



## BUSINESS RUGGED



### FZ-Y1 Performance Model

20" TOUGHPAD 4K with workstation class performance. Features optional Electronic Touch Pen for high precision signatures, drawings and annotations. Certified for Dassault Systèmes SOLIDWORKS (version 2016, under Windows 10 x64).

Mobile Computing Platform / CPU	Intel® Core™ i7-5600U vPro™ processor (2.6GHz to 3.2GHz (with Turbo Boost), 4MB Intel® Smart Cache)
Operating System	Windows 10 Pro
Memory & Storage	16GB RAM 256GB SSD (optional 512GB SSD)
Display	20" IPS $\alpha$ LCD, 4K (3840 x 2560 pixels) 10 finger capacitive touchscreen Optional Electronic Touch Pen AMD FirePro™ M5100 dedicated graphics
Camera	Front: 0.9MP Rear: 5MP (optional)
Expansion Slots	SD/SDXC memory card: x1 SDXC
Interfaces	USB 3.0: x1 HDMI 2.0 input: x1 (supports 4K input) Mini DisplayPort™: x1 (supports 4K output) LAN: x1 Smart card reader: x1
Connectivity	Bluetooth®: Version 4.0 + Class 1 Wireless LAN: Intel® Dual Band Wireless-AC 7265 a/b/g/n/ac LAN IEEE 802.3 10BASE-T / IEEE 802.3u 100BASE-TX / IEEE 802.3ab 1000BASE-T
Power	AC adapter: input: 100V–240V AC, 50Hz/60Hz; output: 15.6V DC, 7.05A Battery: Lithium-Ion (11.1V, typical 4770mAh / minimum 4590mAh) Battery life: approx. 2.5 hours (Mobile Mark™ 2007, LCD brightness: 60cd/m <sup>2</sup> )
Security Features	TPM (Trusted Platform Module, TCG V1.2 compliant), integrated hardware security lock slot, password security (supervisor password, user password, HDD lock)
Dimensions (W x H x D) & Weight	475mm x 334mm x 12.5mm / 18.7" x 13.1" x 0.49" Approx. 2.49kg / 5.5lb
Ruggedisation	Passed a 76cm free-fall test <sup>4</sup> and 100kgf pressurised vibration test <sup>4</sup>

## BUSINESS RUGGED



### FZ-Y1 Value and Standard model

20" brilliant 4K resolution tablet for designers, showrooms, front offices, corporate executives and white-collar sales workforce.

Mobile Computing Platform / CPU	Intel® Core™ i5-5300U vPro™ processor (2.3GHz to 2.9GHz (with Turbo Boost), 3MB Intel® Smart Cache)
Operating System	Windows 10 Pro
Memory & Storage	4GB RAM (Value model) / 8GB RAM (Standard model) 128GB SSD (Value model) / 256GB SSD (Standard model)
Display	20" IPS $\alpha$ LCD, 4K (3840 x 2560 pixels) 10 finger capacitive touchscreen Intel® HD Graphics 5500
Camera	Front: 0.9MP
Expansion Slots	SD/SDXC memory card: x1 SDXC
Interfaces	USB 3.0: x1 HDMI 2.0 INPUT: x1 (supports 4K input), available only in Standard model Mini DisplayPort™: x1 (supports 4K output), available only in Standard model LAN: x1, available only in Standard model Smart card reader: x1, available only in Standard model
Connectivity	Bluetooth®: Version 4.0 + Class 1 Wireless LAN: Intel® Dual Band Wireless-AC 7265 a/b/g/n/ac LAN IEEE 802.3 10BASE-T / IEEE 802.3u 100BASE-TX / IEEE 802.3ab 1000BASE-T
Power	AC adapter: input: 100–240V AC, 50Hz/60Hz; output: 15.6V DC, 7.05A Battery: Lithium-Ion (11.1V, typical 4770mAh / minimum 4590mAh) Battery life: approx. 3 hours (Mobile Mark™ 2007, LCD brightness: 60cd/m <sup>2</sup> )
Security Features	TPM (Trusted Platform Module, TCG V1.2 compliant), integrated hardware security lock slot, password security (supervisor password, user password, HDD lock)
Dimensions (W x H x D) & Weight	475mm x 334mm x 12.5mm / 18.7" x 13.1" x 0.49" Approx. 2.41kg / 5.3lb (Value model) Approx. 2.44kg / 5.4lb (Standard model)
Ruggedisation	Passed a 76cm free-fall test <sup>4</sup> and 100kgf pressurised vibration test <sup>4</sup>

As an ENERGY STAR® Partner, Panasonic Corporation has determined that this product meets the ENERGY STAR® guidelines for energy efficiency. Active Matrix colour display conforms to industry standards. Some displays may contain isolated illuminated or dark pixels as an artefact of the manufacturing process (effective pixels: minimum 99.998%). RAM capacity calculated as follows: 1MB = 1,048,576 bytes. HDD capacity calculated as follows: 1GB = 1,000,000,000 bytes. Toughbook and Toughpad are brand names and registered trademarks of Panasonic Corporation. Google, the Google logo, YouTube and Android are trademarks of Google Inc. Intel, the Intel logo, Intel Core, Intel vPro, Core Inside and vPro Inside are trademarks of Intel Corporation in the U.S. and other countries. Microsoft® and Windows® are registered trademarks of Microsoft® Corporation of the United States and/or other countries. All other brand names shown are the registered trademarks of the relevant companies. All rights reserved. All working conditions, times and figures quoted are optimum or ideal levels and may differ as a result of individual and local circumstances. Technical specifications are subject to change without notice.

<sup>1</sup> Tested in Panasonic Factory. <sup>2</sup> Config. A: 1x PC Card Type I or II + 1x ExpressCard; Config. B: 2x PC Card Type I or II, no ExpressCard. <sup>3</sup> The shock resistance, pressure resistance, and splashproof functions are not a guarantee against damage or malfunction. <sup>4</sup> Tested by an independent third-party lab following IEC 60529, sections 13.4, 13.6.2, 14.2.5, 14.3. <sup>5</sup> Project based. Only one interface can be selected.

<sup>6</sup> Safety Certifications list available at [www.toughbook.eu](http://www.toughbook.eu).

Computer Product Solutions (CPS) BU, Panasonic System Communications Company Europe (PSCEU), Panasonic Marketing Europe GmbH, Hagenauer Straße 43, 65203 Wiesbaden (Germany).

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## FULLY RUGGED



### FZ-B2

Fully rugged, fanless Android™ 6.0-powered tablet with 7" outdoor display.

Mobile Computing Platform / CPU	Intel® Atom™ x5-Z8550 processor (1.44GHz, 2MB Cache)
Operating System	Android™ 6.0
Memory & Storage	2GB RAM 32GB eMMC
Display	7" Active Matrix (TFT) colour LCD 1280 x 800 pixels, WXGA (up to 500cd/m <sup>2</sup> ) 10 finger capacitive touchscreen
Camera	Front: 2MP Rear: 8MP with autofocus and LED light
Expansion Slots	MicroSDHC memory card: x1
Interfaces	2D barcode reader: x1 optional (configuration port) Smart card reader: x1 optional (business expansion module) Headset: x1 DC input: jack USB 3.0: x1 USB 3.1 type C OTG: x1 Port replicator: x1 External antenna connector: x1 (optional)
Connectivity	Bluetooth®: Version 4.2 + EDR Class 1 Wireless LAN: Intel® Dual Band Wireless-AC 8260 Dedicated GPS
Power	AC adapter: input: 100–240V AC, 50Hz/60Hz; output: 16V DC, 3.75A Battery: Lithium-Ion (7.2V, 3220mAh), user replaceable Battery life: approx. 8 hours Hot swap battery: optional via business expansion module
Security Features	Smart card reader (optional)
Dimensions (W x H x D) & Weight	203mm x 18mm x 132mm / 7.98" x 5.20" x 0.71" 540g / 1.2lb
Options for Integration	4G LTE
Ruggedisation	Water resistance test: IEC529 (JIS C0920) IPX5 <sup>4</sup> Dust resistance test: IEC529 (JIS C0920) IP6X <sup>4</sup> Gravity drop resistance test: 150cm drop <sup>1</sup>

## FULLY RUGGED



### FZ-M1

Compact and lightweight, fully rugged Windows 10 field tablet, offering wide functionality and outstanding durability for outdoor working.

Mobile Computing Platform / CPU	Intel® Core™ m5-6Y57 vPro™ processor (1.1GHz to 2.8GHz, 4MB Intel® Smart Cache) (Standard model) or Intel® Atom™ x5-Z8550 processor (1.44GHz, 2MB Cache) (Value model)
Operating System	Windows 10 Pro
Memory & Storage	4GB RAM (max. 8GB), 128GB SSD (Standard model) or 2GB RAM (max. 4GB), 128GB SSD (Value model)
Display	7" Active Matrix (TFT) colour LCD 1280 x 800 pixels, WXGA (up to 500cd/m <sup>2</sup> ) 10 finger capacitive touchscreen
Camera	Front: 2MP Rear: 8MP with autofocus and LED light
Expansion Slots	MicroSD/SDXC memory card: x1
Interfaces	Serial (16550A compatible): D-sub, 9-pin optional (configuration port) LAN: RJ-45 optional (configuration port) 2D barcode reader: optional (configuration port) Smart card reader: optional (business expansion module) UHF RFID: optional (business expansion module) Headset: x1 DC input: jack USB 3.0: x1 Port replicator: x1 External antenna connector: x1 (optional)
Connectivity	Bluetooth®: Version 4.1 + EDR Class 1 Wireless LAN: Intel® Dual Band Wireless-AC 8260 LAN: IEEE 802.3 100BASE-T / IEEE 802.3u 1000BASE-TX / IEEE 802.3ab 10000BASE-T optional
Power	AC adapter: input: 100–240V AC, 50Hz/60Hz; output: 16V DC, 4.06A Battery: Lithium-Ion (7.2V, 3220mAh), user replaceable Battery life: approx. 9 hours (Mobile Mark™ 2007, LCD brightness: 60cd/m <sup>2</sup> ) Hot swap battery: optional via business expansion module
Security Features	TPM (Trusted Platform Module, TCG V2.0 Windows 10, V1.2 Windows 7 compliant) (Standard model) or TPM (Trusted Platform Module, TCG V2.0 Windows 10) (Value model), integrated hardware security lock slot
Dimensions (W x H x D) & Weight	203mm x 18mm x 132mm / 7.98" x 5.20" x 0.71" 540g / 1.2lb
Options for Integration	4G LTE, dedicated GPS
Ruggedisation	Water resistance test: IEC529 (JIS C0920) IPX5 <sup>4</sup> Dust resistance test: IEC529 (JIS C0920) IP6X <sup>4</sup> Gravity drop resistance test: 150cm drop <sup>1</sup>

## FULLY RUGGED



### FZ-E1/FZ-X1

Ultra rugged 5" handheld tablet with data, voice and optional barcode reader. Features extreme temperature support, 3m drop resistance<sup>1</sup> & IP68 rating, making it an ideal device for extreme outdoor environments.

Mobile Computing Platform / CPU	FZ-E1: Qualcomm® MSM8974AB 2.3 GHz Quad-core processor FZ-X1: Qualcomm® APQ8064T 1.7GHz Quad-core processor
Operating System	FZ-E1: Windows Embedded 8.1 Handheld FZ-X1: Android™ 4.2.2 / 5.1.1
Memory & Storage	2GB RAM 32GB eMMC storage
Display	5" HD (1280 x 720 pixels) sunlight-readable display with glove & rain mode 10-point capacitive multi-touch Brightness: up to 500cd/m <sup>2</sup>
Camera	Rear: 8MP with LED flash Front: 1.3MP
Expansion Slots	MicroSDXC memory card: x1 (max. 64GB)
Interfaces	Micro USB 2.0 DC-IN (for quick charging) Docking connector: 13-pin Headset jack: 3.5mm
Connectivity	Bluetooth®: Version 4.0 Class 1 Wireless LAN: IEEE 802.11a/b/g/n/ac Voice & data: 4G LTE, HSPA+, UMTS, EDGE, GPRS, GSM GPS: 2m CEP50 (±2 to 4m), GLONASS NFC: built-in (Type A, B, Felica)
Power	AC adapter: input: 100V-240V AC, 50Hz/60Hz; output: 16V DC, 3.75A Battery: Li-Ion 3.8V, 6200mAh (hot swappable) Battery life: – up to 14 hours of continuous data access – up to 23 hours of talk time – up to 1000 hours of standby time Battery charging time: – 50% charge in 1.2 hours, full charge in approx. 3.6 hours (FZ-E1) – 50% charge in 1 hour, full charge in approx. 3 hours (FZ-X1)
Security Features	FIPS140-2 level-1 compliant & built-in ARM® TrustZone®
Dimensions (W x H x D) & Weight	87.4mm x 165mm x 30.9mm / 3.4" x 6.5" x 1.2" Approx. 426g / 0.94lb (without barcode reader) Approx. 432g / 0.952lb (with barcode reader)
Options for Integration	Integrated 1D/2D barcode reader, gun grip
Ruggedisation	MIL-STD 810G certified (vibration, altitude, drop, shock, temperature and humidity) 3 metre drop resistant <sup>1</sup> IP68 (submersible in water up to 1.5 metre for 30 minutes) -20°C to +60°C operating temperature 2,000 drops (1,000 tumbles), 1.0 metre (3.2 ft) Raised bezel for display protection

## FULLY RUGGED



### FZ-F1/FZ-N1

Fully rugged 4.7" handheld tablet with data, voice and angled rear barcode reader. Supports both passive and active pen (for biometric signatures). Stylish, slim & lightweight design combined with IP67 rating makes it an ideal device for both indoor and outdoor environments.

Mobile Computing Platform / CPU	FZ-F1 & FZ-N1: Qualcomm® MSM8974AB 2.3 GHz Quad-core processor
Operating System	FZ-F1: Windows 10 IoT Mobile Enterprise FZ-N1: Android™ 5.1.1
Memory & Storage	2GB RAM 16GB eMMC storage
Display	4.7" HD (1280 x 720 pixels) sunlight-readable display with glove & rain mode 10-point capacitive multi-touch Brightness: up to 500cd/m <sup>2</sup> As default supports optional passive and optional active pen (for biometric signatures)
Camera	Rear: 8MP with LED flash Front: 5MP
Expansion Slots	MicroSDXC memory card: x1 (max. 64GB)
Interfaces	Micro USB 2.0 Docking connector: 9-pin Headset jack: 3.5mm
Connectivity	Bluetooth®: Version 4.1 Class 1 Wireless LAN: IEEE 802.11a/b/g/n/ac Voice & data: 4G LTE, HSPA+, UMTS, EDGE, GPRS, GSM Dual micro SIM (single standby) GPS: 2m CEP50 (±2 to 4m), GLONASS NFC: built-in (Type A, B, Felica)
Power	AC adapter: input: 100V-240V AC, 50Hz/60Hz; output: 16V DC, 3.75A Standard battery: Li-Ion 3.8V, 3200mAh (warm swappable) Optional extended battery: Li-Ion 3.8V, 6400mAh (warm swappable) Battery life (standard/extended battery): – up to 8 hours / 16 hours of continuous data access – up to 24 hours / 48 hours of talk time – up to 700 hours / 1400 hours of standby time Battery charging time: – full charge in approx. 2 hours with standard battery – full charge in approx. 4 hours with optional extended battery
Security Features	FIPS140-2 level-1 compliant & built-in ARM® TrustZone®
Dimensions (W x H x D) & Weight	74mm x 156mm x 16.3mm (31mm with barcode reader section) 2.9" x 6.1" x 0.6" (1.2" with barcode reader section) Approx. 277g / 0.61lb
Options for Integration	
Ruggedisation	MIL-STD 810G certified (vibration, altitude, drop, shock, temperature and humidity) 1.8 metre drop resistant <sup>1</sup> IP67 (submersible in water up to 1.0 metre for 30 minutes) -10°C to +50°C operating temperature 2,000 drops (1,000 tumbles), 1.0 metre (3.2 ft) Raised bezel for display protection



## FULLY RUGGED



### CF-20

2-in-1 fully rugged detachable notebook

Mobile Computing Platform / CPU	Intel® Core™ m5-6Y57 vPro™ processor (1.1GHz to 2.8GHz (with Turbo Boost), 4MB Intel® Smart Cache)
Operating System	Windows 10 Pro
Memory & Storage	8GB RAM (4GB project based) 256GB Solid State Disk (optional 128GB SSD)
Display	10.1 Active Matrix (TFT) IPS colour LCD, 1920 x 1200 pixels, WUXGA (up to 800cd/m²) Anti-glare, anti-reflection 10 finger capacitive touchscreen Dual touch model with digitiser (optional)
Camera	Front: 2MP Rear: 8MP, still picture
Expansion Slots	SD/SDXC memory card: x1 SDXC (keyboard base), x1 Micro-SDXC (main unit)
Interfaces	Serial: x1 (keyboard base), x1 optional (main unit) HDMI: x2 (keyboard base & main unit) Headset: x1 DC input: x2 jack (keyboard base & main unit) USB 2.0: x1 (keyboard base), x1 optional (main unit) USB 3.0: x2 (keyboard base), x1 (main unit) LAN: x2 (keyboard base & main unit) 2D barcode reader: x1 optional (main unit) Smart card reader: x1 optional (main unit) HF RFID: optional x1 (main unit) Fingerprint reader: x1 optional (main unit) Port replicator: x1 External antenna: x1 (keyboard base)
Connectivity	Bluetooth®: Version 4.1 Class 1 Wireless LAN: Intel® Dual Band Wireless-AC 8260 LAN: IEEE 802.3 10BASE-T / IEEE 802.3u 100BASE-TX / IEEE 802.3ab 1000BASE-T
Power	AC adapter: input: 100-240V AC, 50Hz/60Hz; output: 16V DC, 4.06A Battery: - Lithium-Ion (11.4V, 2600mAh), user replaceable (usable in keyboard base & main unit) Battery life: - approx. 10 hours (Mobile Mark™ 2007, LCD brightness: 60cd/m²) - approx. 20 hours with 2nd battery in keyboard base (Mobile Mark™ 2007, LCD brightness: 60cd/m²) Hot swap battery: standard
Security Features	TPM (Trusted Platform Module, TCG V1.2 compliant), integrated hardware security lock slot, password security (supervisor password, user password, HDD lock)
Dimensions (W x H x D) & Weight	272mm x 233mm x 33.5mm / 10.7" x 9.17" x 1.32" (keyboard base & main unit) 272mm x 196mm x 16.4mm / 10.7" x 7.7" x 0.65" (main unit) 1.76kg / 3.9lb (keyboard base & main unit) 950g / 2.1lb (main unit)
Options for Integration	4G LTE, dedicated GPS (U-Blox NEO-M8N)
Ruggedisation	Water resistance test: IEC529 (JIS C0920) IPX5 <sup>4</sup> Dust resistance test: IEC529 (JIS C0920) IP6X <sup>4</sup> Gravity drop resistance test: (120cm drop) <sup>4</sup>



## FULLY RUGGED



### CF-31

Offering the ultimate balance of screen, performance and rugged reliability, the CF-31 is the flagship of the Toughbook range.

Mobile Computing Platform / CPU	Intel® Core™ i5-5300U vPro™ processor (2.3GHz, 3MB Intel® Smart Cache)
Operating System	Windows 10 Pro
Memory & Storage	4GB RAM (max. 16GB) 500GB HDD (SATA)
Display	13.1" LCD sunlight-viewable XGA Active Matrix (TFT) colour LCD (up to 1,200cd/m <sup>2</sup> ) with circular polariser; concealed mode
Camera	
Expansion Slots	ExpressCard: x1, ExpressCard/34 or ExpressCard/54 SD/SDXC memory card: x1 RAM module: x1 DDR3L 200-pin SO-DIMM
Optical Drive	Multimedia pocket: will accept optional multiride
Interfaces	Serial (16550A compatible): D-sub, 9-pin External display (VGA port): mini D-sub, 15-pin HDMI: x1 Headphone: mini-jack, 3.5 DIA Microphone: mini-jack, 3.5 DIA, stereo DC input: jack USB 2.0: x3 USB 3.0: x1 LAN: RJ-45 (2nd LAN optional, project based) Firewire (IEEE1394a): x1 (optional, project based) Port replicator: x1 External antenna: x1
Connectivity	Bluetooth®: Version 4.0 + EDR Class 1 Wireless LAN: Intel® Dual Band Wireless-AC 7265 LAN: IEEE 802.3 10BASE-T / IEEE 802.3u 100BASE-TX / IEEE 802.3ab 1000BASE-T (2nd gigabit LAN project based)
Power	AC adapter: input: 100–240V AC, 50Hz/60Hz; output: 15.6V DC, 7.05A Battery: Lithium-Ion (10.65V, typical 8550mAh / minimum 8100mAh) Battery life: approx. 18 hours (Mobile Mark™ 2007, LCD brightness: 60cd/m <sup>2</sup> )
Security Features	TPM (TCG V1.2 compliant), integrated hardware security lock slot, password security (supervisor password, user password, HDD lock)
Dimensions (W x H x D) & Weight	302mm x 73.5mm x 292mm / 11.9" x 2.9" x 11.5" (excluding protrusions) 3.72kg / 8.2lb
Options for Integration	4G LTE, dedicated GPS, fingerprint reader, smart card reader
Ruggedisation	Water resistance test: IEC529 (JIS C0920) IP-X5 <sup>4</sup> , MIL-STD 810G 506.5, III <sup>4</sup> Dust resistance test: IEC529 (JIS C0920) IP-6X <sup>4</sup> , MIL-STD 810G 510.5, Level <sup>4</sup> Gravity drop resistance test: MIL-STD 810G 516.6, (180cm drop) <sup>4</sup> Vibration resistance test: MIL-STD 810G 514.6, category 20 & 24 <sup>4</sup>

## FULLY RUGGED



### FZ-G1

The first fully rugged Windows 10 tablet to feature IPS<sup>a</sup> screen technology, the 10.1" FZ-G1 combines lightweight design, business expansion ports and durability for the ultimate in field-based computing.

Mobile Computing Platform / CPU	Intel® Core™ i5-6300U vPro™ processor (2.4GHz, 3MB Intel® Smart Cache)
Operating System	Windows 10 Pro
Memory & Storage	4GB RAM (max. 8GB) 128GB SSD
Display	10.1" Active Matrix (TFT) IPS pro next colour LCD, 1920 x 1200 pixels, WUXGA (up to 800cd/m <sup>2</sup> ) with circular polariser 10 finger capacitive touchscreen and digitiser Intel® HD Graphics 520
Camera	Front: 720p Rear: 8MP
Expansion Slots	MicroSD/SDXC memory card: x1 optional (configuration port)
Optical Drive	
Interfaces	Serial (16550A compatible): D-sub, 9-pin optional (configuration port) HDMI: x1 Headset: x1 DC input: jack USB 2.0: x1 optional (configuration port) USB 3.0: x1 LAN: RJ-45 optional (configuration port) Port replicator: x1 External antenna: x1
Connectivity	Bluetooth®: Version 4.1 + EDR Class 1 Wireless LAN: Intel® Dual Band Wireless-AC 8260 LAN: IEEE 802.3 10BASE-T / IEEE 802.3u 100BASE-TX, IEEE 802.3ab 1000BASE-T optional
Power	AC adapter: input: 100–240V AC, 50Hz/60Hz; output: 16V DC, 4.06A Battery: Lithium-Ion (11.1V, 4200mAh), user replaceable Battery life: approx. 14 hours (Mobile Mark™ 2007, LCD brightness: 60cd/m <sup>2</sup> ) Hot swap battery: optional
Security Features	TPM (TCG V1.2 compliant), integrated hardware security lock slot, password security (supervisor password, user password, HDD lock)
Dimensions (W x H x D) & Weight	270mm x 19mm x 188mm / 10.6" x 0.75" x 7.4" 1.1kg / 2.43lb
Options for Integration	4G LTE, dedicated GPS, smart card reader
Ruggedisation	Water resistance test: IEC529 (JIS C0920) IPX5 <sup>4</sup> , MIL-STD 810G 506.5, III <sup>4</sup> Dust resistance test: IEC529 (JIS C0920) IP6X <sup>4</sup> , MIL-STD 810G 510.5, Level <sup>4</sup> Gravity drop resistance test: MIL-STD 810G 516.6, (180cm drop) <sup>4</sup> Vibration resistance test: MIL-STD 810G 514.6, category 20 & 24 <sup>4</sup>



## FULLY RUGGED



### CF-D1

Fully rugged professional tablet, built for the world of diagnostics, designed in conjunction with technicians working on engines, automobiles, trucks and machines in either the workshop or field.

Mobile Computing Platform / CPU	Intel® Core™ i5-6300U vPro™ processor (2.4GHz, 3MB Intel® Smart Cache)
Operating System	Windows 10 Pro
Memory & Storage	4GB DDR3 SDRAM (max. 8GB) 500GB HDD (SATA)
Display	13.3" Active Matrix (TFT) colour LCD, 1366 x 768 pixels (HD) with touchscreen (up to 400cd/m <sup>2</sup> transmissive brightness)
Camera	Rear: 5MP, still picture (optional)
Expansion Slots	PC Card: x1, Type I or II (allowable current: 3.3V, 400mA; 5V, 400mA) ExpressCard: x1, ExpressCard/34 or ExpressCard/54 SD/SDXC memory card: x1 RAM module: x1 DDR3 200-pin SO-DIMM
Interfaces	Serial: D-sub, 9-pin VGA: mini D-sub, 15-pin optional <sup>5</sup> (eliminates serial) Headphone: mini-jack, 3.5 DIA, stereo Microphone: mini-jack, 3.5 DIA, stereo DC input: jack USB 2.0: x2 USB 3.0: x1 4th USB optional <sup>5</sup> (modular bay port) Rugged USB 2.0: x1 or x2 optional <sup>5</sup> (modular bay port) LAN: RJ-45, 2nd LAN optional <sup>5</sup> (modular bay port) Industry cradle: x1
Connectivity	Bluetooth®: Version 4.0 + EDR Class 1 Wireless LAN: Intel® Centrino® Advanced-N 6235 802.11 a/b/g/n LAN: IEEE 802.3 10BASE-T / IEEE 802.3u 100BASE-TX / IEEE 802.3ab 1000BASE-T (2nd LAN 100MBit optional <sup>3</sup> )
Power	AC adapter: input: 100-240V AC, 50Hz/60Hz; output: 15.6V DC, 7.05A Battery: Lithium-Ion (10.8V, 6.2Ah) Battery life: approx. 12 hours (Mobile Mark™ 2007, LCD brightness: 60cd/m <sup>2</sup> )
Security Features	Password security (supervisor password, user password, hard disc lock), Kensington lock, smart card reader (optional)
Dimensions (W x H x D) & Weight	349mm x 46mm x 244mm / 13.7" x 1.8" x 9.6" 2.25kg / 4.96lb
Options for Integration	4G LTE, dedicated GPS
Ruggedisation	Water resistance test: IPX5 <sup>1</sup> Dust resistance test: IP6X <sup>1</sup> Gravity drop resistance test: 90cm drop <sup>5</sup>

## FULLY RUGGED



### FZ-A2

Fully rugged, fanless Android™ 6.0-powered tablet with 10.1" outdoor display.

Mobile Computing Platform / CPU	Intel® Atom™ x5-Z8550 processor (1.44GHz, 2MB Cache)
Operating System	Android™ 6.0
Memory & Storage	4GB RAM 32GB eMMC
Display	10.1" Active Matrix (TFT) IPS colour LCD, 1920 x 1200 pixels, WUXGA (up to 800cd/m <sup>2</sup> ) Anti-glare, anti-reflection 10 finger capacitive touchscreen
Camera	Front: 2MP Rear: 8MP with autofocus and LED light
Expansion Slots	MicroSDHC memory card: x1 (max. 32GB)
Interfaces	2D barcode reader: optional (configuration port) Smart card reader: optional (business expansion module) Headset: x1 DC input: jack USB 2.0: optional (configuration port) USB 3.0: x1 USB 3.1 type C OTG: x1 HDMI: x1 Port replicator: x1 External antenna: x1 optional
Connectivity	Bluetooth®: Version 4.2 + EDR Class 1 Wireless LAN: Intel® Dual Band Wireless-AC 8260 Dedicated GPS
Power	AC adapter: input: 100-240V AC, 50Hz/60Hz; output: 16V DC, 4.06A Battery: Lithium-Ion (11.4V, 2600mAh), user replaceable Battery life: approx. 9 hours Hot swap battery: optional
Security Features	Smart card reader (optional)
Dimensions (W x H x D) & Weight	272mm x 16.4mm x 196mm / 10.71" x 0.65" x 7.72" 880g / 1.94lb
Options for Integration	4G LTE
Ruggedisation	Water resistance test: IEC529 (JIS C0920) IPX5 <sup>4</sup> Dust resistance test: IEC529 (JIS C0920) IP6X <sup>4</sup> Gravity drop resistance test: 150cm drop <sup>1</sup>



## SEMI RUGGED



### CF-53

Combines industry-leading balanced-mobility with semi-rugged features, integrated carrying handle and optional sunlight-viewable touchscreen. It is the ideal companion for all mobile users looking for premium mobile business quality combined with rich computing power.

Mobile Computing Platform / CPU	Intel® Core™ i5-4310U vPro™ processor (2.0GHz, 3MB Intel® Smart Cache)
Operating System	Windows 8.1 Pro
Memory & Storage	4GB RAM (max. 16GB) 500GB HDD (SATA)
Display	14" Active Matrix (TFT) colour LCD, 1366 x 768 pixels (HD) [Standard model] or 14" Active Matrix (TFT) colour LCD, 1366 x 768 pixels (HD) with sunlight viewable resistive touchscreen (up to 1,000cd/m <sup>2</sup> ) [Touchscreen model]
Camera	Front (optional): 720p, digital microphone
Expansion Slots	PC Card: x1, Type I or Type II (allowable current: 3.3V, 400mA; 5V, 400mA) ExpressCard: x1, ExpressCard/34 or ExpressCard/54 <sup>2</sup> SD/SDXC memory card: x1 RAM module: x2 DDR3L 200-pin SO-DIMM, one slot occupied
Optical Drive	DVD super multiride
Interfaces	Serial (16550A compatible): D-sub, 9-pin External display (VGA port): mini D-sub, 15-pin HDMI: x1 Headphone: mini-jack, 3.5 DIA, stereo Microphone: mini-jack, 3.5 DIA, stereo DC input: jack USB 2.0: x2 USB 3.0: x2 Firewire (IEEE1394a): x1 (project based) Modem: RJ-11 (project based) LAN: RJ-45 [2nd LAN project based] Port replicator: x1
Connectivity	Bluetooth®: Version 4.0 + EDR Class 1 Wireless LAN: Intel® Dual Band Wireless-AC 7260 LAN: IEEE 802.3 10BASE-T / IEEE 802.3u 100BASE-TX / IEEE 802.3ab 1000BASE-T (2nd LAN project based) Modem data: 56kbps (V.92); Fax: 14.4kbps
Power	AC adapter: input: 100-240V, 50Hz/60Hz; output: 15.6V, 7.05A Battery: Lithium-Ion [10.8V, typical 6750mAh / minimum 6300mAh] Battery life: approx. 15 hours (Mobile Mark™ 2007, LCD brightness: 60cd/m <sup>2</sup> ) Power management: standby function, ACPI BIOS
Security Features	TPM (TCG V1.2 compliant), integrated hardware security lock slot, password security (supervisor password, user password, HDD lock)
Dimensions (W x H x D) & Weight	341mm x 48-55mm x 281mm / 13.6" x 1.9-2.2" x 11.2" (including carrying handle) Standard model: 2.65kg / 5.84lb (including carrying handle) Touchscreen model: 2.95kg / 6.50lb (including carrying handle)
Options for Integration	4G LTE, 3G, dedicated GPS, fingerprint reader, smart card reader, RFID
Ruggedisation	Withstands drops from a height of 76cm <sup>1</sup> Water resistant touchpad, keyboard MIL-STD 810G [vibration, altitude, drop, shock, temperature & humidity]

## SEMI RUGGED



### CF-54

Semi rugged redefined: semi rugged notebook in the form factor of a slim and lightweight business PC, featuring integrated carrying handle, magnesium on all four sides and completely spill-proof inner surface.

Mobile Computing Platform / CPU	Intel® Core™ i5-6300U vPro™ processor (2.4GHz, 3MB Intel® Smart Cache)
Operating System	Windows 10 Pro
Memory & Storage	4GB RAM (max. 16GB) HD model (without touchscreen): – 256GB SSD as standard (500GB HDD / 128GB SSD optional) FullHD model (with and without touchscreen): – 256GB SSD as standard (128GB SSD optional)
Display	14" Active Matrix (TFT) display, HD (1366 x 768 pixels) or FullHD IPS (1920 x 1080 pixels) 10 finger capacitive touchscreen with up to 1,000cd/m <sup>2</sup> (touchscreen optional only on FullHD model)
Camera	Front (optional): 2MP, stereo microphone
Expansion Slots	SD/SDXC memory card: x1 RAM module: x2 DDR3L 200-pin SO-DIMM, one slot occupied Optional config area [one option only]: – PC Card [Type I or Type II] or DVD multiride or 2nd battery [6 cell] or smart card reader
Optical Drive	DVD multiride [exclusive option at optional config area]
Interfaces	HDMI: x1 Headset: x1 DC input: jack USB 2.0: x1 [exclusive option at configuration port] USB 3.0: x3 Rugged USB 2.0: x1 [exclusive option at configuration port] Dedicated GPS: x1 [exclusive option at configuration port] True Serial : x1 [optional] VGA port: x1, mini D-Sub, 15-pin [optional] Dual pass through antenna (WWAN/GPS dual): x1 [optional] 1st LAN: x1 RJ-45 2nd LAN: x1 RJ-45 [exclusive option at configuration port] Port replicator: x1, 24-pin
Connectivity	Bluetooth®: Version 4.1 + EDR Class 1 Wireless LAN: Intel® Dual Band Wireless-AC 8260 LAN: IEEE 802.3 10BASE-T / IEEE 802.3u 100BASE-TX / IEEE 802.3ab 1000BASE-T
Power	AC adapter: input: 100-240V, 50Hz/60Hz; output: 15.6V, 7.05A Battery: Lithium-Ion 6 cell Battery life: – approx. 11 hours (Mobile Mark™ 2007, LCD brightness: 60cd/m <sup>2</sup> ) – approx. 18 hours (with optional 2nd battery) Bridge battery for hot swap (optional) Power management: standby function, ACPI BIOS
Security Features	TPM (TCG V1.2 compliant), integrated hardware security lock slot, password security (supervisor password, user password, HDD lock)
Dimensions (W x H x D) & Weight	345mm x 272mm x 29.8mm / 13.6" x 10.7" x 1.17" HD model without touchscreen: 1.99kg / 4.39lb (including carrying handle) FullHD model without touchscreen: 1.9kg / 4.19lb (including carrying handle) FullHD model with touchscreen: 2.1kg / 4.63lb (including carrying handle)
Options for Integration	Contactless smart card reader or fingerprint reader, smart card reader, Mobile Broadband (LTE, up to 100Mbps), GPS, bridge battery, dual pass through antenna
Ruggedisation	Withstands drops from a height of 76cm <sup>1</sup> Dust & water resistance: IP51 Complete inner surface [keyboard, touchpad, hinges and display] is spill-proof MIL-STD 810G [vibration, altitude, drop, shock, temperature & humidity] Operating temperature: -10°C to 50°C



## SEMI RUGGED



### CF-C2

Combining ground-breaking ergonomics, semi rugged design and outstanding performance, the Toughbook CF-C2 redefines the way mobile professionals operate, allowing them to be more productive than ever before.

Mobile Computing Platform / CPU	Intel® Core™ i5-4310U vPro™ processor (2.0GHz, 3MB Intel® Smart Cache)
Operating System	Windows 10 Pro Windows 7 Professional
Memory & Storage	4GB RAM (max. 8GB) 500GB HDD (SATA)
Display	12.5" Active Matrix (TFT) IPS colour LCD, 1366 x 768 pixels, HD (up to 500cd/m <sup>2</sup> ) 10 finger capacitive touchscreen + digitiser
Camera	Front: 720p Rear (optional): 5MP, still picture
Expansion Slots	ExpressCard: x1 ExpressCard/34 (optional) SD/SDXC memory card: x1 RAM module: x1 DDR3L SDRAM 204-pin SO-DIMM
Interfaces	Serial (16550A compatible): D-sub, 9-pin (optional) External display (VGA port): mini D-sub, 15-pin (optional) HDMI: x1 Headphone: mini-jack, 3.5 DIA, stereo Microphone: mini-jack, 3.5 DIA, stereo DC input: jack USB 2.0: x1 USB 3.0: x2 NFC: x1 (optional) Modem: RJ-11 (optional) LAN: x1 RJ-45 Port replicator: x1
Connectivity	Bluetooth®: Version 4.0 + EDR Class 1 Wireless LAN: Intel® Dual Band Wireless-N 7260 802.11 a/b/g/n LAN: IEEE 802.3 10BASE-T / IEEE 802.3u 100BASE-TX / IEEE 802.3ab 1000BASE-T
Power	AC adapter: input: 100–240V AC, 50Hz/60Hz; output: 15.6V DC, 7.05A Battery: Lithium-Ion (10.8V, typical 6800mAh / minimum 6400mAh) Battery life: approx. 14 hours (Mobile Mark™ 2007, LCD brightness: 60cd/m <sup>2</sup> )
Security Features	TPM (TCG V1.2 compliant), integrated hardware security lock slot, password security (supervisor password, user password, HDD lock)
Dimensions (W x H x D) & Weight	299mm x 25mm x 217.3mm / 11.8" x 1.0" x 8.6" (including handstrap) 1.81kg / 3.99lb
Options for Integration	4G LTE, full size smart card reader, half size smart card reader
Ruggedisation	Withstands drops from a height of 76cm (bottom) <sup>3</sup> Spill-resistant touchpad, keyboard Fanless design

## BUSINESS RUGGED



### CF-MX4

2-in-1 business rugged flip-over notebook in a stylish and slim form factor, featuring hot-swappable battery, UHD alloy and embedded thin-nib pen.

Mobile Computing Platform / CPU	Intel® Core™ i5-5300U vPro™ processor (2.3GHz, 3MB Intel® Smart Cache)
Operating System	Windows 10 Pro Windows 7 Professional
Memory & Storage	4GB RAM (max. 8GB) 256GB Solid State Disk (optional 128GB SSD)
Display	12.5" IPS FullHD (1920 x 1080 pixels) Intel® HD Graphics 5500
Camera	Front: 2MP (max. 1920 x 1080 pixel) with microphone array
Expansion Slots	SD/SDXC memory card: x1 SDXC (UHS-II compliant)
Interfaces	USB 3.0: x2 LAN connector: x1 RJ-45 External display (VGA port): x1 analog RGB mini D-Sub, 15-pin HDMI: x1 Microphone: mini-jack, 3.5 DIA Headphone: mini-jack, 3.5 DIA
Connectivity	Bluetooth®: Version 4.0 Class 1 Wireless LAN Intel® Centrino® Advanced-N 7265 a/b/g/n/ac LAN IEEE 802.3 10BASE-T / IEEE 802.3u 100BASE-TX / IEEE 802.3ab 1000BASE-T
Power	AC adapter: input: 100–240V AC, 50Hz/60Hz; output: 16V DC, 4.06A Main battery (end-user removable): – 4-cell battery, Lithium-Ion (7.2V, typical 4.8Ah / minimum 4.56Ah) Internal bridge battery (hot swap): – 2-cell battery, Lithium-Ion (7.6V, typical 2.06Ah / minimum 2.00Ah) Battery life: approx. 13 hours (Mobile Mark™ 2007, LCD brightness: 60cd/m <sup>2</sup> )
Security Features	TPM (Trusted Platform Module, TCG V1.2 compliant), integrated hardware security lock slot, password security (supervisor password, user password, HDD lock)
Dimensions (W x H x D) & Weight	301.4mm x 210mm x 21mm / 11.87" x 8.27" x 0.83" Approx. 1.140kg / 2.51lb (for models without wireless WAN and without SCR)
Options for Integration	4G LTE, smart card reader
Ruggedisation	Passes a 76cm free-fall test <sup>3</sup> 100kgf pressurised vibration test <sup>3</sup>