



IP65 Compliance

- **Water Resistance**
IPx5 test: Waterjetted from all directions with 12.5 l/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/toughbook/proof/>

TOUGHBOOK

When it's worth doing better.

CF-31

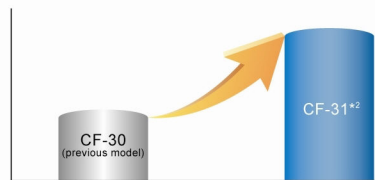
Latest TOUGHBOOK information

<http://panasonic.net/avc/toughbook/>

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

OS	Genuine Windows® 7 Professional
CPU	Intel® Core™ i5-2520M (2.5 GHz, Intel® Smart Cache 3MB*) ²
Color TFT-LCD	13.1" XGA Touchscreen
HDD	320 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. 13.5 hours.^{*6} / approx. 20 hours^{*6} with 2nd battery^{*9,10} (option)

 Built-in security chip (TPM)^{*7,8} for data protection.

 Shock-resistant body ensured by a 120 cm (48 in) free-fall test.^{*5}

All-In-One model featuring a variety of options.^{*9}

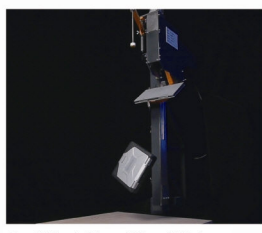
— GPS, 2nd Battery, SSD, USB 3.0, Optical Drives, Fingerprint Reader, Smart Card, Dual External Antenna, Backlit Keyboard, Web Camera^{*8}, 2nd LAN^{*6,11}, Modem^{*11}, IEEE1394^{*11}

^{*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. ^{*10} Not available for performance model. ^{*11} Exclusively selectable.

Panasonic recommends Windows® 7.



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

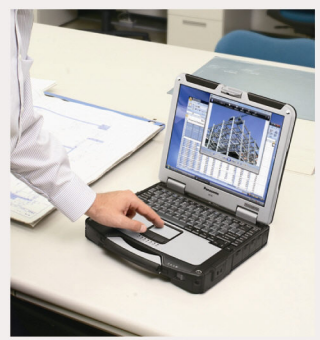


TOUGHBOOK unique technology on the web
 >>><http://panasonic.net/avc/toughbook/technology/>

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

Other Features

- Wireless WAN now makes it even easier to connect thanks to efficient internal antennae layout.
 - 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-31JECJPDY
OS*1*21	Genuine Windows® 7 Professional 32-bit or Genuine Windows® 7 Professional 64-bit
CPU/Secondary cache memory	Intel® Core i5-2520M (2.5GHz, Intel® Smart Cache 3 MB)
Chipset	Mobile Intel® QM67 Express Chipset
Main Memory*2	4 GB*3, DDR3 SDRAM (8 GB*3 Max.)
Video Memory	<With 32-bit> UMA (1428 MB*3 Max.) / <With 64-bit> UMA (1696 MB*3 Max.)
Hard Disk Drive	320 GB*4 (Serial ATA) Approx. 10 GB*4 is used as a partition with HDD 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 6205 (IEEE 802.11 a/b/g/n compliant)
Bluetooth™	Version 2.1 + EDR
Wireless WAN*7	Ericsson F5521gw
HSUPA	5.7 Mbps
HSPA+	21 Mbps
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)*8
Card Slot	PC Card 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*9	x 1
RAM Module Slot	x 1, DDR3 SDRAM, 204-pin, 1.5 V, SO-DIMM, PC3-10600
Interface	USB ports 2.0 x 4*10 / 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 (TypeA)*11 / 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
Operating Time*12	Main Battery: Approx. 13.5 hours / Main Battery + Second Battery: Approx. 20 hours
Charging Time*13	Power On Main Battery: Approx. 4.5 hours / Main Battery + Second Battery: Approx. 8 hours
Power Off	Main Battery: Approx. 3.5 hours / Main Battery + Second Battery: Approx. 7 hours
Power Consumption*14	Approx. 45 W*15 / Approx. 100 W (maximum when recharging in the ON state)
Physical Dimensions (W x H x D) (including the carrying handle)	302 mm x 292 mm x 73.5 mm
Weight	Approx. 3.72kg
Operating Temperature	-10 °C to 50 °C (IEC60068-2-1, 2)*16
Environment Humidity	30% to 80% RH (No condensation)
Storage Temperature	-20 °C to 60 °C
Environment Humidity	30% to 90% RH (No condensation)
Pre-installed Software*21	Adobe Reader, PC Information Viewer, Loupe Utility, Display Selector, Bluetooth™ Stack for Windows® by TOSHIBA, Wireless Switch Utility, Intel® PROSet / Wireless Software, WirelessConnection Disable Utility*17, Hotkey Settings, Battery Recalibration Utility, Infineon TPM Professional Package*17, Protector Suite QL*17*18, Apto Setup Utility, PC-Diagnostic Utility, Concealed mode Utility*19, Fan Monitoring Utility, Recovery Disc Creation Utility, Power Plan Extension Utility, Quick Boot Manager, Hard Disk Data Erase Utility*20

*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 wireless WAN. The specification may differ depending on model. *8 Only for model with TPM. For information on TPM, refer to the Installation Manual of "TrustedPlatform Module (TPM)". *9 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. *10 Does not guarantee operation of all USB-compatible peripherals. *11 Does not guarantee operation of all HDMI-compatible peripherals. *12 Measured with LCD brightness: 60 cd/m2. Varies depending on the usage conditions, or when an optional device is attached. *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 Only for model with Fingerprint reader. *19 Concealed Mode may not work properly during battery recalibration. *20 Perform on the recovery partition. (If this software cannot be performed on the recovery partition, perform from the recovery disc). *21 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 Windows 7 (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.

