Panasonic
ideas for life

Panasonic recommends Windows.

IP65 Compliance

- **Water Resistance**
  IPx5 test: Waterjetted from all directions with 12.5 r/min. water flow.
- **Dust Resistance**
  IP6x test: No ingress of dust when vacuum was artificially created inside PC.

Toughness testing on the Web http://panasonic.net/avc/pc/about/proof/

TOUGHBOOK
When it's worth doing better.

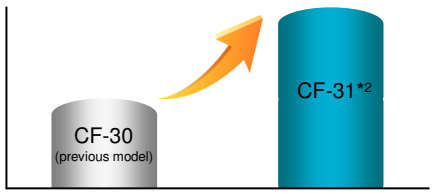
CF-31

Latest TOUGHBOOK information http://panasonic.net/avc/pc/

Latest platform offers even higher performance and amazing protection against shock, dust, and water.

OS	Windows 7 Professional
CPU	Intel® Core™ i5-3320M (3.3 GHz, Cache 3MB*1)*2 with Intel® Turbo Boost Technology
Color TFT LCD	13.1" XGA Touchscreen
HDD	500 GB*2*3 (Serial ATA)
RAM	4 GB*1 (8 GB*1 Max.)

The latest CPU for improved performance



Processing speed now increased sharply over previous model.
Not only for the jobsite, this PC has enough power for the office, too.

High-brightness LCD (1,200 nit)*4 with Anti-Reflection (AR) coating for easy viewing under direct sunlight.

Operates with the standard battery for approx. 14.5 hours.*6 / approx. 21 hours*6 with 2nd battery*9 (option)

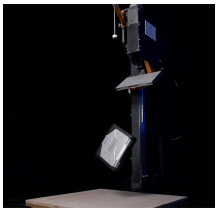
Shock-resistant bodyensured by a 120 cm (48 in) free-fall test.*5

Built-in security chip (TPM)*7*8 for data protection.

*1 1 MB = 1,048,576 bytes/1 GB = 1,073,741,824 bytes. *2 Applies to CF-31 Performance model. *3 The HDD is 1 GB (1,000,000,000 bytes) in capacity. The actual capacity may be less than displayed, depending on the OS and application software. *4 Average luminance in the middle of the screen at the time of shipping. This may change depending on the environment and length of use. *5 Test conducted in non-operating condition. The shock resistance, vibration resistance, dust-proof, and splash-proof functions are not a guarantee against damage or malfunction. *6 When OS is Windows 7. Measured with LCD brightness : 60 cd/m2. Varies depending on the usage conditions, or when an optional device is attached. *7 Need to set-up TPM Professional Package. Refer to the Installation Manual of "TrustedPlatform Module (TPM)". *8 Does not apply to CF-31 Value model. *9 For details, contact your Panasonic sales representative. Only for model with 2nd battery. Not available for performance model.

Panasonic recommends Windows.

With the latest platform, both high performance and a high level of toughness are achieved.



Free-fall tested from 120 cm (48 in).

TOUGHBOOK unique technology on the web

>>http://panasonic.net/avc/pc/about/proof/

Other Features

- **High screen brightness of approx. 1,200 nit* using LED backlight.**
- **Easy-to-use hardware interface includes 4 USB ports and HDMI terminal.**
- **Desktop Port Replicator (option) makes it easier to use in the office.**

* Average luminance in the middle of the screen at the time of shipping. This may change depending on the environment and length of use.

CF-31

Model No.		CF-31SEUJXDY
OS*1*21		Windows 7 Professional 32-bit or Windows 7 Professional 64-bit
CPU/Secondary cache memory		Intel® Core i5-3320M (3.3GHz, Intel® Smart Cache 3 MB)
Chipset		Mobile Intel® QM77 Express Chipset
Main Memory*2		4 GB*3, DDR3L SDRAM (8 GB*3 Max.)
Video Memory		<With 32-bit> UMA (1419 MB*3 Max.) / <With 64-bit> UMA (1696 MB*3 Max.)
Hard Disk Drive		500 GB*4 (Serial ATA) Approx. 40 GB*4 is used as a partition with HDD recovery tools. (Users cannot use this partition.) Approx. 300 GB*4 is used as a partition with recovery tools. (Users cannot use this partition.)
Display Method		13.1 XGA type (TFT) (1024 x 768 dots)
	Internal LCD	65,536/16,777,216 colors (800 x 600 dots/1024 x 768 dots)*5
	External Display*6	65,536/16,777,216 colors (800 x 600 dots/1024 x 768 dots/1280 x 768 dots/1280 x 1024 dots)
Wireless LAN		Intel® Centrino® Advanced-N 6235 (IEEE 802.11 a/b/g/n compliant)
Bluetooth™		Version 4.0
LAN		IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX, IEEE 802.3ab 1000BASE-T
Modem		Data: 56 kbps (V.92) FAX: 14.4 kbps
Sound		WAVE and MIDI playback, Intel® High Definition Audio subsystem support
Security Chip		TPM (TCG V1.2 compliant)*7
Card Slots	PC Card Slot	x 1, Type I or Type II, Allowable current 3.3 V: 400 mA, 5 V: 400 mA
	ExpressCard	x 1, ExpressCard/34 or ExpressCard/54
	SD Memory Card Slot*8	x 1
RAM Module Slot		x 1, DDR3L SDRAM, 204-pin, 1.35 V, SO-DIMM, PC3-10600
Interface		USB ports 2.0 x 3, 3.0 x 1*9 / Serial Port (Dsub 9-pin male) / Modem Port (RJ-11) / LAN Port (RJ-45) x 1 / External Display Port (VGA) (Mini Dsub 15-pin female) / HDMI Port (Type A)*10/ Microphone Jack (Miniature jack, 3.5 DIA) / Headphone Jack (Miniature jack, 3.5 DIA, Impedance 32Ω, Output Power 4 mW x 2, Stereo) / Expansion Bus Connector (Dedicated 100-pin female)
Keyboard / Pointing Device		88 or 87 keys / Touch Pad / Touchscreen
Power Supply		AC adaptor or Battery pack
AC Adaptor		Input: 100 V to 240 V AC, 50 Hz/60 Hz, Output: 15.6 V DC, 7.05 A
Battery Pack		Li-ion 10.65 V, Typical 8550 mAh / Minimum 8100 mAh <CF-VZSU46AU>
Operating Time*11		Main Battery: Approx. 14.5 hours / Main Battery + Second Battery*12: Approx. 21 hours
Charging Time*13	Power On	Main Battery: Approx. 4.5 hours / Main Battery + Second Battery*12: Approx. 8 hours
	Power Off	Main Battery: Approx. 3.5 hours / Main Battery + Second Battery*12: Approx. 7 hours
Power Consumption*14		Approx. 45 W*15 / Approx. 100 W (maximum when recharging in the ON state)
Physical Dimensions (W x D x H) (including the carrying handle)		302 mm x 292 mm x 73.5 mm
Weight		Approx. 3.72 kg
Operating Environment	Temperature	-10 °C to 50 °C (IEC60068-2-1, 2)*16
	Humidity	30 % to 80 % RH (No condensation)
Storage Environment	Temperature	-20 °C to 60 °C
	Humidity	30 % to 90 % RH (No condensation)
Pre-installed Software*19		Adobe Reader, PC Information Viewer, Display Selector, Bluetooth™ Stack for Windows® by TOSHIBA, Wireless Switch Utility, Intel® PROSet / Wireless Software, Wireless Connection Disable Utility*17, Hotkey Settings, Battery Recalibration Utility, Infineon TPM Professional Package*17, Aptio Setup Utility, Hard Disk Data Erase Utility*18 ,PC-Diagnostic Utility, Quick Boot Manager, Fan Monitoring Utility, Dashboard fro Panasonic PC, System Interface Manager, Video Switch Utility, External Antenna Setting Utility, Wireless Antenna Switch Utility, Recovery Disc Creation Utility, Power Plan Extension Utility

*1 Operations of this computer are not guaranteed except for the pre-installed OS and the OS which is installed by using the Product Recovery DVD-ROM provided by Panasonic.*2 Memory size of the factory default depends on the model. You can physically expand the memory up to 8 GB, but the total amount of usable memory available will be less depending on the actual system configuration.*3 1 MB = 1,048,576 bytes /1 GB = 1,073,741,824 bytes.*4 1 MB = 1,000,000 bytes / 1 GB = 1,000,000,000 bytes. Your operating system or some application software will report as fewer MB/GB.*5 A 16,777,216 color display is achieved by using the dithering function.*6 Display may be impossible using some connected external displays.*7 Only for model with TPM. For information on TPM, refer to the Installation Manual of "TrustedPlatform Module (TPM)".*8 This slot is compatible with High-Speed Mode. Operation has been tested and confirmed using Panasonic SD/SDHC/SDXC Memory Cards with a capacity of up to 64 GB. Operation on other SD equipment is not guaranteed.*9 Does not guarantee operation of all USB-compatible peripherals.*10 Does not guarantee operation of all HDMI-compatible peripherals.*11 Measured with LCD brightness: 60 cd/m2. Varies depending on the usage conditions, or when an optional device is attached. *12 Only for model with 2nd Battery. *13 Varies depending on the usage conditions, CPU speed, etc.*14 Approx. 0.8 W when the battery pack is fully charged (or not being charged) and the computer is off. <When using with 115 V AC> Even when the AC adaptor is not connected to the computer, power is consumed (Max. 0.2 W) simply by having the AC adaptor plugged into an AC outlet. <When using with 240 V AC> Even when the AC adaptor is not connected to the computer, power is consumed (Max. 0.3 W) simply by having the AC adaptor plugged into an AC outlet.*15 Rated power consumption.*16 Do not expose the skin to this product when using the product in a hot or cold environment. Product functions and product life may vary in such condition, check the Operation Instructions for further details *17 Must be installed before use.*18 Perform on the recovery partition. (If this software cannot be performed on the recovery partition, perform from the recovery disc). *19 When reinstalling Windows using the data of the recovery area on the hard disk, you can select the OS to be installed (either Windows 7 (32-bit) or Windows7 (64-bit)). An OS that has been installed at the time of purchase or an OS that has been installed using the hard disk recovery function or the recovery disc can be supported.

As an ENERGY STAR® Partner, Panasonic Corporation has determined that this product meets the ENERGY STAR® guidelines for energy efficiency. Active Matrix color display conforms to industry standards. Some displays may contain isolated illuminated or dark pixels as an artifact of the manufacturing process (effective pixels : minimum 99.998% , defect pixels : maximum 0.002%). Panasonic and TOUGHBOOK are brand names and registered trademarks of Panasonic Corporation. Acrobat® is a registered trademark of Adobe® Systems Incorporated. Intel, the Intel logo, Centrino, Centrino Inside, Intel Core, Core Inside, Intel vPro, and vPro Inside are trademarks of Intel Corporation in the United States and other countries. Microsoft® and Windows® are 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.
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TOUGH1302.31MK3

Image and specifications are subject to change without prior notice.