



## 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<br>(2.6GHz to 3.2GHz (with Turbo Boost), 4MB Intel® Smart Cache)  |
| Operating System                | Windows 10 Pro  |
| Memory & Storage                | 16GB RAM<br>256GB SSD (optional 512GB SSD)  |
| Display                         | 20" IPS <sub>a</sub> LCD, 4K (3840 x 2560 pixels)<br>10 finger capacitive touchscreen<br>Optional Electronic Touch Pen<br>AMD FirePro™ M5100 dedicated graphics   |
| Camera                          | Front: 0.9MP<br>Rear: 5MP (optional)  |
| Expansion Slots                 | SD/SDXC memory card: x1 SDXC  |
| Interfaces                      | USB 3.0: x1<br>HDMI 2.0 input: x1 (supports 4K input)<br>Mini DisplayPort™: x1 (supports 4K output)<br>LAN: x1<br>Smart card reader: x1   |
| Connectivity                    | Bluetooth®: Version 4.0 + Class 1<br>Wireless LAN: Intel® Dual Band Wireless-AC 7265 a/b/g/n/ac<br>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<br>Battery: Lithium-Ion (11.1V, typical 4770mAh / minimum 4590mAh)<br>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"<br>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<br>(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)<br>128GB SSD (Value model) / 256GB SSD (Standard model)  |
| Display                         | 20" IPS <sub>a</sub> LCD, 4K (3840 x 2560 pixels)<br>10 finger capacitive touchscreen<br>Intel® HD Graphics 5500  |
| Camera                          | Front: 0.9MP  |
| Expansion Slots                 | SD/SDXC memory card: x1 SDXC  |
| Interfaces                      | USB 3.0: x1<br>HDMI 2.0 INPUT: x1 (supports 4K input), available only in Standard model<br>Mini DisplayPort™: x1 (supports 4K output), available only in Standard model<br>LAN: x1, available only in Standard model<br>Smart card reader: x1, available only in Standard model |
| Connectivity                    | Bluetooth®: Version 4.0 + Class 1<br>Wireless LAN: Intel® Dual Band Wireless-AC 7265 a/b/g/n/ac<br>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<br>Battery: Lithium-Ion (11.1V, typical 4770mAh / minimum 4590mAh)<br>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"<br>Approx. 2.41kg / 5.3lb (Value model)<br>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<br>32GB eMMC  |
| Display                         | 7" Active Matrix (TFT) colour LCD<br>1280 x 800 pixels, WXGA (up to 500cd/m <sup>2</sup> )<br>10 finger capacitive touchscreen  |
| Camera                          | Front: 2MP<br>Rear: 8MP with autofocus and LED light  |
| Expansion Slots                 | MicroSDHC memory card: x1   |
| Interfaces                      | 2D barcode reader: x1 optional (configuration port)<br>Smart card reader: x1 optional (business expansion module)<br>Headset: x1<br>DC input: jack<br>USB 3.0: x1<br>USB 3.1 type C OTG: x1<br>Port replicator: x1<br>External antenna connector: x1 (optional) |
| Connectivity                    | Bluetooth®: Version 4.2 + EDR Class 1<br>Wireless LAN: Intel® Dual Band Wireless-AC 8260<br>Dedicated GPS   |
| Power                           | AC adapter: input: 100–240V AC, 50Hz/60Hz; output: 16V DC, 3.75A<br>Battery: Lithium-Ion (7.2V, 3220mAh), user replaceable<br>Battery life: approx. 8 hours<br>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"<br>540g / 1.2lb  |
| Options for Integration         | 4G LTE  |
| Ruggedisation                   | Water resistance test: IEC529 (JIS C0920) IPX5 <sup>4</sup><br>Dust resistance test: IEC529 (JIS C0920) IP6X <sup>4</sup><br>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<br>1280 x 800 pixels, WXGA (up to 500cd/m <sup>2</sup> )<br>10 finger capacitive touchscreen  |
| Camera                          | Front: 2MP<br>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)<br>LAN: RJ-45 optional (configuration port)<br>2D barcode reader: optional (configuration port)<br>Smart card reader: optional (business expansion module)<br>UHF RFID: optional (business expansion module)<br>Headset: x1<br>DC input: jack<br>USB 3.0: x1<br>Port replicator: x1<br>External antenna connector: x1 (optional) |
| Connectivity                    | Bluetooth®: Version 4.1 + EDR Class 1<br>Wireless LAN: Intel® Dual Band Wireless-AC 8260<br>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<br>Battery: Lithium-Ion (7.2V, 3220mAh), user replaceable<br>Battery life: approx. 9 hours (Mobile Mark™ 2007, LCD brightness: 60cd/m <sup>2</sup> )<br>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"<br>540g / 1.2lb  |
| Options for Integration         | 4G LTE, dedicated GPS   |
| Ruggedisation                   | Water resistance test: IEC529 (JIS C0920) IPX5 <sup>4</sup><br>Dust resistance test: IEC529 (JIS C0920) IP6X <sup>4</sup><br>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<br>FZ-X1: Qualcomm® APQ8064T 1.7GHz Quad-core processor  |
| Operating System                | FZ-E1: Windows Embedded 8.1 Handheld<br>FZ-X1: Android™ 4.2.2 / 5.1.1   |
| Memory & Storage                | 2GB RAM<br>32GB eMMC storage  |
| Display                         | 5" HD (1280 x 720 pixels) sunlight-readable display with glove & rain mode<br>10-point capacitive multi-touch<br>Brightness: up to 500cd/m <sup>2</sup>   |
| Camera                          | Rear: 8MP with LED flash<br>Front: 1.3MP  |
| Expansion Slots                 | MicroSDXC memory card: x1 (max. 64GB)   |
| Interfaces                      | Micro USB 2.0<br>DC-IN (for quick charging)<br>Docking connector: 13-pin<br>Headset jack: 3.5mm   |
| Connectivity                    | Bluetooth®: Version 4.0 Class 1<br>Wireless LAN: IEEE 802.11a/b/g/n/ac<br>Voice & data: 4G LTE, HSPA+, UMTS, EDGE, GPRS, GSM<br>GPS: 2m CEP50 (±2 to 4m), GLONASS<br>NFC: built-in (Type A, B, Felica)  |
| Power                           | AC adapter: input: 100V-240V AC, 50Hz/60Hz; output: 16V DC, 3.75A<br>Battery: Li-Ion 3.8V, 6200mAh (hot swappable)<br>Battery life:<br>– up to 14 hours of continuous data access<br>– up to 23 hours of talk time<br>– up to 1000 hours of standby time<br>Battery charging time:<br>– 50% charge in 1.2 hours, full charge in approx. 3.6 hours (FZ-E1)<br>– 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"<br>Approx. 426g / 0.94lb (without barcode reader)<br>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)<br>3 metre drop resistant <sup>1</sup><br>IP68 (submersible in water up to 1.5 metre for 30 minutes)<br>-20°C to +60°C operating temperature<br>2,000 drops (1,000 tumbles), 1.0 metre (3.2 ft)<br>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<br>FZ-N1: Android™ 5.1.1   |
| Memory & Storage                | 2GB RAM<br>16GB eMMC storage   |
| Display                         | 4.7" HD (1280 x 720 pixels) sunlight-readable display with glove & rain mode<br>10-point capacitive multi-touch<br>Brightness: up to 500cd/m <sup>2</sup><br>As default supports optional passive and optional active pen (for biometric signatures)   |
| Camera                          | Rear: 8MP with LED flash<br>Front: 5MP   |
| Expansion Slots                 | MicroSDXC memory card: x1 (max. 64GB)  |
| Interfaces                      | Micro USB 2.0<br>Docking connector: 9-pin<br>Headset jack: 3.5mm   |
| Connectivity                    | Bluetooth®: Version 4.1 Class 1<br>Wireless LAN: IEEE 802.11a/b/g/n/ac<br>Voice & data: 4G LTE, HSPA+, UMTS, EDGE, GPRS, GSM<br>Dual micro SIM (single standby)<br>GPS: 2m CEP50 (±2 to 4m), GLONASS<br>NFC: built-in (Type A, B, Felica)  |
| Power                           | AC adapter: input: 100V-240V AC, 50Hz/60Hz; output: 16V DC, 3.75A<br>Standard battery: Li-Ion 3.8V, 3200mAh (warm swappable)<br>Optional extended battery: Li-Ion 3.8V, 6400mAh (warm swappable)<br>Battery life (standard/extended battery):<br>– up to 8 hours / 16 hours of continuous data access<br>– up to 24 hours / 48 hours of talk time<br>– up to 700 hours / 1400 hours of standby time<br>Battery charging time:<br>– full charge in approx. 2 hours with standard battery<br>– 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)<br>2.9" x 6.1" x 0.6" (1.2" with barcode reader section)<br>Approx. 277g / 0.61lb   |
| Options for Integration         |  |
| Ruggedisation                   | MIL-STD 810G certified (vibration, altitude, drop, shock, temperature and humidity)<br>1.8 metre drop resistant <sup>1</sup><br>IP67 (submersible in water up to 1.0 metre for 30 minutes)<br>-10°C to +50°C operating temperature<br>2,000 drops (1,000 tumbles), 1.0 metre (3.2 ft)<br>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)<br>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)<br>Anti-glare, anti-reflection<br>10 finger capacitive touchscreen<br>Dual touch model with digitiser (optional)  |
| Camera                          | Front: 2MP<br>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)<br>HDMI: x2 (keyboard base & main unit)<br>Headset: x1<br>DC input: x2 jack (keyboard base & main unit)<br>USB 2.0: x1 (keyboard base), x1 optional (main unit)<br>USB 3.0: x2 (keyboard base), x1 (main unit)<br>LAN: x2 (keyboard base & main unit)<br>2D barcode reader: x1 optional (main unit)<br>Smart card reader: x1 optional (main unit)<br>HF RFID: optional x1 (main unit)<br>Fingerprint reader: x1 optional (main unit)<br>Port replicator: x1<br>External antenna: x1 (keyboard base) |
| Connectivity                    | Bluetooth®: Version 4.1 Class 1<br>Wireless LAN: Intel® Dual Band Wireless-AC 8260<br>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<br>Battery:<br>- Lithium-Ion (11.4V, 2600mAh), user replaceable (usable in keyboard base & main unit)<br>Battery life:<br>- approx. 10 hours (Mobile Mark™ 2007, LCD brightness: 60cd/m²)<br>- approx. 20 hours with 2nd battery in keyboard base (Mobile Mark™ 2007, LCD brightness: 60cd/m²)<br>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)<br>272mm x 196mm x 16.4mm / 10.7" x 7.7" x 0.65" (main unit)<br>1.76kg / 3.9lb (keyboard base & main unit)<br>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><br>Dust resistance test: IEC529 [JIS C0920] IP6X <sup>4</sup><br>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<br>(2.3GHz, 3MB Intel® Smart Cache)   |
| Operating System                | Windows 10 Pro  |
| Memory & Storage                | 4GB RAM (max. 16GB)<br>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<br>SD/SDXC memory card: x1<br>RAM module: x1 DDR3L 200-pin SO-DIMM  |
| Optical Drive                   | Multimedia pocket: will accept optional multiride   |
| Interfaces                      | Serial (16550A compatible): D-sub, 9-pin<br>External display (VGA port): mini D-sub, 15-pin<br>HDMI: x1<br>Headphone: mini-jack, 3.5 DIA<br>Microphone: mini-jack, 3.5 DIA, stereo<br>DC input: jack<br>USB 2.0: x3<br>USB 3.0: x1<br>LAN: RJ-45 (2nd LAN optional, project based)<br>Firewire (IEEE1394a): x1 (optional, project based)<br>Port replicator: x1<br>External antenna: x1 |
| Connectivity                    | Bluetooth®: Version 4.0 + EDR Class 1<br>Wireless LAN: Intel® Dual Band Wireless-AC 7265<br>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<br>Battery: Lithium-Ion (10.65V, typical 8550mAh / minimum 8100mAh)<br>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)<br>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><br>Dust resistance test: IEC529 (JIS C0920) IP-6X <sup>4</sup> , MIL-STD 810G 510.5, Level <sup>4</sup><br>Gravity drop resistance test: MIL-STD 810G 516.6, (180cm drop) <sup>4</sup><br>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<br>(2.4GHz, 3MB Intel® Smart Cache)  |
| Operating System                | Windows 10 Pro   |
| Memory & Storage                | 4GB RAM (max. 8GB)<br>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<br>10 finger capacitive touchscreen and digitiser<br>Intel® HD Graphics 520   |
| Camera                          | Front: 720p<br>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)<br>HDMI: x1<br>Headset: x1<br>DC input: jack<br>USB 2.0: x1 optional (configuration port)<br>USB 3.0: x1<br>LAN: RJ-45 optional (configuration port)<br>Port replicator: x1<br>External antenna: x1   |
| Connectivity                    | Bluetooth®: Version 4.1 + EDR Class 1<br>Wireless LAN: Intel® Dual Band Wireless-AC 8260<br>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<br>Battery: Lithium-Ion (11.1V, 4200mAh), user replaceable<br>Battery life: approx. 14 hours (Mobile Mark™ 2007, LCD brightness: 60cd/m <sup>2</sup> )<br>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"<br>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><br>Dust resistance test: IEC529 (JIS C0920) IP6X <sup>4</sup> , MIL-STD 810G 510.5, Level <sup>4</sup><br>Gravity drop resistance test: MIL-STD 810G 516.6, (180cm drop) <sup>4</sup><br>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)<br>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)<br>ExpressCard: x1, ExpressCard/34 or ExpressCard/54<br>SD/SDXC memory card: x1<br>RAM module: x1 DDR3 200-pin SO-DIMM   |
| Interfaces                      | Serial: D-sub, 9-pin<br>VGA: mini D-sub, 15-pin optional <sup>5</sup> (eliminates serial)<br>Headphone: mini-jack, 3.5 DIA, stereo<br>Microphone: mini-jack, 3.5 DIA, stereo<br>DC input: jack<br>USB 2.0: x2<br>USB 3.0: x1<br>4th USB optional <sup>5</sup> (modular bay port)<br>Rugged USB 2.0: x1 or x2 optional <sup>5</sup> (modular bay port)<br>LAN: RJ-45, 2nd LAN optional <sup>5</sup> (modular bay port)<br>Industry cradle: x1 |
| Connectivity                    | Bluetooth®: Version 4.0 + EDR Class 1<br>Wireless LAN: Intel® Centrino® Advanced-N 6235 802.11 a/b/g/n<br>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<br>Battery: Lithium-Ion (10.8V, 6.2Ah)<br>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"<br>2.25kg / 4.96lb  |
| Options for Integration         | 4G LTE, dedicated GPS  |
| Ruggedisation                   | Water resistance test: IPX5 <sup>1</sup><br>Dust resistance test: IP6X <sup>1</sup><br>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<br>32GB eMMC  |
| Display                         | 10.1" Active Matrix (TFT) IPS colour LCD, 1920 x 1200 pixels, WUXGA (up to 800cd/m <sup>2</sup> )<br>Anti-glare, anti-reflection<br>10 finger capacitive touchscreen  |
| Camera                          | Front: 2MP<br>Rear: 8MP with autofocus and LED light  |
| Expansion Slots                 | MicroSDHC memory card: x1 (max. 32GB)   |
| Interfaces                      | 2D barcode reader: optional (configuration port)<br>Smart card reader: optional (business expansion module)<br>Headset: x1<br>DC input: jack<br>USB 2.0: optional (configuration port)<br>USB 3.0: x1<br>USB 3.1 type C OTG: x1<br>HDMI: x1<br>Port replicator: x1<br>External antenna: x1 optional |
| Connectivity                    | Bluetooth®: Version 4.2 + EDR Class 1<br>Wireless LAN: Intel® Dual Band Wireless-AC 8260<br>Dedicated GPS   |
| Power                           | AC adapter: input: 100-240V AC, 50Hz/60Hz; output: 16V DC, 4.06A<br>Battery: Lithium-Ion (11.4V, 2600mAh), user replaceable<br>Battery life: approx. 9 hours<br>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"<br>880g / 1.94lb  |
| Options for Integration         | 4G LTE  |
| Ruggedisation                   | Water resistance test: IEC529 (JIS C0920) IPX5 <sup>4</sup><br>Dust resistance test: IEC529 (JIS C0920) IP6X <sup>4</sup><br>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)<br>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/m²) [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)<br>ExpressCard: x1, ExpressCard/34 or ExpressCard/54 <sup>2</sup><br>SD/SDXC memory card: x1<br>RAM module: x2 DDR3L 200-pin SO-DIMM, one slot occupied  |
| Optical Drive                   | DVD super multidrive  |
| Interfaces                      | Serial (16550A compatible): D-sub, 9-pin<br>External display (VGA port): mini D-sub, 15-pin<br>HDMI: x1<br>Headphone: mini-jack, 3.5 DIA, stereo<br>Microphone: mini-jack, 3.5 DIA, stereo<br>DC input: jack<br>USB 2.0: x2<br>USB 3.0: x2<br>Firewire (IEEE1394a): x1 (project based)<br>Modem: RJ-11 (project based)<br>LAN: RJ-45 [2nd LAN project based]<br>Port replicator: x1 |
| Connectivity                    | Bluetooth®: Version 4.0 + EDR Class 1<br>Wireless LAN: Intel® Dual Band Wireless-AC 7260<br>LAN: IEEE 802.3 10BASE-T / IEEE 802.3u 100BASE-TX / IEEE 802.3ab 1000BASE-T (2nd LAN project based)<br>Modem data: 56kbps (V.92); Fax: 14.4kbps   |
| Power                           | AC adapter: input: 100-240V, 50Hz/60Hz; output: 15.6V, 7.05A<br>Battery: Lithium-Ion [10.8V, typical 6750mAh / minimum 6300mAh]<br>Battery life: approx. 15 hours (Mobile Mark™ 2007, LCD brightness: 60cd/m²)<br>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)<br>Standard model: 2.65kg / 5.84lb (including carrying handle)<br>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><br>Water resistant touchpad, keyboard<br>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)<br>HD model (without touchscreen):<br>– 256GB SSD as standard (500GB HDD / 128GB SSD optional)<br>FullHD model (with and without touchscreen):<br>– 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)<br>10 finger capacitive touchscreen with up to 1,000cd/m² (touchscreen optional only on FullHD model)  |
| Camera                          | Front (optional): 2MP, stereo microphone  |
| Expansion Slots                 | SD/SDXC memory card: x1<br>RAM module: x2 DDR3L 200-pin SO-DIMM, one slot occupied<br>Optional config area [one option only]:<br>– PC Card [Type I or Type II] or DVD multidrive or 2nd battery [6 cell] or smart card reader   |
| Optical Drive                   | DVD multidrive [exclusive option at optional config area]   |
| Interfaces                      | HDMI: x1<br>Headset: x1<br>DC input: jack<br>USB 2.0: x1 [exclusive option at configuration port]<br>USB 3.0: x3<br>Rugged USB 2.0: x1 [exclusive option at configuration port]<br>Dedicated GPS: x1 [exclusive option at configuration port]<br>True Serial : x1 [optional]<br>VGA port: x1, mini D-Sub, 15-pin [optional]<br>Dual pass through antenna (WWAN/GPS dual): x1 [optional]<br>1st LAN: x1 RJ-45<br>2nd LAN: x1 RJ-45 [exclusive option at configuration port]<br>Port replicator: x1, 24-pin |
| Connectivity                    | Bluetooth®: Version 4.1 + EDR Class 1<br>Wireless LAN: Intel® Dual Band Wireless-AC 8260<br>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<br>Battery: Lithium-Ion 6 cell<br>Battery life:<br>– approx. 11 hours (Mobile Mark™ 2007, LCD brightness: 60cd/m²)<br>– approx. 18 hours (with optional 2nd battery)<br>Bridge battery for hot swap [optional]<br>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"<br>HD model without touchscreen: 1.99kg / 4.39lb (including carrying handle)<br>FullHD model without touchscreen: 1.9kg / 4.19lb (including carrying handle)<br>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><br>Dust & water resistance: IP51<br>Complete inner surface [keyboard, touchpad, hinges and display] is spill-proof<br>MIL-STD 810G [vibration, altitude, drop, shock, temperature & humidity]<br>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<br>(2.0GHz, 3MB Intel® Smart Cache)   |
| Operating System                | Windows 10 Pro<br>Windows 7 Professional  |
| Memory & Storage                | 4GB RAM (max. 8GB)<br>500GB HDD (SATA)  |
| Display                         | 12.5" Active Matrix (TFT) IPS colour LCD, 1366 x 768 pixels, HD (up to 500cd/m <sup>2</sup> )<br>10 finger capacitive touchscreen + digitiser   |
| Camera                          | Front: 720p<br>Rear (optional): 5MP, still picture  |
| Expansion Slots                 | ExpressCard: x1 ExpressCard/34 (optional)<br>SD/SDXC memory card: x1<br>RAM module: x1 DDR3L SDRAM 204-pin SO-DIMM  |
| Interfaces                      | Serial (16550A compatible): D-sub, 9-pin (optional)<br>External display (VGA port): mini D-sub, 15-pin (optional)<br>HDMI: x1<br>Headphone: mini-jack, 3.5 DIA, stereo<br>Microphone: mini-jack, 3.5 DIA, stereo<br>DC input: jack<br>USB 2.0: x1<br>USB 3.0: x2<br>NFC: x1 (optional)<br>Modem: RJ-11 (optional)<br>LAN: x1 RJ-45<br>Port replicator: x1 |
| Connectivity                    | Bluetooth®: Version 4.0 + EDR Class 1<br>Wireless LAN: Intel® Dual Band Wireless-N 7260 802.11 a/b/g/n<br>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<br>Battery: Lithium-Ion (10.8V, typical 6800mAh / minimum 6400mAh)<br>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)<br>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><br>Spill-resistant touchpad, keyboard<br>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<br>(2.3GHz, 3MB Intel® Smart Cache)  |
| Operating System                | Windows 10 Pro<br>Windows 7 Professional   |
| Memory & Storage                | 4GB RAM (max. 8GB)<br>256GB Solid State Disk (optional 128GB SSD)  |
| Display                         | 12.5" IPS FullHD (1920 x 1080 pixels)<br>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<br>LAN connector: x1 RJ-45<br>External display (VGA port): x1 analog RGB mini D-Sub, 15-pin<br>HDMI: x1<br>Microphone: mini-jack, 3.5 DIA<br>Headphone: mini-jack, 3.5 DIA   |
| Connectivity                    | Bluetooth®: Version 4.0 Class 1<br>Wireless LAN Intel® Centrino® Advanced-N 7265 a/b/g/n/ac<br>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<br>Main battery (end-user removable):<br>– 4-cell battery, Lithium-Ion (7.2V, typical 4.8Ah / minimum 4.56Ah)<br>Internal bridge battery (hot swap):<br>– 2-cell battery, Lithium-Ion (7.6V, typical 2.06Ah / minimum 2.00Ah)<br>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"<br>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><br>100kgf pressurised vibration test <sup>3</sup>  |