDB II	PS Anti-glar	e 500 nits	16:9	1200:1	100% Adobe 170°] <u>.</u>	dual array far-field microphone, headphone / microphone combo jack
Multi-touch (opt)	On-cell tou			0-finger ge:	 sture (FHD	only)	1	Adobe	∐Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, numeric keypad, optional LED backlight TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad
- · · · · · · · · · · · · · · · · · · ·	 M.2 2242 	0 SSD 2 SSD	/ PCle N / PCle N	IVMe, PCIe IVMe, PCIe	3.0 x 2	Cle 3.0	x 2			Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified Intel vPro Technology or Optional: Touch style match on chip fingerprint reader on the palm rest
	None		pta	oo. y, . o.		0.0 0.0	~ =		NFC (optional)	Near Field Communication
Ethernet	Non-vPro vPro mode			nernet Con nernet Con				e)	Battery Max battery life	Integrated Li-ion 57Wh battery, supports Rapid Charge (charge up to 80% in 1hr) **MobileMark** 2014: 14.98 hr (9.5 hr for UHD model with discrete graphics)
WLAN <i>(optional)</i> Bluetooth™				/i-Fi 2x2 80 tegrated in				pter	AC adapter	* Battery life varies significantly with settings, usage, & other factors 45W or 65W USB Type-C AC adapter
					el:			•	Preload Limited warranty	Windows® 10 Home 64 or Windows 10 Pro 64
	Wireless WAN upgradable Integrated Mobile Broadband 4G LTE, Fibocom L830-EB, M.2 card (EMEA only) Integrated Mobile Broadband 4G LTE-A, Fibocom L850-GL, M.2 card *For non-WWAN model, it means the model is NOT WWAN upgradable									One of the following, configurable by model: 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service
									Mil-Spec test	MIL-STD-810G military certification
Note: The enecified				المصنادات					Environment	EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant



ThinkPad X1 Carbon (5th Gen) Platform Specifications

Popposition	Processor	6th Generation I	Intel® Co	re™ i5 / i7	Processor	(EMEA	has only i5-630	0U and i7-6600U)	Smart card reade					
Fig. 2001 2		Number Cores		Frequency	Frequency	cy Cache	Memory Types			Two USB 3.1 Gen 1 (USB 3.0, one Always On), two USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of Power Delivery				
Bundled Accy Processor Force F		i5-6300U i7-6500U 2	4	2.4 GHz 2.5 GHz	3.0 GHz 3.1 GHz	3MB 4MB	LPDDR3-1866		WiGig dock <i>(opt)</i> Monitor cable	* Depending on many factors, actual data transfer speed may be lower than theoretical speed ThinkPad WiGig dock HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter				
Processor Aumber Cores Threads Frequency F		or 7th Generation	n Intel C	ore i5 / i7	Processor				(optional)	USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter				
Intel HD Graphics 2						Cache	Memory Types		II ———————	Optional: ThinkPad Ethernet Extension Cable				
Intel HD Graphics 520 or 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304 @60Hz (USB Type-C); 4096x2160 @24Hz (HDMI) Security chip continued with the independent displays; Max resolution: 4096x2304 @60Hz (USB Type-C); 4096x2160 @24Hz (HDMI) Security chip continued with the independent displays; Max resolution: 4096x2304 @60Hz (USB Type-C); 4096x2160 @24Hz (HDMI) Security chip continued with the independent displays; Max resolution: 4096x2304 @60Hz (USB Type-C); 4096x2160 @24Hz (HDMI) Security chip continued with the independent displays; Max resolution: 4096x2304 @60Hz (USB Type-C); 4096x2160 @24Hz (HDMI) Security chip continued with the independent displays; Max resolution: 4096x2304 @60Hz (USB Type-C); 4096x2160 @24Hz (HDMI) Security chip continued with the independent displays; Max resolution: 4096x2304 @60Hz (USB Type-C); 4096x2160 @24Hz (HDMI) Security chip continued with the independent displays; Max resolution: 4096x2304 @60Hz (USB Type-C); 4096x2160 @24Hz (HDMI) Security chip continued with the independent displays; Max resolution: 4096x2304 @60Hz (USB Type-C); 4096x2160 @24Hz (HDMI) Security chip continued with the independent displays; Max resolution: 4096x2304 @60Hz (USB Type-C); 4096x2160 @24Hz (HDMI) Security chip continued with the independent displays; Max resolution: 4096x2304 @60Hz (USB Type-C); 4096x2160 @60Hz (USB Type-C);		i5-7300U i7-7500U 2	4	2.6 GHz 2.7 GHz	3.1 GHz 3.5 GHz 3.5 GHz	3MB 3MB 4MB	LPDDR3-1866		Audio support	IR & 720p: IR camera and HD720p camera HD Audio, Conexant® CX11871 codec / stereo speakers, 2W x 2 / dual array microphone, combo audio/microphone jack				
supports external digital monitor via HDMI or USB Type-C; supports three independent displays; Max resolution: 4096x2304@60Hz (USB Type-C); 4096x2160@24Hz (HDMI) Chipset Intel SoC (System on Chip) platform Memory BGB or 16GB / 1866MHz LPDDR3 / soldered to systemboard, no sockets Display Some: 14.0" (355mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 163 aspect ratio, 700* clowing angle None Some: 14.0" (355mm) WGHD (2560x1440), anti-glare, LED backlight, IPS, 300 nits, 163 aspect ratio, 700* clowing angle None Some: 14.0" (355mm) WGHD (2560x1440), anti-glare, LED backlight, IPS, 300 nits, 163 aspect ratio, 700* clowing angle None None Some: 14.0" (355mm) WGHD (2560x1440), anti-glare, LED backlight, IPS, 300 nits, 163 aspect ratio, 700* clowing angle None None Some: 14.0" (355mm) WGHD (2560x1440), anti-glare, LED backlight, IPS, 300 nits, 163 aspect ratio, 700* clowing angle None None Some: Vindow, anti-glare, LED backlight, IPS, 4C adapter RapidCharge battery Max battery life None None Some: Vindow, anti-glare, LED backlight, IPS, 4C adapter RapidCharge battery MobileMark* 2014: 15.5 hr Solder Leave Solder Some: Vindows Solder Some: Vindows Solder So	0					4IVID			∏Keyboard UltraNav™	b-row, spiii-resistant, multimedia Fn keys, LED backlight TrackPoint® pointing device and buttonless Glass surface multi-touch touchpad				
Memory Gob or 16GB / 1866MHz LPDDR3 / soldered to systemboard, no sockets	· 	supports externa supports three in Max resolution:	al digital ndepend 4096x23	monitor via ent display 304@60Hz	a HDMI or /s; z (USB Typ		•	4Hz (HDMI)	Security chip vPro (optional)	Intel vPro Technology				
Some: 14.0 (355mm) WQHD (2560x1440), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 aspect ratio, 700: toontrast ratio, 170° viewing angle 300 nits, 16:9 a						to sys	temboard, no s	sockets	NFČ (optional)	Near Field Communication				
Multi-touch None Storage One of the following, configurable by model: • M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2) • M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCIe NVMe) None None None None Optical None Optical None Optical None Optical None Optical O	Display	300 nits Some: 14.0" (3	, 16:9 as 55mm) V	pect ratio, VQHD (25	700:1 con 60x1440),	trast ra anti-gla	tio, 170° viewi are, LED backl	ng angle ight, IPS,	Max battery life AC adapter	MobileMark® 2014: 15.5 hr * Battery life varies significantly with settings, usage, & other factors				
Storage One of the following, conigurable by model: * M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2) * M.2 SSD / PCle NVMe, PCle 3.0 x 4, 32Gb/s (e.g. xxxGB SSD M.2 PCle NVMe) None Ethernet Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Cable WLAN One of the following, configurable by model (WiGig can coexist with WWAN): * Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card * Intel Ti-Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card * Intel Ti-Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card * Intel Buetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter * Intel 8265ac / 18265ac card support BT4.2 but is limited to BT4.1 by Windows OS WWAN (optional) Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455) Micro-SIM card (opt) Windows® 7 Professional 64 preinstalled Some: Windows 10 Pro 64 * Lenovo Solution Center * Lenovo Solution Cen	Multi-touch		, 10.9 as	speci railo,	700.1 0011	liasi ia	illo, 170 viewi	ng angle	RapidCharge	,				
Optical None Ethernet Native Intel Ethernet Connection I219-V (Non-vPro) or I219-LM (vPro) via bundled or optional ThinkPad Ethernet Extension Cable WLAN One of the following, configurable by model (WiGig can coexist with WWAN): Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card Intel ThinkVantage Product Recovery ThinkVantage System Update Adobe® Reader® Microsoft® Office preloaded; purchase a product key to activate McAfee® LiveSafe™ (30-day trial) WWAN (optional) Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455) SiM card (opt) Windows 10 Pro 64 Lenovo Solution Center Lenovo Solution Lenovo Solution Center Lenovo Solution Lenovo Solution Lenovo Solution Center Lenovo Solutio	Storage	 M.2 SSD / SAT 	TA 6.0Gb	/s (e.a. xx	xGB SSD	M.2)				Charge to 100% Not support 2.5 hr				
Ethernet Native Intel Ethernet Connection I219-V (<i>Non-vPro</i>) or I219-LM (<i>VPro</i>) via bundled or optional ThinkPad Ethernet Extension Cable WLAN One of the following, configurable by model (WiGig can coexist with WWAN): Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card Intel Tri-Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card Intel Tri-Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card Intel Bluetooth 4.1 wireless, integrated in Wi-Fi + Bluetooth combo adapter Intel 8265ac / 18265ac card support BT4.2 but is limited to BT4.1 by Windows OS WWAN (optional) Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455) Micro-SIM card (opt) Micro-SIM card slot, opt Verizon LTE (US) or Lenovo® Connect (EMEA) SIM card Dimensions Wabah: 12.74" x 8.55" x 0.63"; 323.5mm x 217.1mm x 15.95mm Weight Case color Black or Silver (silver is NOT available in EMEA) Display cover: CFRP/GFRP hybrid; Case material	Optical		le NVMe	, PCIe 3.0	x 4, 32Gb	/s (e.g.	XXXGB SSD N	1.2 PCIe NVMe)	Preload	ndows® 7 Professional 64 preinstalled <i>Some:</i> Windows 10 Home 64				
* Intel Dual Band Wireless-AC 8265, Wi-Fi 2x2 802.11ac + BT4.1, M.2 card		Native Intel Ethe	ernet Cor	nnection I2 hinkPad E	219-V (<i>Nor</i> thernet Ex	n-vPro) tensior	or I219-LM (<i>vi</i> cable	Pro)	-	 Windows 10 Pro 64 Lenovo Companion Lenovo Setting 				
WWAN (optional) Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455) SIM card (opt) Micro-SIM card slot, opt Verizon LTE (US) or Lenovo® Connect (EMEA) SIM card Dimensions Weight Case color Case material Display cover: CFRP/GFRP hybrid; SIM card (opt) Integrated Mobile Broadband 4G LTE-A, Qualcomm® Snapdragon™ X7 LTE-A (Sierra Wireless EM7455) 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service MII-STD-810G military certification EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant		One of the followin Intel Dual Band Intel Dual Band Intel Tri-Band M.2 card Bluetooth 4.1 wi	ng, configu d Wireles d Wireles Wireless-	urable by moss-AC 8266 ss-AC 8265 AC 18265	odel (WiGig D, Wi-Fi 2x 5, Wi-Fi 2x , WiGig 80 n Wi-Fi + E	can coe. 2 802.1 2 802.1 2.11ad	xist with WWAN) 1ac + BT4.1, 1ac + BT4.1, + Wi-Fi 2x2 80 th combo adap	M.2 card M.2 card 02.11ac + BT4.1, oter		 ThinkVantage Product Recovery ThinkVantage System Update Adobe® Reader® Microsoft® Office preloaded; purchase a product key to activate 				
Dimensions WxDxH: 12.74" x 8.55" x 0.63"; 323.5mm x 217.1mm x 15.95mm Weight Starting at 2.49 lb / 1.13 kg Case color Case material Display cover: CFRP/GFRP hybrid; Dimensions WxDxH: 12.74" x 8.55" x 0.63"; 323.5mm x 217.1mm x 15.95mm Mil-Spec test MIL-STD-810G military certification Environment EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant	, , ,	Integrated Mobil (Sierra Wireless Micro-SIM card	le Broadl EM7455 slot, opt	band 4G L 5) Verizon LT	TE-A, Qua E (US) or	lcomm ^o Lenovo	Snapdragon Connect (EN	™ X7 LTE-A ⁄IEA) SIM card	Limited warranty	 1-year depot repair service 3-year/1-yr battery depot repair service 				
Case color Black or Silver (silver is NŎT available in EMEA) Environment EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant Environment EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant		WxDxH: 12.7	4" x 8.55	5" x 0.63";	323.5mn	n x 217	.1mm x 15.95ı	mm	Mil-Spec test					
	Case color	Black or Silver (s Display cover:	silver is N CFRP/G	NŎT availa FRP hybri	d;	ĒA)			l					



ThinkPad X1 Carbon (6th Gen) Platform Specifications

Processor	7th Gener	ation I	ntel® Co	re™ i5 Pro	cessor				Dimensions	<i>WxDxH</i> : 12.74" x 8.55" x 0.63"; 323.5mm x 217.1mm x 15.95mm
	Processor		# of	Base	Max Turbo	Cache	Memory Types	Processor	Weight Case color	Starting at 2.49 lb / 1.13 kg Black or Silver (silver case is NOT available in EMEA)
	Number			Frequency			2 2.	Intel HD Graphics	Case material	Display cover: `CFRP/GFRP hybrid;
	15-7300U 2 4 2.6 GHz 3.5 GHz 3MB LPDDR3-1866 17 GHZ 18 GH					ЗМВ	LPDDR3-1866		Smart card reade	Bottom: magnesium alloy / PPS hybrid
	or 8th Ger	neratio		ore i5 / i7	Processor				Media reader	MicroSD card reader, supports UHS-II
	Processor Number	# of Cores	# of Threads	Base Frequency	. ,		Memory Types	Processor Graphics	Ports	Two USB 3.1 Gen 1 (one Always On), two USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of Power Delivery and DisplayPort), HDMI 1.4b,
	i5-8250U i5-8350U i7-8550U i7-8650U	4	8	1.6 GHz 1.7 GHz 1.8 GHz 1.9 GHz	3.4 GHz 3.6 GHz 4.0 GHz 4.2 GHz	6MB 6MB 8MB	LPDDR3-2133	Intel UHD Graphics 620	Monitor cable	Ethernet extension connector, nano-SIM card slot (WWAN models), headphone / microphone combo jack, microSD card reader, side docking connector, security keyhole * Depending on many factors, actual data transfer speed may be lower than theoretical speed HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter
Graphics	Intel HD G	externa	al digital	r Intel UHI monitor vi	O Graphics a HDMI or	620 in USB T	processor; ype-C;		(optional) Bundled Accy	USB-C to DP: Lenovo USB-C to DisplayPort Adapter Optional: ThinkPad Ethernet Extension Adapter Gen 2
	supports t Max resol	three ir ution:	ndepend 5120x28	lent displa 380@60H	ys; z (USB Typ	e-C);	4096x2160@3	BOHz (HDMI)	Camera (optional)) One of the following, configurable by model: • HD720p camera with ThinkShutter camera privacy, fixed focus
Chipset Memory	* System	SGB / 2 clocks	133MH: down fo	z LPDDR3 r processo	/ soldered ors with low		temboard, no nory controlle		Audio support	 IR camera and HD720p camera, fixed focus HD Audio, Realtek® ALC3286 codec / stereo speakers, 1W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack, Dolby® Atmos™ via headphones
Display		55mm)	FHD (1	920x1080), anti-glare		backlight, IPS % gamut, 170	s, ° viewing angle	Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, LED backlight TrackPoint® pointing device and buttonless Glass surface multi-touch touchpad
Multi-touch (opt)	• 14.0" (39 300 nits • 14.0" (39 LED back 170° vie	55mm) , 16:9 a 55mm) cklight, wing a	WQHD aspect ra HDR W IPS, 50 ngle	(2560x14) atio, 700:1 (QHD (256 0 nits,16:9	40), anti-gla contrast ra 30x1440) w	are, LE itio, 72 ith Dol io, 150	ED backlight, I % gamut, 170 by Vision™, gl 0:1 contrast ra	PS, ° viewing angle	Security Security chip vPro (optional) Fingerprint reade	Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified Intel vPro Technology rTouch style match on chip fingerprint reader on the palm rest, anti-spoofing technology Near Field Communication
Storage	One of the					\	,		Battery	Integrated Li-ion 57Wh battery, supports Rapid Charge (charge up to 80% in 1hr)
Optane™ memor	 M.2 SSE 				xGB SSD I x 4, 32Gb		xxxGB SSD I	M.2 PCIe NVMe)	Max battery life AC adapter	with 65W USB Type-C AC adapter MobileMark® 2014: 19.3 hr * Battery life varies significantly with settings, usage, & other factors 45W or 65W USB Type-C AC adapter
Ethernet		el Ethe	rnet Co	nnection I2	219-V (<i>Non</i>	-vPro)	or I219-LM (v	rPro)	Preload	Windows® 10 Home 64 or Windows 10 Pro 64
							n Adapter Gèr		Limited warranty	One of the following, configurable by model:
WLAN + Bluetooth™							ac + Bluetoot y Windows OS	h 4.1, M.2 card		1-year depot repair service 3-year/1-yr battery depot repair service
WWAN (optional) Integrated Mobile Broadband 4G LTE-A, Intel XMM™ 7360 (Fibocom L850-GL), M.2 card									Mil Specification	3-year/1-yr battery limited onsite service MIL STD 910C military contification.
SIM card (opt)	* For non-V	VWAN r	nodel, it i	neans the n	āL), M.2 ca nodel is NO7 on LTE (US	WWA!	<i>l upgradable</i> card		Mil-Spec test Environment	MIL-STD-810G military certification EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant
										Longvo

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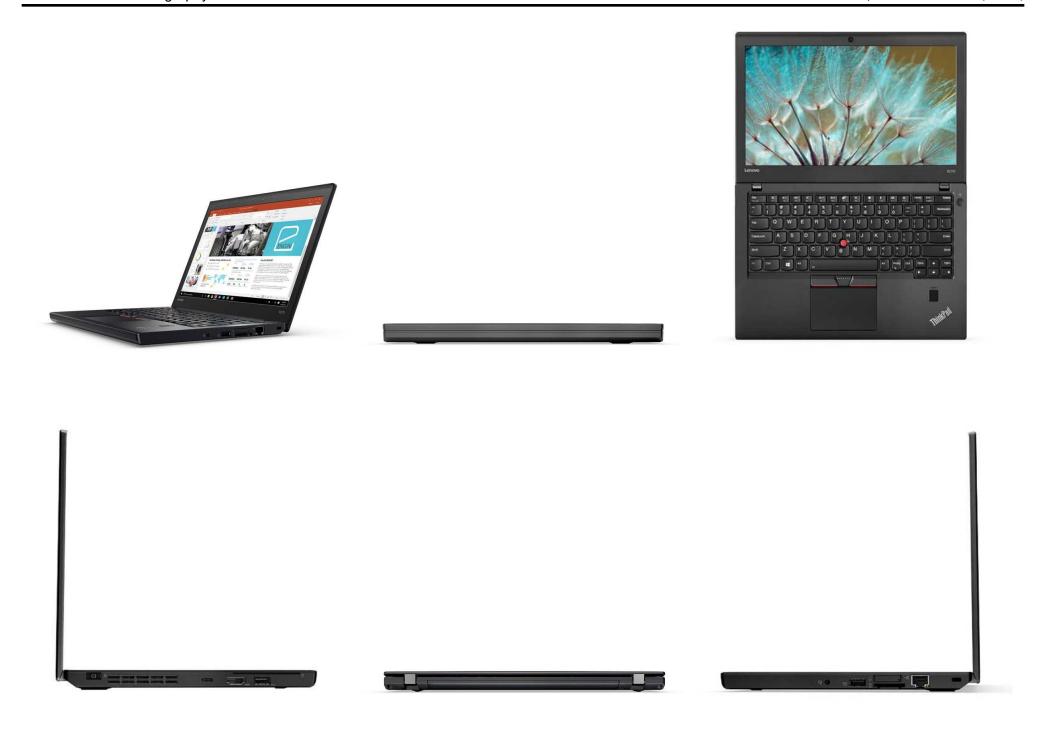


ThinkPad X1 Extreme Platform Specifications

Processor	8th Generation Intel® Core™ i5 / i7 Processor	Smart card reader Optional: Smart card reader					
	Processor # of # of Base Max Turbo Cache Memory Processor Number Cores Threads Frequency Frequency Types Graphics	Media reader Ports	SD Card reader (SD, SDHC, SDXC), supports UHS-II SD card Two USB 3.1 Gen 1 (one Always On),				
	12 12 13 14 15 15 15 15 15 15 15		two USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of Power Delivery and DisplayPort), HDMI 2.0, Ethernet extension connector, headphone / microphone combo jack, optional smart card reader, 4-in-1 reader (MMC, SD, SDHC, SDXC), security keyhole *Depending on many factors, actual data transfer speed may be lower than theoretical speed				
Graphics	Intel UHD Graphics 630 in processor and NVIDIA® GeForce® GTX 1050 Ti Max-Q, 4GB GDDR5 memory; supports external digital monitor via HDMI or Thunderbolt®;	Bundled Accy	HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter Optional: ThinkPad Ethernet Extension Cable				
	supports four independent displays; Max resolution: 5120X2880@30Hz (Thunderbolt); 4096x2160@60Hz (HDMI)	, , , ,	One of the following, configurable by model: HD720p camera with ThinkShutter camera privacy, fixed focus IR camera and HD720p camera, fixed focus				
Chipset Memory	Mobile Intel CM246 Chipset 64GB max / 2666MHz DDR4, dual-channel capable, two DDR4 SO-DIMM sockets	Audio support	HD Audio, Realtek® ALC3286 codec / stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack, Dolby Atmos® headphone				
Display	Some: 15.6" (396mm) FHD (1920x1080), anti-glare, LED backlight, IPS, 300 nits, 16:9 aspect ratio, 700:1 contrast ratio, 72% gamut, 170° viewing angle		6-row, spill-resistant, multimedia Fn keys, LED backlight TrackPoint® pointing device and buttonless glass surface multi-touch touchpad				
Multi-touch (opt)	Some: 15.6" (396mm) HDR 4K (3840x2160) with Dolby Vision™, anti-glare, LED backlight, IPS, 400 nits, 16:9 aspect ratio, 1200:1 contrast ratio, 100% gamut, 170° viewing angle, multi-touch, anti-reflection (AR) Capacitive-type multi-touch, supports 10-finger gesture (4K only)	Security chip vPro <i>(optional)</i>	Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified Intel vPro Technology				
Pen Storage	Supports pen accessory, please see the accessory compatibility for details Up to 2 drives (two M.2 SSD) • M.2 SSD / SATA 6.0Gb/s (e.g. xxxGB SSD M.2)	Color calibration	Touch style match on chip fingerprint reader on the keyboard bezel None None				
Optane™ memory RAID <i>(optional)</i> Optical	• M.2 SSD / PCIe NVMe, PCIe 3.0 x 4, 32Gb/s (é.g. xxxGB SSD M.2 PCIe NVMe)		Integrated Li-ion 80Wh battery, supports Rapid Charge (charge up to 80% in 1h Discrete mode: 9.5 hr; Hybrid mode: 14.9 hr * Battery life varies significantly with settings, usage, & other factors 135W slim tip AC adapter				
Ethernet	Native Intel Ethernet Connection I219-V (<i>Non-vPro</i>) or I219-LM (<i>vPro</i>))	- 1010010	Windows® 10 Home 64 or Windows 10 Pro 64 One of the following, configurable by model:				
WLAN Bluetooth™	via bundled or optional ThinkPad Ethernet Extension Cable Intel Wireless-AC 9560, Wi-Fi 2x2 802.11ac + Bluetooth 5.0, M.2 card Bluetooth 5.0 wireless, integrated in Wi-Fi + Bluetooth combo adapter	,,	1-year depot repair service 3-year/1-yr battery limited onsite service				
WWAN	None		MIL-STD-810G military certification				
Dimensions	WxDxH (non-touch): 14.24" x 9.67" x 0.72"; 361.8mm x 245.7mm x 18.4mm WxDxH (multi-ouch): 14.24" x 9.67" x 0.74"; 361.8mm x 245.7mm x 18.7mm	<u>'</u>	EPEAT™ Gold (US only); ENERGY STAR® 7.0; RoHS-compliant				
Weight	Non-touch model: starting at 3.76 lb (1.7 kg); Multi-touch model: starting at 4.06 lb (1.8 kg)						
Case color Case material	Black Display cover: CFRP/GFRP hybrid; Bottom: Aluminum alloy						

Note: The specifications above may not be available in all regions.

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ThinkPad X270 Platform Specifications

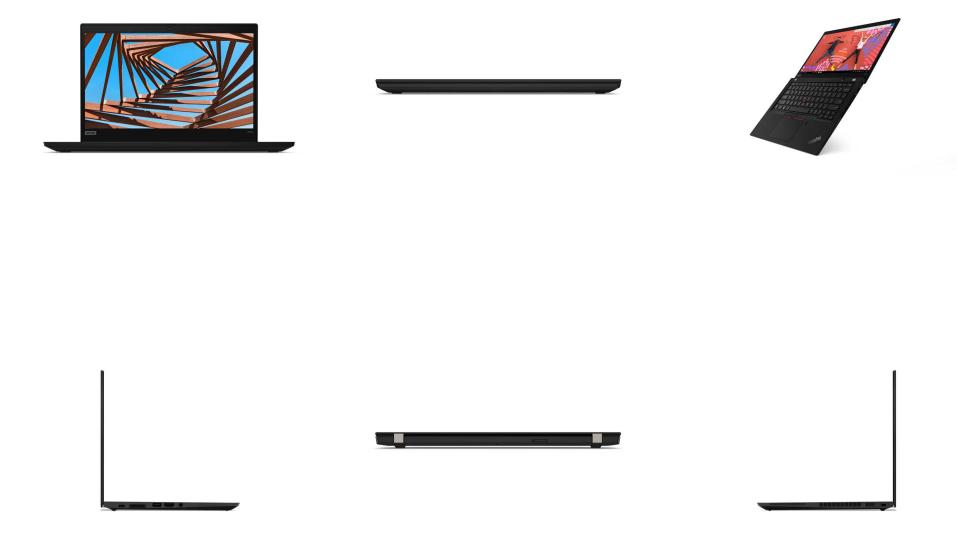
Processor	6th Generation	Intel® Cor	e™ i3 / i5 / i	7 Processor			Dimensions	<i>WxDxH:</i> 12.03" x 8.21" x 0.80"; 305.5mm x 208.5mm x 20.3mm					
1 10000001	Processor # of	# of		Mary Trustee	Memory	Processor	Weight	Models No + 3-cell 3-cell + 3-cell 3 + 6-cell					
		Threads		Frequency Cache	Types	Graphics		Weight 2.79 lb / 1.27 kg 2.98 lb / 1.36 kg 3.33 lb / 1.52 kg					
	i3-6006U		2.0 GHz	- 3MB			Case color	Black					
	i3-6100U		2.3 GHz	- 3MB			Case material	Display cover: Glass-Fiber Reinforced Plastic; Bottom: Glass-Fiber Reinforced Plastic					
	i5-6200U 2	4	2.3 GHz 2.4 GHz	2.8 GHz 3MB 3.0 GHz 3MB	DDR4-2133	Intel HD Graphics 520	Smart card roads	er Optional: Smart card reader					
	i7-6500U		2.4 GHZ 2.5 GHz	3.1 GHz 4MB		320	Media reader	4-in-1 reader (MMC, SD, SDHC, SDXC)					
	i7-6600U		2.6 GHz	3.4 GHz 4MB			Ports	Two USB 3.1 Gen 1 (USB 3.0, one Always On),					
	or 7th Generation	on Intel Co	ore i3 / i5 / i	· · · · · · · · · · · · · · · · · · ·				USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), HDMI 1.4b, Ethernet (RJ-45), Dock connector					
	Processor # of	# of	Base	Max Turbo Cache	Memory	Processor		* Depending on many factors, actual data transfer speed may be lower than theoretical speed					
	$\overline{}$	Threads		Frequency	Types	Graphics	WiGig dock (opt) Monitor cable						
	i3-7100U		2.4 GHz	- 3MB			(optional)	HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter					
	i5-7200U i5-7300U 2	4	2.5 GHz 2.6 GHz	3.1 GHz 3MB 3.5 GHz 3MB	DDR4-2133	Intel HD Graphics	(USB-C to DP: Lenovo USB-C to DisplayPort Adapter					
	i7-7500U	*	2.7 GHz	3.5 GHz 4MB	DDN4-2133	620		d)HD720p resolution, fixed focus					
	i7-7600U		2.8 GHz	3.9 GHz 4MB			Audio support	HD Audio, Realtek ALC3268 codec / stereo speakers, 1.5W x 2 / dual array microphone, combo audio/microphone jack					
Graphics	Intel HD Graphi	cs 520 or	620 in proc	essor.			 Keyboard	6-row, spill-resistant, multimedia Fn keys, optional LED backlight					
агартноо	supports extern	al digital r	nonitor via I	HDMI or USB Typ	e-C;		UltraNav™	TrackPoint® pointing device and buttonless Mylar surface multi-touch touchpad					
	supports three i				റെ വേട്ടെ	04H- (HDMI)	Security	Power-on password, hard disk password, supervisor password, security keyhole					
Chipset			,	USB Type-C); 40	9012100@	Z4HZ (HDIVII)	Security chip	Discrete TPM 2.0, TCG Certified					
Memory	Intel SoC (System on Chip) platform 16GB max / 2400MHz DDR4, one DDR4 SO-DIMM socket						vPro (optional)	Intel vPro Technology r Optional: Touch style match on chip fingerprint reader on the palm rest					
				lower memory cont				Near Field Communication					
Display	Some: 12.5" (3	17.5mm)	HD (1366x7	768), anti-glare, L	ED backligl	ht,	Internal battery	Optional: Integrated Li-ion or Li-Polymer 3-cell (23Wh)					
				00:1 contrast ratio 768), anti-glare, L		ht IPS	External battery	Li-ion 3-cell (23Wh) or 6-cell (48Wh or 72Wh)					
	300 nits	, 16:9 asr	ect ratio, 80	00:1 contrast ratio	, 170° view	ing angle	Max battery life (MobileMark® 2014	Models No + 3-cell 3-cell + 3-cell 3-cell + 6-cell 48Wh 3-cell + 6-cell 72Wh Max battery life 6.52 hr 13.04 hr 20.1 hr 26.9 hr					
	Some: 12.5" (3	17.5mm)	FHD (1920)	x1080), anti-glare	, LED back	light, IPS,		* Battery life varies significantly with settings, usage, & other factors					
Multi-touch (opt)	On-cell touch, s			00:1 contrast rationsture (FHD only)	o, 170° view	ing angle	AC adapter	45W slim tip AC adapter or 45W USB Type-C AC adapter					
Storage		<u> </u>		0 slot exclusively for	r storage		Preload	Windows® 7 Professional 64 preinstalled Some: Windows 10 Home 64					
3 -				ide, 7mm high, Ad				through downgrade rights in Windows 10 Pro 64 • Lenovo Solution Center • Lenovo PowerEngage • ThinkVantage Product Recovery • ThinkVantage System Update Some: Windows 10 Pro 64 • Lenovo Companion • Lenovo Setting • Microsoft Office preloaded; purchase a product key to activate					
				de, 7mm high (e.g	g. xxxGB S	SD)							
				e 3.0 x 2, 16Gb/s Gb/s, in WWAN sl	ot as 2nd S	Storage.							
	mutuall			N and WiGig									
Optical	None						_	Adobe® Reader®					
Ethernet	Non-vPro mode vPro model:	lntel Eth	nernet Conr	nection I219-V (Ja nection I219-LM (ເ	icksonville) Jacksonville	,1		Microsoft® Office preloaded;					
WLAN				el (WiGig is mutuall)		7	1	purchase a product key to activate • McAfee® LiveSafe™ (30-day trial)					
V V LAIN	Realtek® RTL8				CACIGOIVE W	****/*/.	Limited warranty						
				Wi-Fi 2x2 802.11			Limited Warranty	1-year depot repair service					
				Wi-Fi 2x2 802.11		802.11ac + BT4.1		3-year/1-yr battery depot repair service					
Bluetooth™	(US only)	VVII EIESS-/	4C 10203, V	vidiy 602.1 rau +	VVI-I 1 ZXZ (502.11ac + D14.1		3-year/1-yr battery limited onsite service					
	Bluetooth 4.1 w	ireless, in	tegrated in	Wi-Fi + Bluetooth	combo ada	pter	Mil-Spec test	MIL-STD-810G military certification					
WWAN (optional)			- ' '	4.2 but is limited to E			Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant					
vv vvAin (optiorial)	Wireless WAN			er (mutuany exclusiv	e willi vvidig,	<i>)</i> -							
	 Integrated Mo 	bile Broad	dband 4G L	ГЕ-А,									
	Qualcomm® S • Integrated Mo	napdrago	n™ X7 LTE	-A (Sierra Wireles	ss EM7455))							
				ı ⊑, EAU) (EMEA only)									
SIM card (opt)				(US) or Lenovo®		MEA) SIM card							
								Lenovo					



ThinkPad X280 Platform Specifications

Processor	7th Generation			Processor MEA; i5-7200U i	s NOT available	in US	Dimensions Weight	WxDxH: 12.11" x 8.26" x 0.69-0.70"; 307.7mm x 209.8mm x 17.4-17.8mm FHD non-touch model: 2.49 lb / 1.13 kg;				
	Processor # o	f # of	Base Frequency	Max Turbo	che Memory Types	Processor Graphics]	HD non-touch model: 2.78 lb / 1.26 kg; FHD multi-touch model: 2.79 lb / 1.27 kg				
	i3-7130U 2 7 GHz - 3MB						Case color Case material	Black Display cover: Carbon Fiber (FHD non-touch model) or Glass Fiber (HD & FHD multi-touch model); Bottom: Magnesium/Aluminum				
	or 8th Genera	ion Intel (Core i3 / i5 /	i7 Processor			Smart card reade	er Optional: Smart card reader				
	Processor # o Number Cor		Base Frequency	Max Turbo Frequency	che Memory Types	Processor Graphics	Media reader Ports	MicroSD card reader, in the combo slot with nano-SIM card Two USB 3.1 Gen 1 (one Always On),				
	i3-8130U 2 i5-8250U i5-8350U i7-8550U i7-8650U	8	2.2 GHz 1.6 GHz 1.7 GHz 1.8 GHz 1.9 GHz	3.4 GHz 6 3.6 GHz 6 4.0 GHz 8	MB DDR4-240 MB MB	0 Intel UHD Graphics 620	6	one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPort), one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP), HDMI 1.4b, Ethernet extension connector, combo slot of nano-SIM card (WWAN models) and microSD card reader, headphone / microphone combo jack, optional smart card reader, side docking connector, security keyhole				
Graphics	Intel HD Graph supports exter supports three Max resolution	nal digital	monitor via	HDMI or USB s:	Type-C;	⊋30Hz (HDMI)	Monitor cable (optional) Bundled Accy	* Depending on many factors, actual data transfer speed may be lower than theoretical speed HDMI to VGA: Lenovo HDMI to VGA Monitor Adapter USB-C to VGA: Lenovo USB-C to VGA Adapter USB-C to DP: Lenovo USB-C to DisplayPort Adapter Optional: ThinkPad Ethernet Extension Adapter Gen 2				
Chipset Memory		16GB / 24 S NOT avai down for p	00MHz DD lable in US ar rocessors with	R4 / soldered to ad EMEA a lower memory	controller		Camera (optional	I) One of the following, configurable by model: HD720p camera with ThinkShutter camera privacy, fixed focus IR camera and HD720p camera, fixed focus HD Audio, Realtek® ALC3287 codec /				
Display	Some: 12.5" (220 ni Some: 12.5" (s, 16:9 as	spect ratio, 4	100:1 contrast	rátio	,		stereo speakers, 2W x 2, Dolby® Audio™ Premium / dual array microphone, headphone / microphone combo jack				
Multi-touch (opt)	300 ni On-cell touch, * FHD non-touch	s, 16:9 as	pect ratio, 7	00:1 contrast	ratio, 170° viev	wing angle	Keyboard UltraNav™	6-row, spill-resistant, multimedia Fn keys, optional LED backlight TrackPoint®pointing device and buttonless Mylar surface multi-touch touchpad				
Storage	One of the follow • M.2 SSD / S	ring, config ATA 6.0G	urable by mod o/s (e.g. xxx	del: GB SSD M.2)		AMO DOLA NIVIMA	Security Security chip vPro (optional) Fingerprint reade	Power-on password, hard disk password, supervisor password, security keyhole Discrete TPM 2.0, TCG Certified Intel vPro Technology or Optional: Touch style match on chip fingerprint reader on the palm rest,				
Optane™ memory Optical		JIE INVIVIE	e, PCIe 3.0 2	(4, 32Gb/s (e.	g. xxxGB SSL	M.2 PCIe NVMe)	NFC (optional)	anti-spoofing technology Near Field Communication				
Ethernet	Native Intel Et via bundled or						Battery Max battery life	Integrated Li-ion 48Wh battery, supports Rapid Charge (charge up to 80% in 1hr) with 65W USB Type-C AC adapter MobileMark® 2014: 16.6 hr				
WLAN + Bluetooth™	Intel Dual Ban * Intel 8265ac c	d Wireless ard support	s-AC 8265, \ s BT4.2 but is	Ni-Fi 2x2 802. limited to BT4.1	11ac + Bluetod by Windows OS	oth 4.1, M.2 card	AC adapter	*Battery life varies significantly with settings, usage, & other factors 45W or 65W USB Type-C AC adapter				
WWAN (optional)	 Integrated M Intel XMM™ Integrated M 	obile Broa 7262 (Fib obile Broa 7360 (Fib	adband 4G I ocom L830- adband 4G I ocom L850-	TE, EB), M.2 card TE-A, GL), M.2 card			Preload Limited warranty	Windows® 10 Home 64 or Windows 10 Pro 64 One of the following, configurable by model: 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service				
SIM card (opt)	Nano-SIM care	d slot, in t	ne combo sl			,	Mil-Spec test	MIL-STD-810G military certification				
Note: The specific	<u> </u>	`	<u> </u>				Environment	EPEAT™ Gold (US only); ENERGY STAR® 6.1; RoHS-compliant Lenove				

Note: The specifications above may not be available in all regions.



ThinkPad X390 Platform Specifications

Processor	8th Generation Intel® Core™ i3 / i5 / i7 Processor											Dimensions	FHD Multi-touch						
	Processor # of # of Base Max Turbo Cache Threads Frequency Frequency Cache Types Graphics						1	Carbon Fiber	311.9mm x 217.0mm			-							
	i3-8145	5U	2	4	2.	.1 GHz .6 GHz	3.9 GHz 3.9 GHz	4MB 6MB	,	•			PPS		312.0mm x 217.2mm x 16.9mm 12.28" x 8.55" x 0.67" 312mm x 217.2mm x 16. 12.28" x 8.55" x 0.67"				
	i5-8365	5U	4	8	1.	.6 GHz	4.1 GHz	6MB	DDR4-2400	Intel UHD 620		Weight	Models	FHD Non-touch	Н	ID	FHD Multi-touch		
	i7-8565	5U	T	Ü	_	.8 GHz	4.6 GHz	8MB		02			Carbon Fiber	2.70 lb / 1.22 kg		-	-		
	i7-8665					.9 GHz	4.8 GHz	8MB				0	PPS Black	2.85 lb / 1.29 kg	2.93 lb /	/ 1.33 kg	2.84 lb / 1.28 kg		
Graphics	Intel UHD Graphics 620 in processor; supports external digital monitor via HDMI or USB Type-C; supports three independent displays; May receiving 4006/214 (HDMI)											Case color Case material	al Display cover: Carbon Fiber (FHD non-touch only) or PPS; Bottom: Magnesium/Aluminum						
Chipset Memory	Max resolution: 4096x2304@60Hz (Thunderbolt); 4096x2160@24Hz (HDMI) Intel SoC (System on Chip) platform 8GB, 16GB or 32GB / 2400MHz DDR4 / soldered to systemboard, no sockets * Installed memory is actually 2666MHz but run at 2400MHz due to Intel limitation											Media reader Ports	MicroSD card Two USB 3.1 (rOptional: Smart card reader MicroSD card reader, in the combo slot with nano-SIM card Two USB 3.1 Gen 1 (one Always On), one USB 3.1 Type-C Gen 1 (with the function of Power Delivery and DisplayPo one USB 3.1 Type-C Gen 2 / Thunderbolt 3 (with the function of PD and DP),					
Display	Size F				Туре	Surface	Brightness	Aspec Ratio	Ratio	Gamut			HDMI 1.4b, Et combo slot of	hernet extension conn nano-SIM card (WWAI	ector, V models) a	and microSI	O card reader,		
	13.3" F	ID (136	6x76	8)	TN	Anti-glare	250 nits	16:9	300:1	45%	170°		headphone / n	nicrophone combo jack connector, security keyl	k, optional s	smart card r	eader,		
	13.3" F				IPS	Anti-glare	300 nits	16:9	1200:1 (non-touch 700:1 (multi-touch	/ /2%	170°	Monitor cable (optional)	* Depending on HDMI to VGA: USB-C to VGA	wer than theoretical speed					
	13.3" T	HD (19 hinkPa Juard	20x1 d Priv	080) vacy	IPS	Anti-glare	400 nits	16:9	1000:1	72%	178°	Bundled Accy	Optional: Thir	Lenovo USB-C to DakPad Ethernet Extens	ion Adapte				
Multi-touch (opt)	On-cel	I touch	ı, sup	pports	10-fii	nger ges	ture (FHD	only)				Camera (optional,	nera (optional) One of the following, configurable by model: • HD720p camera with ThinkShutter camera privacy, fixed focus						
Storage Optane™ memory	• M.2 : Option	2280 S 2242 S	SSD /	/ PCle / PCle	NVN NVN	le, PCle le, PCle	3.0 x 2	Cle 3.0	x 2			Audio support	 IR camera and HD720p camera with ThinkShutter camera privacy, fixed focus HD Audio, Realtek® ALC3287 codec / stereo speakers, 1W x 2, Dolby® Audio™ Premium / dual array far-field microphone, headphone / microphone combo jack 						
Optical	None					1010		D \	1040 1 14 /			Keyboard		sistant, multimedia Fn I					
Ethernet	Native via bur	Intel E Indled o	ther	net Co tional T	nnec Think	tion I219 Pad Eth	3-V (<i>Non-v</i> ernet Exter	<i>Pro</i>) or nsion A	I219-LM (<i>vi</i> dapter Gen	Pro) 2		UltraNav™							
WLAN (optional) Bluetooth™	One of Intel Intel	the follo Wirele Wi-Fi	ss-A	, <i>config</i> C 9560 200, W	<i>urable</i>), Wi- 'i-Fi 2	e by mode -Fi 2x2 8 2x2 802.	el: 02.11ac + 11ax + Blu	Bluetoo	oth 5.0 5.0			Fingerprint reader	Power-on password, hard disk password, supervisor password, security keyholo Discrete TPM 2.0, TCG Certified t) Intel vPro Technology er Optional: Touch style match on chip fingerprint reader on the palm rest Near Field Communication						
WWAN (optional)																			
												Preload Windows® 10 Home 64 or Windows 10 Pro 64							
												Limited warranty One of the following, configurable by model: 1-year depot repair service 3-year/1-yr battery depot repair service 3-year/1-yr battery limited onsite service							
												Mil-Spec test							
												Environment	EPEAT™ Bronze; ENERGY STAR® 7.0; RoHS-compliant						
Note: The specifica	tions at	ove m	av no	ot be av	ailab	le in all re	egions.										Lenove		

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