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⚠ Safety Precautions

● Please read the user's manual carefully before operation, and follow the instruction contained therein.

Keep notebook computers away from flames, water and excessively humid, dusty, smoky or sooty environments to reduce the risk of fire, malfunction, and electric shock.

Operational Notices

- Do not move the computer while the case is open, or move by directly grasping the monitor. • Do not intentionally strike or drop computers.
- Please do not place computers on unstable surfaces, or place heavy objects on top of them. • Do not place in locations with direct sunlight, excessive heat or cold, or high humidity.
- When the built in network cards are used without telephone lines, there is a chance of malfunctions, fires, or electrical shock.
- The products pictured have been disassembled for illustrative purposes. Customers should not attempt to disassemble products themselves.

*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%). This does not mean the display is malfunctioning. •HDD and CD/DVD drives will generate some noise. This is normal. •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 vPro, vPro Inside, Intel Atom, Intel Atom Inside, Intel Core, and Core Inside are trademarks of Intel Corporation in the United States and other countries. •Microsoft®, Windows®, and Windows Vista® are registered trademarks of Microsoft® Intel vPro, vPro Inside, Intel Atom, Intel Atom Inside, Corporation of the United States and/or other countries. •SDHC logo is a trademark. •All other brand names shown are the registered trademarks of the relevant companies. •Displays shown are composite photographs. •Touch pad is a registered trademark of Panasonic Corporation. •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

Panasonic Group endeavors in the manufacture of environmentally friendly products

Eco materials

We do not use materials that are designated as harmful* to the environment in our products.

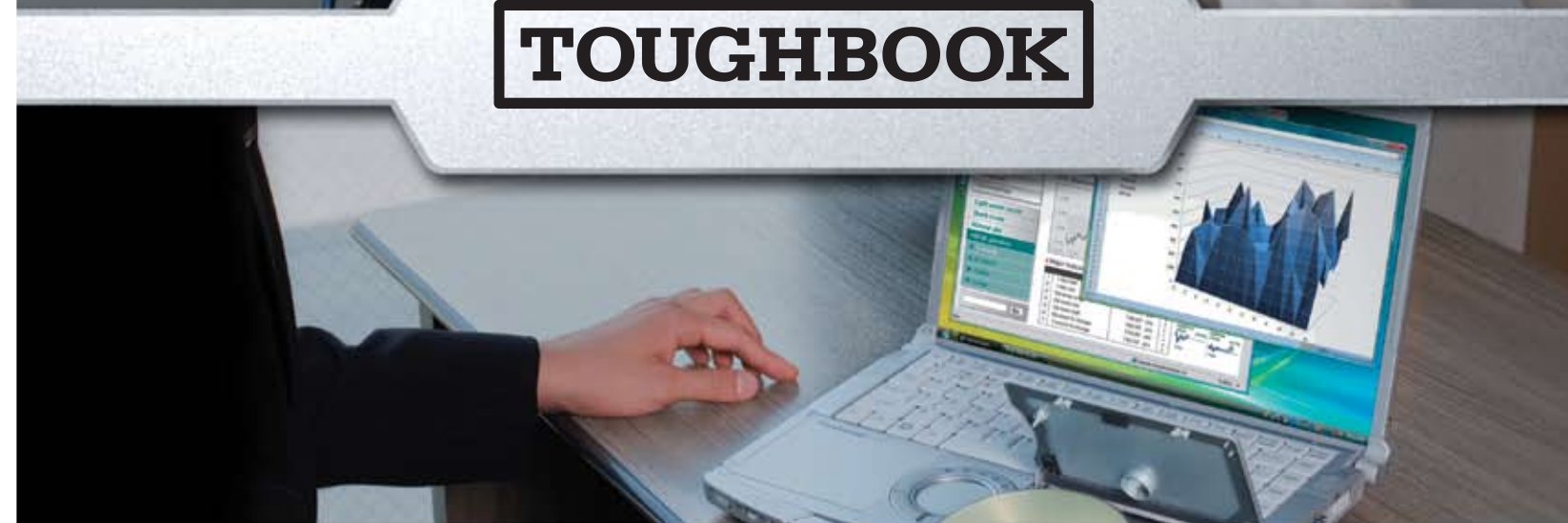
*Lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyl, and polybrominated diphenyl ether.

ISO 14001

We implement environment management systems in our factories worldwide and have acquired ISO14001 certification.



TOUGHBOOK



Three strengths that make TOUGHBOOK great for many mobile applications

Whether it's in the office or at the worksite, TOUGHBOOK has the ruggedness, lightness, and long battery life to prevent downtime



Ruggedized

TOUGHBOOK reduces the risk of data loss that is inherently increased when a mobile PC is used

Careless mistakes can happen: PCs get dropped from desks and water gets spilled on keyboards. Taken to worksites, PCs get exposed to dust. Protecting your valuable data from such adverse conditions as impact, vibration and water, the rugged TOUGHBOOK has gained a solid reputation as a highly reliable business tool.



Lightweight

Light and easy to carry, you won't miss a single business chance

With a lightweight PC, you don't even feel it in your briefcase. Taking your work with you will become second nature. From materials to parts, the TOUGHBOOK has been designed light enough to be easily carried around. It will let you get things done even during spare moments so time isn't wasted and your business can expand.



Long Battery Life

Long battery life keeps you from getting anxious even on day-long trips

To work effectively, a mobile PC for business should not make you worry about battery life. From morning and all day long, the battery in the TOUGHBOOK won't let you down even as you organize your data on the road. The speed and amount of work you can accomplish in a day is greatly increased.



A new high-performance PC platform with energy saving and more than enough power to run Windows Vista®



Adding to the new-generation platform, we went on developing jointly with Intel technology that brings out the maximum performance of the CPU and chipset. While running Windows Vista® effortlessly, the combination of low power consumption and high performance result in computer capability to enhance high productivity even while you are on the road.



Boasting a low failure rate, the high-quality TOUGHBOOK is made in Japan, from mounting to assembly*



TOUGHBOOK PCs are manufactured at the Kobe Factory in Japan where design, development and manufacturing are all integrated under one roof. We continually acquire the latest elemental technology and parts, and enforce stringent production control. A cutting-edge, high-quality, rugged, mobile PC can increase your production while lowering repair costs and preventing missed opportunities.

*Some models excluded.

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Ruggedness performance and ruggedness testing as well as design characteristics and functions, etc., differ with each individual model. For details, please refer to the individual catalogs for each model.

Rugged, Lightweight, Wireless and Convertible



Toughbook CF-19

The convertible CF 19 notebook is two times tough. It easily converts from a powerful notebook PC to a convenient tablet PC with one quick swivel. It's wireless and fully-rugged either way. Plus, it's powered with an Intel® Core™ 2 Duo processor for breakthrough performance with unbeatable unwired freedom.

It's Tough

- MIL-STD-810F- and IP54-compliant
- 90 cm drop- and vibration-resistant
- Full magnesium alloy case with hand strap
- Sealed all-weather design
- Shock-mounted quick-release hard drive
- Lightweight 2.3 kg
- Sunlight-viewable display, up to 1,000 nit LCD brightness

It's Versatile

- Genuine Windows Vista® Business
- 10.4" LCD swivels for maximum versatility
- Converts into a fully-rugged tablet PC by flipping the display over the keyboard
- With tablet software, take handwritten notes, convert handwriting to printed text, mark documents and draw diagrams
- Pressure-sensitive touchscreen or active digitizer models available
- Simultaneous access to Wi-Fi, Bluetooth® and optional GPS



Powerful, Rugged and Wireless



Toughbook CF-30

The wireless-ready Toughbook 30 is the industry's fastest fully-rugged mobile PC. Its 13.3" sunlight-viewable LCD and optional backlit keyboard are moisture- and dust-resistant and ensure easy viewing in any lighting condition. It is equipped with a full magnesium alloy case with handle and shock-mounted quick-release hard drive to deliver maximum durability, portability and uptime.

It's Tough

- MIL-STD-810F-and IP54-compliant
- 90 cm drop- and vibration-resistant
- Full magnesium alloy case with handle
- Sealed all-weather design
- Shock-mounted quick-release hard drive
- Sunlight-viewable display, up to 1,000 nit LCD brightness

It's Versatile

- Genuine Windows Vista® Business
- Intel® Core™ 2 Duo processor
- Multimedia pocket accepts optional Combo or DVD Super MULTI Drive, or 2nd battery
- Touchscreen with Optional:fingerprint and SmartCard readers, backlit keyboard and GPS integrated



Semi - Rugged Desktop Alternative



Toughbook CF-52*

This reliable, wireless desktop replacement offers the mobility and durability to stay connected at the office or on the road. It features a generous 15.4" widescreen display for enhanced productivity and advanced technology for speed and security.

It's Tough

- Full magnesium alloy case with handle
- Shock-mounted quick-release hard drive
- Drop-and spill-resistant

It's Versatile

- Genuine Windows Vista® Business
- 15.4" widescreen LCD
- Wi-Fi
- Optional SmartCard and fingerprint readers
- DVD Super MULTI Drive



***Available for specific project basis**

Extremely Rugged Ultra Mobile PC



Toughbook CF-U1

The Toughbook U1 enables everyday field workers to become more efficient by giving them the tools, data, mobility and extreme ruggedness they need to be more productive. It combines the portability and size of a handheld with features, performance and computing versatility of a laptop.

It's Tough

- MIL-STD-810F- and IP54-compliant
- 120 cm drop- and vibration-resistant
- Magnesium alloy chassis with strap
- Sealed all-weather design
- Removable solid state drive
- Integrated options: fingerprint and barcode readers, 2MP camera with dual LED light, GPS and mobile broadband (3G)
- 9-hour battery life
- Ultra-lightweight 1.06 kg

It's Versatile

- Genuine Windows Vista® Business
- Intel® Atom™ processor
- Sunlight-viewable 5.6" LED touchscreen
- Unique hot-swappable twin battery design
- Wi-Fi draft-n compliant (802.11 a/b/g/draft-n)
- Docking options expand functionality whether in a vehicle, at the desk, or on the move



Rugged Mobile Clinical Assistant



Toughbook CF-H1

Based on Intel®'s reference design, Panasonic's new Toughbook H1 mobile clinical assistant (MCA) features a bright 10.4" dual-touch display that offers both tablet and touchscreen functionality. Weighing only 1.5 kg with hot-swappable twin batteries, this mobile computing platform features an 80GB shock-mounted hard drive, the latest Intel® mobile processor technology, embedded wireless capabilities, and is designed to meet the specific needs of healthcare professionals.

It's Tough

- Built to meet MIL-STD-810F and IP54
- 90 cm drop approved
- Sealed, easily sanitizable, fanless design
- Shock-mounted hard drive
- 6-hour battery life
- 1.5 kg with carry handle and hand strap

It's Versatile

- Genuine Windows Vista® Business
- 10.4" bright 500 nit LCD with dual touch (touchscreen and tablet digitizer input)
- Unique hot-swappable twin battery design
- 2MP camera, RFID, fingerprint and contactless SmartCard readers along with optional 2D barcode reader and GPS
- Wi-Fi, Bluetooth®



Ultra Mobile & Tough for Executives



Toughbook CF-F8, W8, T8*

Equally at home, on a plane or in a boardroom, these lightweight Toughbook laptops are designed for on-the-go executives and are engineered to handle all the drops and bumps of daily business life. These sleek laptops have resilient magnesium alloy cases, shock-mounted hard drives, spill-resistant keyboards and long battery lives. Draft-n Wi-Fi and Bluetooth are also standard for maximum flexibility and wireless connectivity.

CF-F8

- Genuine Windows Vista® Business
- 14.1" widescreen LCD
- 1.67 kg including integrated handle
- 6-hour battery life
- DVD Super MULTI Drive

CF-W8

- Genuine Windows Vista® Business
- 12.1" LCD
- 1.29 kg
- 8-hour battery life
- DVD Super MULTI Drive

*CF-T8**

- Genuine Windows Vista® Business
- 12.1" touchscreen LCD with image rotation
- 1.48 kg
- 5- to 8-hour battery life
- Stylus holder and easy to clean rubber hand strap

***Available for specific project basis**

Rugged design that's resistant against drops, shock, dust and water

Fully-rugged

Fully-rugged

In the car or at the worksite: tool box-like shock and vibration resistance

90 cm (36 in) free-fall tests*¹ conducted. From material to construction-tough body (CF-30/19)

The hard disk is protected by special shock-absorbing material (dampers). The PC body is made from impact-resistant magnesium alloy. Because the tough design of the PC body is tested to withstand falls from about 90 cm (36 in)*¹ even in challenging environments, work can be done on a PC. Therefore when carrying the PC, there is no need to worry about putting the PC in a case. You can just take it with you as is.



The photograph is intended only to show an image of the product being tested.

*¹ Tests conducted when not operating. The shock resistance, vibration-resistance, dust-proof, and splash-proof performances do not guarantee against damage or malfunction.

Sandwich construction survives 120 cm (48 in) free fall test (CF-U1)

Free-fall tests from a height of 120 cm (48 in) onto a concrete surface (while operating) were conducted to simulate what can happen during hand-held use. The case surface is partially made from elastomer resin to alleviate external shock. Inside the case, a sandwich construction is used in which the main circuit board is protected on both sides by magnesium alloy frames. The end result is a rugged body that makes it difficult for vibration to reach the circuit board, even if shock is applied due to dropping.



The photograph is intended only to show an image of the product being tested.

Anti-dust and splash-proof properties enable it to withstand dust and rain

Sealing and terminal covers protect from water and dust penetration (CF-30/19/U1)

A waterproof keyboard is used in which gaps between the keyboard and body as well as joined portions are all covered by a seamless sealing. This prevents the entry of water or dust from any direction.



The spill-resistant keyboard keeps water from penetrating.

Fan-less design prevents penetration of particles or dust (CF-30/19/U1)

The fan has been eliminated thanks to an efficient heat dissipating design. This prevents problems typically caused when PCs draw in particles or dust during use outdoors or in factories. This, in turn, prevents downtime so that you can devote yourself completely to the task at hand without interruption.



Parts inside the case are enclosed with special waterproof packing and a waterproof sheet, uniformly moulded to each button, covers the keyboard. Also, each cover on the TOUGHBOOK employs a locking mechanism to maintain pressure on the packing when closed.

Proof of Panasonic TOUGHBOOK toughness (CF-30/19/U1/H1)

*Carried out in Panasonic laboratory.

Tests that meet Military Specifications and Standards (MIL) set by the U.S. Department of Defense



1 Free-fall test (when not operating CF-30/19/H1, when operating: CF-U1)
Computer falls from 90 cm (36 in) onto each face, edge and corner for a total of 26 drops. (CF-30/19)

MIL-STD-810F 516.5
A performance test adopted by the U.S. Department of Defense to assess military equipment suitability.
● Drop height: 90 cm (36 in) CF-30/19, 120 cm (48 in) CF-U1 (concrete surface)
● Drop direction (on plywood): Dropped from each face, edge and corner for a total of 26 drops.

2 Vibration test (when not operating)

The mobile PC was subjected to vibration for 1 hour at each of its longitudinal, lateral, and vertical axes.

MIL-STD-810F 514.5 Category 24
A performance test adopted by the U.S. Department of Defense to assess military equipment suitability.
● The test simulated vibrations assumed to be undergone by a mobile PC when it is carried around by hand or in a moving vehicle.
● Test Environment: 20 Hz to 1,000 Hz: 0.04 G²/Hz; 1,000 Hz to 2,000 Hz: -6dB/octave; 1hour/axis (longitudinal, lateral, and vertical axes)

3 Water-resistance test (when not operating)

IEC60529/JIS C0920 IPX4 (water-resistance) MIL-STD-810F 506.4-III (drip) level
A JIS standard for testing the degree of water-resistance.
● The water-resistance test involved sprinkling 0.07L/min +/- 5% of water from each sprinkler hole at +/- 180 degrees from a vertical angle, from a maximum distance of 200 mm for 10 minutes. This is equivalent to precipitation of 10 mm/min.

4 Dust-resistance test (when operating)

Tiny particles were continuously sprayed onto the mobile PC when operating.
IEC60529,IP5X (dust-resistance), JIS-C0920,IP5X (dust-resistance)
(MIL-STD-810F 510.4-1 level)
A JIS standard for testing the degree of dust-resistance.
*The photograph shows testing performed at the Yokohama laboratory of TÜV Rheinland Japan Ltd.

5 Typing test (when not operating)

Each key of the mobile PC was tested by being typed two to five million times.
● Number of times keys can be typed (lifespan): 2 to 5 million *CF-H1 excluded.

6 Aging (long-term operating test)

Aging test at -20°C and 60°C.
*The data are lab results and are not guaranteed. *CF-H1 excluded.

IEC=International Electrotechnical Commission JIS=Japanese Industrial Standards MIL=Military Specifications and Standards
*The shock-resistance, vibration-resistance, dust-proof, and splash-proof performances do not guarantee against damage or malfunction.

Visit our website to see this on video

www.panasonic.com.sg/toughbook/why_toughbook

TOUGHBOOK : the one chosen for the harshest environments

During disasters

Since it can be used where rain and dust occur, it is suitable for use at disaster sites to communicate with headquarters.



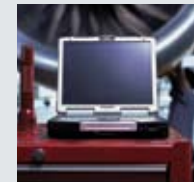
Surveying

Whether it's sudden rain or direct sunlight, surveying can proceed quickly without being affected by the weather.



In the factory

Use for production control in factories where machines cause vibration, give off particulate matter, and leak water.



Transport and distribution

Not affected by vibration it is perfect for in-vehicle tasks or for checking inventory in stock rooms using the easy-to-input touch panel.



Repair and maintenance

Rugged tool-like handling and easy operation let you delve into repair jobs quickly.



Advanced design for greater productivity

on site and in the office

High performance that'll increase productivity at the worksite and even handle deskwork

To increase worksite productivity the computer is shipped with Windows Vista® Business with Service Pack 1*

In addition to program updates offered since the release of Windows Vista®, device driver functionality has also been expanded in response to user feedback. Compatibility with applications and peripheral devices has been strengthened. Security and performance have been improved, which boost productivity in business applications.

*Some models are not compatible with Service Pack 1.



Easy-to-use touch panel for easy operation (CF-30/19/U1)

The pressure-sensitive touch panel makes it easy to enter data even when working while standing in factories, etc. Even those not comfortable with PCs will find operation easy since all you have to do to enter data is touch the screen with your finger or stylus pen.



The touch panel can be operated even while wearing

Dynamic Power Performance Management Technology jointly developed with Intel Corporation (CF-30/19)

To get maximum performance out of the CPU and chipset, Dynamic Power Performance Management Technology is used, a technology jointly developed with Intel Corporation. While maximizing PC performance, it actually succeeds in lowering energy consumption.

Bluetooth® (Ver.2.0+EDR/Class1) for easy communication and connectivity with peripherals

Bluetooth® Ver. 2.0 + EDR*, with maximum transfer speed of 3 Mbps is built in. Class 1 supported. Devices such as digital cameras, mobile phones and other terminals can be easily connected without cables to increase efficiency at the work site.

*EDR is an acronym for Enhanced Data Rate.

Easy-to-see, bright 1,000 cd/m² LCD panel*1 (CF-30)

The high-brightness, 1,000 cd/m² LCD panel in the CF-30 can be viewed even in direct sunlight. The LCD of the CF-19 is a touch screen with a circular polarizer that reduces reflections. Outdoors, you get surer confirmation from the screen.



*Screen is an artist's depiction.

Strong security measures provided against the possibility of theft

Confidential data is secured by using file encryption. Shipped with Windows Vista® Business with Service Pack 1*

The TOUGHBOOK comes with Windows Vista® Business that features the ability to easily encrypt data either as individual files or as folders. This reduces the risk inherent when carrying around important data on foot. This feature is effective against information leakage, since no one other than the person who encrypted the data can access it.

*Some models are not compatible with Service Pack 1.

Prevent unauthorized access to the hard disk with hard disk protection

The hard disk itself is password protected. Even if someone removes it and tries to read it in another computer, data access would not be possible without the password. Should the hard disk be stolen, leakage of your valuable data can be prevented.

Easily removable battery and hard disk

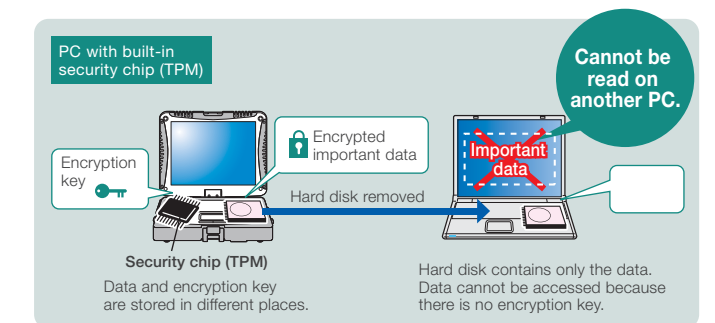
It is possible to remove and replace the battery and hard disk, without even the need to deal with a screw, after simply opening a side cover of the mobile PC. Outdoors, it's easy to replace the battery, and the hard disk can easily be removed for storage.



Defense against unauthorized data access. Built-in Security Chip (TPM) *

Powerful security is achieved since the encryption key is stored on a separate hardware (security chip) from the hard disk where data is stored. In the event of unauthorized access, theft, or loss of the hard disk, the encryption key cannot be accessed.

*Installation of Infineon TPM Professional Package is required to use this feature. *CF-52/U1 excluded.



What is a Security Chip (TPM)*

Established by TCG (Trusted Computing Group), an organization promoting security standardization, TPM (Trusted Platform Module) is a computer chip that contains an encryption key for security and privacy protection.

TOUGHBOOK not only speeds up work at the job site, but can also be used as your main office PC as well. For documents you bring to a worksite, you can use the TOUGHBOOK alone to make corrections and additions. Also, the large capacity hard disk allows you to save and carry a huge number of documents, such as manuals, wherever you go.



n At the worksite



n In the office

Rugged, High-performance Fully-Rugged PC for all sorts of worksites

In the car, at the factory, outdoors... This fully-rugged PC increases work efficiency, cuts cost, and contributes to customer satisfaction. Here are some case studies that show how TOUGHBOOK plays a role at various sites.

Visit our website



www.panasonic.com.sg/toughbook



"Voice of Users"



"Case Studies Global Database"

*1 Average brightness at center of display when shipped. Results will vary depending on operating environment and time of use.

CF-30

High performance mobile PC that withstands shocks, spills and dust



- OS** Genuine Windows Vista® Business Service Pack 1
- CPU** Intel® Core™2 Duo Processor SL9300 (1.60 GHz, 6 MB*1 L2 cache, 1066 MHz FSB)
- Color TFT/LCD** 13.3" XGA
- HDD** 160 GB*2
- RAM** 2 GB*1

Bluetooth® (Ver.2.0+EDR/Class1) for easy communication and connectivity with peripherals.

Bluetooth® Ver.2.0+EDR*, with maximum transfer speed of 3 Mbps is built in. Class 1 supported. Devices such as digital cameras, mobile phones and other terminals can be easily connected without cables to increase efficiency at the work site.

*EDR is an acronym for Enhanced Data Rate.

Easy removable battery and hard disk.



High-brightness LCD (1,000 cd/m²*) with Anti-Reflection (AR) coating for easy viewing under direct sunlight.

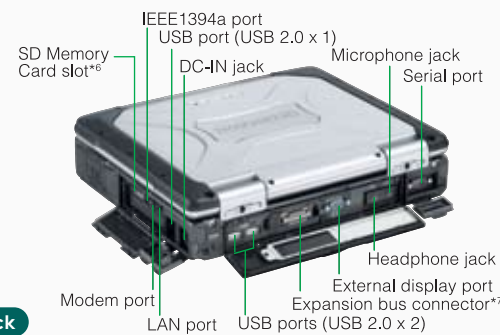
Operates with the standard battery for approx. 7 hours.*5

Built-in security chip (TPM)*6 for data protection.

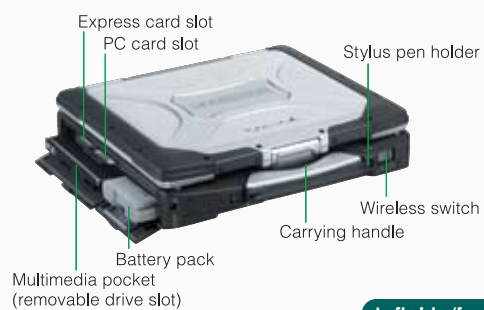
Shock-resistant body ensured by a 90-cm (36 in) free-fall test.*4

All-In-One model featuring a variety of options.*7
 — GPS, WWAN, Optical Drives, Fingerprint, Scanner, 2nd Battery Pack, Smart Card, Backlit Keyboard

Interface



Right side/back

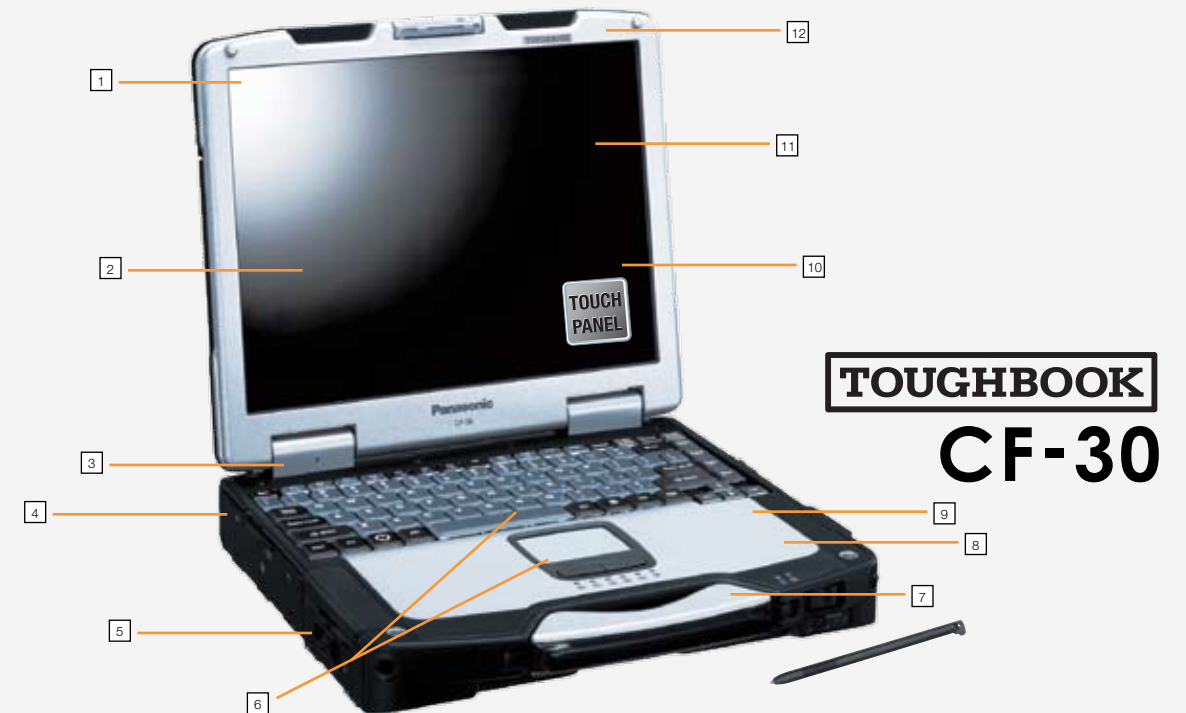


Left side/front

*1 1 MB = 1,048,576 bytes/1 GB = 1,073,741,824 bytes. *2 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. *3 Average luminance in the middle of the screen at the time of shipping. This may change depending on the environment and length of use. *4 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. *5 The period of battery operation time varies according to the operating environment, LCD brightness, and system settings, Windows Vista Business, measured using MobileMark® 2007 at LCD brightness: 60 cd/m². Varies depending on the usage conditions, or when an external device is attached. Windows XP Professional, measured using MobileMark® 2005 (LCD brightness: 60 cd/m²). *6 Need to set-up TPM Professional Package. Refer to the Installation Manual of "TrustedPlatform Module (TPM)". *7 For details, contact your Panasonic sales representative. * The shock resistance, vibration resistance, dust-proof, and splash-proof functions are not a guarantee against damage or malfunction.

Built for the extreme environment

We designed Toughbook to endure the most extreme conditions. They are all equipped with the rugged and reliable features to withstand the blows, drops and spills the comes with a day on the job.



- 1** Internal dampers and seals prevent component damage
- 2** Sealed LCD provides extra protection against moisture and dust
- 3** Fully-sealed hinges are dust- and water-resistant
- 4** Fanless design utilizes heat pipes to keep out water and dust, reduce weight and eliminate points of failure
- 5** Environmental seals protect the multimedia pocket, PC card slots and all ports and connectors from moisture and dust
- 6** Sealed keyboard and touchpad protect against damage from spills and inclement weather
- 7** Carry handle helps prevent accidental drops
- 8** Flexible connectors between the hard drive and system board protect against the transfer of shock from drops and bumps
- 9** Hard drive and LCD heaters enable operation in extreme cold without fear of damage
- 10** Anti-glare and anti-reflective screen treatments offer optimum visibility in any lighting condition
- 11** Screen film protects touchscreen from scratches and wear
- 12** Magnesium alloy case protects against bumps, drops and knocks



CF-19

Rugged, Convertible mobile PC that withstands shocks, spills and dust



OS	Genuine Windows Vista® Business Service Pack 1
CPU	Intel® Core™2 Duo Processor SU9300 (1.20 GHz, 3 MB*1 L2 cache, 800MHz FSB)
Color TFT-LCD	10.4" XGA
HDD	160 GB*2
RAM	2 GB*1

Functions as a usual mobile PC in the office.



Functions as a tablet PC with the monitor screen flipped over.

By pressing the screen rotation button, the screen display is turned 4 ways.



High-brightness LCD (1,000 cd/m²)*3 with Circular Polarizing Touch Screen and Anti-Reflection (AR) coating for easy viewing under direct sunlight.

Operates with the standard battery for approx. 9 hours.*5

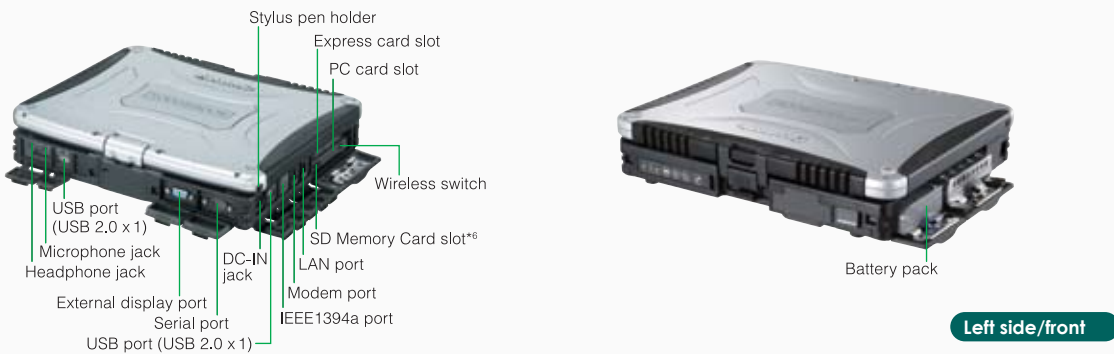
Built-in security chip(TPM)*6 for data protection.

Full magnesium alloy case with Hand Strap ensured by a 90-cm (36 in) free-fall test.*4

The screen turns 180° Ruggedized, 2D hinge used.

Various options can be built-in*7
— GPS, WWAN, Fingerprint reader, Camera.

Interface



*1 1 MB = 1,048,576 bytes/1 GB = 1,073,741,824 bytes. *2 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. *3 Average luminance in the middle of the screen at the time of shipping. This may change depending on the environment and length of use. *4 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. *5 The period of battery operation time varies according to the operating environment, LCD brightness, and system settings. Windows Vista Business, measured using MobileMark® 2007 at LCD brightness: 60 cd/m². Varies depending on the usage conditions, or when an external device is attached. *6 Available for some countries' model. Need to set-up TPM Professional Package. Refer to the Installation Manual of *TrustedPlatform Module (TPM)*. *7 For details, contact your Panasonic sales representative. * The shock resistance, vibration resistance, dust-proof, and splash-proof functions are not a guarantee against damage or malfunction.

CF-52*

*Available for specific project basis

Tough, high-performance mobile PC with 15.4" wide LCD



OS	Genuine Windows® XP Professional Service Pack 2
CPU	Intel® Core™2 Duo Processor P8400 (2.26 GHz, 3 MB*1 L2 cache, 1066MHz FSB)
Color TFT-LCD	15.4" WXGA
HDD	160 GB*2
RAM	1 GB*1

Handle for increasing efficiency when operating in the field.



Easy hard disk removal and security functions for hard disk protection.



Passed a 76 cm free-fall test*3 and a 100-kgf pressurized vibration test*4.

Spill-resistant keyboard*5.

Built-in security chip(TPM)*6 for data protection.

ATI Mobility Radeon™ HD 3650 for high-quality graphics in a mobile computing environment

Bluetooth® (Ver.2.0+EDR/Class1) for easy communication and connectivity with peripherals.



*1 1 MB = 1,048,576 bytes/1 GB = 1,073,741,824 bytes. *2 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. *3 Carried out in Panasonic technical research lab. Test conducted in non-operating condition. *4 Carried out in a Panasonic laboratory in non-operation mode. Vibration with pressure of 980 N (100 kgf) is applied uniformly over the top and bottom faces. *5 Spill resistance applies to all of the keyboard. It does not apply to the side panel, battery section, speakers, and DVD drive when it is open. The Spill-resistant performance of the product does not guarantee that it will be free from damage or malfunction. If water is spilled onto it, be sure to have it repaired. (Note that a fee will be charged for this repair service.) *6 Installation of Infineon TPM Professional Package is required to use this feature. * The shock resistance, pressure resistance, and splash-proof functions are not a guarantee against damage or malfunction.

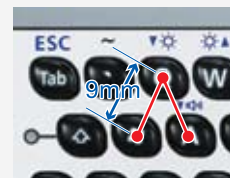
CF-U1

Extremely - rugged Ultra Mobile PC that withstands shocks, spills and dust



OS	Genuine Windows Vista® Business Service Pack 1
CPU	Intel® Atom™ Processor Z520 (1.33 GHz, 512 KB*1 L2 cache, 533MHz FSB)
Color TFT-LCD	5.6" WSVGA
SSD	16 GB*2 (Flash-Memory Drive)
RAM	1 GB*1

Keyboard with leaf-shaped keys and zigzag key arrangement.



Includes hand strap to facilitate handheld use.



Cradle with battery charger*3 available. (Option)



High-brightness LCD with Anti-Reflection (AR) coating for easy viewing under direct sunlight.

Shock-resistant body ensured by a 120-cm (48 in) free-fall test.*4

Operates with the standard battery for approx. 9 hours.*5

Comes with Intel® Atom™ processor, Intel®'s smallest CPU fabricated with the world's smallest transistors.

Widely customizable and expandable GPS, Wireless WAN, Fingerprint Scanner, Camera, Barcode reader

Numerous ways to customize for your various applications

At the construction site
Compact design makes it easy to handle when you are high up. With built-in GPS, you can receive a map of the work site for easy navigation.

On the road
The built-in wireless WAN lets you access your company server so that you can easily verify or compare customers information.

At the warehouse
Using the built-in barcode reader, you can quickly and easily control inventory.

CF-H1

The first fully-rugged Mobile Clinical Assistant(MCA)*1 for medical professionals



OS	Genuine Windows Vista® Business Service Pack 1
CPU	Intel® Atom™ Processor Z540 (1.86 GHz, 512 KB*2 L2 cache, 533MHz FSB)
Color TFT-LCD	10.4" XGA
HDD	80 GB*3
RAM	1 GB*2

Resistant to chemical disinfectants*4



Ergonomically designed handle & hand strap, round shape at back



Cradle with battery charger*5 available. (Option)



High-brightness LCD (500 cd/m2)*6

Shock-resistant body ensured by a 90-cm (36 in) free-fall test.*7

Operates with the standard battery for approx. 6 hours.*8

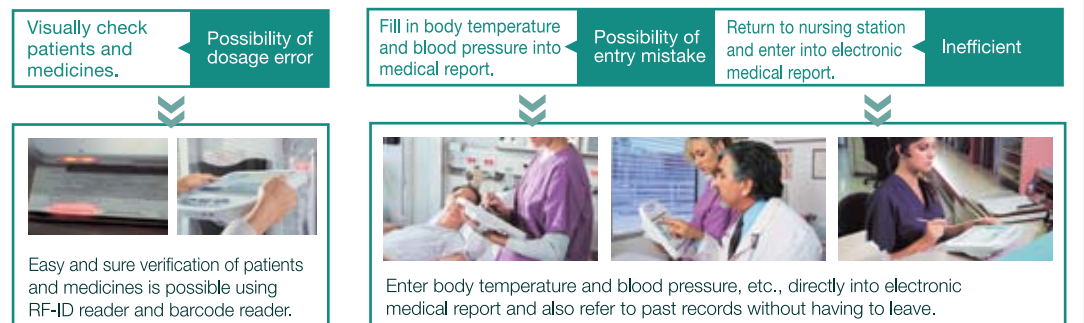
Cutting edge MCA(Mobile Clinical Assistant)*1 technology for computer automation of the nursing industry

Hot swappable battery. Change it while the power is on.

Widely customizable and expandable GPS, Wireless WAN

From paper to mobile terminal, MCA is solving problems and changing the way nurses work.

With CF-H1, there is no need to transfer records, thus nurse accuracy and efficiency are increased.



*1 1 KB = 1,024 bytes, 1 MB = 1,048,576 bytes, 1GB = 1,073,741,824 bytes. *2 The SSD 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. *3 Uses AC adapter bundled with CF-U1. *4 Test conducted in operating condition. The shock resistance, vibration resistance, dust-proof, and splash-proof functions are not a guarantee against damage or malfunction. *5 The period of battery operation time varies according to the operating environment, LCD brightness, and system settings. Measured using MobileMark® 2007 (LCD brightness: 60 cd/m²). *6 The shock resistance, vibration resistance, dust-proof, and splash-proof functions are not a guarantee against damage or malfunction.

*1 This platform, which offers specific features for the healthcare market, was put forth by Intel Corporation. Hardware elements essential to a mobile PC in the healthcare market such as WiFi and Bluetooth wireless communication functions, data acquisition functions such as RF-ID reader and barcode reader, fingerprint reader, and built-in camera are included as well as MCA-compatible applications. *2 1 KB = 1,024 bytes, 1 MB = 1,048,576 bytes, 1GB = 1,073,741,824 bytes. *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 Clear the test for chemical substances (alcohol, hypochlorous acid, etc.). *5 Uses AC adapter bundled with CF-H1. *6 Average luminance in the middle of the screen at the time of shipping. This may change depending on the environment and length of use. *7 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. *8 The period of battery operation time varies according to the operating environment, LCD brightness, and system settings. Measured using MobileMark® 2007 (LCD brightness: 60 cd/m²).

Lightweight design and long battery life for business trips and meetings

Business-rugged

Business-rugged



Easy-to-carry lightweight body

Equipped with unique Panasonic Shell Drive to increase lightness (CF-F8/W8)

Lightweight

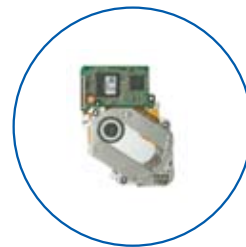
Less than 25% of the tray-type drive in weight. Approximately 45.9g* (CF-W8). Lightweight is realized by eliminating part of the tray and case. The CF-W8 has become even lighter by using this new drive unit.

tray-type drive



Approx. 210g

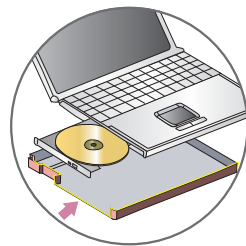
shell drive



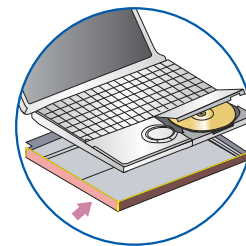
Approx. 45.9g*

Ruggedized

Structure unified with the main frame increases overall strength.



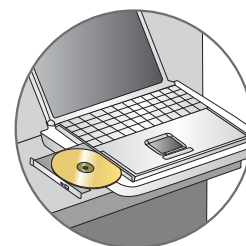
The strength of the cutout part is lower. Tray type is also easy to break.



3 to 7 times stronger than tray type.

Space-saving

No space required for drawing the tray. Since excess space isn't required, disc removal and insertion is smooth.



Space is required to pull out the tray.



The cover opens upward, making it possible to insert and remove discs without taking up space.

Technology for thin-walled magnesium casing recognized worldwide

The highest award (Design Award) of the IMA (International Magnesium Association) was presented for this technology in May 2004. The technical prize was awarded by the Japan Magnesium Association in June 2004. The design technology of the LCD rear panel, which is made of a thin-walled magnesium plate, has also been acknowledged.

make it the perfect choice

Long battery life gives you the leeway needed for day-long trips

Super long life backlight system slashes power consumption

The same brightness with only about 70% of the power consumption of an ordinary LCD panel is achieved using a system with a proprietary light guide plate, high-reflectivity reflector, and high-efficiency reflection sheet. Also, optimized internal materials and increased fluorescent lamp diameter more than double the working life, which decreases the need for backlight replacement.

High capacity battery for long battery life

Long battery life is achieved by an industry top-standard high-capacity lithium ion battery pack (1 cell :2,900 mAh).



*The photograph shows the CF-F8 battery.

Power-saving off setting for drive power supply (CF-F8/W8)

The Drive Power Open Switch or integrated utility software can turn the power supply to the drive on and off, thus making it possible to save unnecessary power consumption when the drive is not in use. The switch on the front panel can turn the power supply to the drive on and off as well.



*The photograph shows the CF-W8.

Wireless switch shuts off standby current

The Wireless switch saves power by allowing you to turn it on and off as needed. It can also be set to turn WWAN, WLAN, or Bluetooth® (Ver.2.0+EDR*/Class1), on and off either individually or all at the same time. This is convenient for on/off control required in hospitals, airports, etc.

*EDR is an acronym for Enhanced Data Rate.

Economy Mode (ECO) extends the battery shelf life

Limiting the battery charge level to 80% ensures a longer life

The TOUGHBOOK incorporates Panasonic's unique Economy Mode (ECO), which prolongs the battery shelf life by limiting the battery charge level to 80%. This function is highly effective because the TOUGHBOOK's low power consumption allows the battery to drive it longer, providing full mobile PC performance even at the 80% level.

*The battery drive time with Economy Mode (ECO) enabled is about 80% that with ECO Mode disabled.

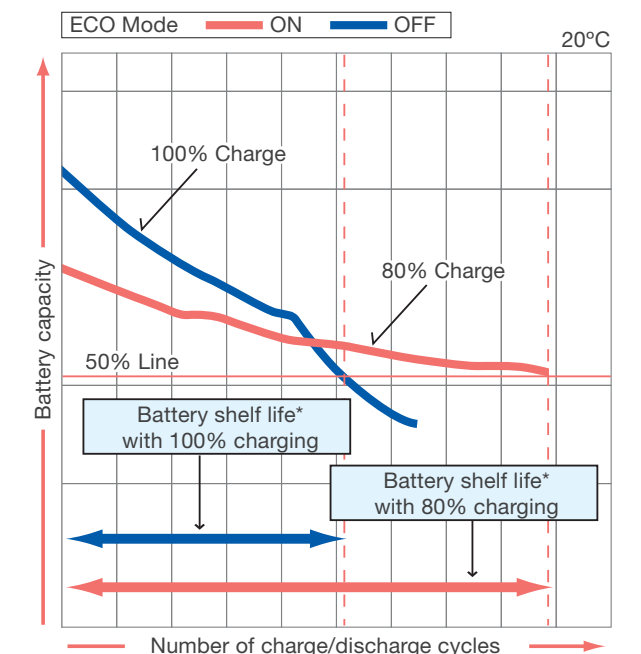
Easy mode change to match your use

The TOUGHBOOK's Economy Mode (ECO) can be easily enabled and disabled. This makes it possible to use it in ECO Mode for everyday use, to extend the battery shelf life, then to disable ECO Mode with the battery fully charged for extended operation outdoors and during business trips.



The LED turns on in Economy Mode (ECO) for an easy visual check.

*Economy Mode (ECO) can be easily turned on and off with installed utility software.
*Economy Mode (ECO) is disabled when shipped from the factory.



*Battery deterioration is defined as the condition when the battery capacity is reduced to 50% of the initial capacity.
*The data in this graph are lab results and are not guaranteed.

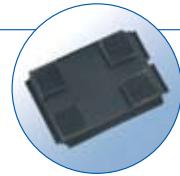
Drop it, hit it, splash water on it!

Tough against drops

Free-fall tested at 76 cm (30 in) (bottom face/operating), the height of a typical desk*¹

Hard disk protected by shock-absorbing material. Minimize the danger of data loss

While surrounding the hard disk with a shock-absorbing material (damper), a low-rebound damper has also been set into the bottom of the case. Shock is physically reduced in order to protect your valuable data.



Reduced shock on LCD when dropped "Cradled" LCD display

Sides of the LCD are protruding while the opposing sides of the palm rest are recessed. The chassis engages with the LCD so that it is cradled, which effectively lowers the danger of damage if the computer is dropped.



Tough against water

Spill-resistant keyboard*² reduces the risk of computer damage from water spills

Water-through design and spill-resistant keyboard employed. In the event that water gets spilled on the keyboard, it will not easily reach the inside of the computer. The design makes it easy for water to flow right through and out of the way.



The connecting parts of the keyboard are protected by sealing so that no water can penetrate.

Tough against long term use

Increased endurance of parts and exterior

Improved PC card slot strength

The connection between the card and the slot has been reinforced. This design increases the card-in-slot durability by more than three times*³ that of conventional units.

Increased USB port endurance

The ability of the USB connector to withstand plugging and unplugging has been increased approximately three times over previous ports*⁴.

Keys are printed by laser, making letters in the keyboard. Difficult to wear off

Laser printing is more durable than normal printing, and the printed characters resist wear even after extended use.

Tough against pressure

Withstands the punishment even when your briefcase is under pressure. Pressure vibration tested at 100 kgf*⁵*⁶

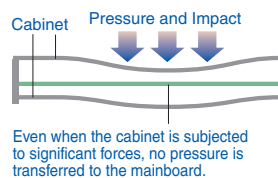
Bonnet structure magnesium rear LCD for lightness and strength

Magnesium alloy used for lightness and strength. Developed after conducting simulations and strength tests, the "bonnet structure" protects the LCD against pressure when carrying the PC around.



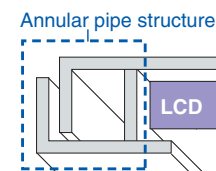
Floating structure for mainboard protection

Floating structure is used to protect the mainboard from external twisting forces.



Annular pipe structure ensures durability and lightweight

The outer edges of the LCD cabinet are constructed in a "rib-like" fashion, creating a frame that surrounds the LCD, to protect it from warping.



Advanced design facilitates mobility

Built-in wireless network capability ideal for mobile use

Flexible wireless LAN(IEEE802.11a/b/g), IEEE802.11n Draft2.0 capability built in*¹

Models are available with an integrated wireless LAN feature that is compatible with four standards, IEEE802.11a/b/g*¹ and IEEE802.11n Draft 2.0*¹, that can be switched to suite your purpose or location. Using office or public wireless LAN services*², you can enjoy high-speed wireless transmission of speeds up to 300 Mbps*³.



*Wi-Fi CERTIFIED is a certification mark by the Wi-Fi Alliance.

*1 Some models excluded.

*2 User registration and settings may be required. Please verify with your service provider beforehand.

*3 This is the maximum theoretical value. It does not indicate the actual transfer rate.

Short-Distance wireless communications with Bluetooth®(Ver.2.0+EDR*¹/Class1)

Bluetooth® enables the wireless exchange of information or audio data between compatible equipment, such as nearby PCs, cellular phones, PDAs, or printers.

Furthermore, since Class 1 is supported, the signal is strong which means communication of up to approximately 100 m is possible*².

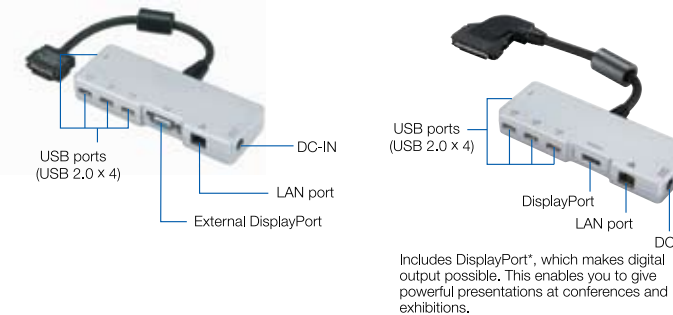
*1 EDR is an acronym for Enhanced Data Rate.
*2 The data is lab results and is not guaranteed.

Comfortable use for mobility (other features)

Supports mini port replicator for easy single-cable connection

Connection to a LAN, external monitor and other external devices are accomplished easily from a single cable location. Cable connection is trouble-free when taking your PC somewhere or when you return to your office and resume work at your desk.

- Mini port replicator (Optional)
- This mini port replicator is for CF-W8/T8.
- This mini port replicator is for CF-F8.



*DisplayPort is a display interface capable of high-speed data transfer put forth by VESA (Video Electronics Standards Association). It is different from DVI and HDMI. If you wish to connect an analog VGA display or projector, please use the external display connector on the CF-F8.

Anti-Glare LCD minimizes eyestrain

The anti-glare surface treatment makes the LCD panel easy to view even when using it near a window or outdoors, minimizing eyestrain when using the mobile PC for many hours.

LCD with glare Anti-Glare LCD

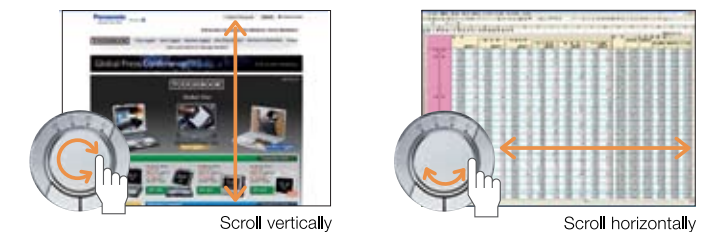


The Anti-Glare LCD reduces reflection on the screen.
*The figure on the left is a representation.

Touch pad scrolls vertically and horizontally

You can scroll the screen vertically and horizontally by simply tracing the rim of the circular Touch pad. This is helpful when viewing a website or spreadsheets.

*The horizontal scroll function is switched off when the unit is shipped from the factory.



*1 Carried out in Panasonic laboratory. Dropped to floor from bottom surface (when operating). The shock-resistance performance does not guarantee against damage or malfunction. Please have your TOUGHBOOK inspected (fees apply) if you drop it. *2 Spill-resistance applies to all of the keyboard. It does not apply to the side panel, battery section, speakers, and DVD drive when it is open (F8 and W8). The spill-resistance performance of the product does not guarantee that it will be free from damage or malfunction. If water is spilled onto it, be sure to have it repaired. (fees apply) *3 CF-W8/T8 was compared with CF-W2. To prevent damage to the PC card, please carry the unit with the PC card removed. *4 CF-W8/T8 was compared with CF-W2. *5 Measurement unit for force. A force of 1 kgf is produced when an object with a mass of 1 kg is accelerated at a rate of 9.8 m/s² (acceleration due to gravity). The letter f after kg stands for force. N (Newton) is an SI unit (international unit). 1N is a level of force generated when an object with a mass of 1 kg is accelerated at a rate of 1 m/s². That is, 1 kgf is equal to 9.8N. *6 Carried out in a Panasonic laboratory when not operating. Vibration with pressure of 980 N (100 kgf) was applied uniformly over the top and bottom faces. *7 The shock-resistance and pressure-resistance do not guarantee against damage or malfunction.

Five kinds of verification tests*⁷ successfully passed *Carried out in a Panasonic laboratory.

Free-fall test (when not operating)



Computer falls from 30cm (12 in) onto each face, edge and corner for a total of 26 drops.

Pressurized vibration test (when not operating)



Vibration with pressure of 980 N (100kgf) is applied uniformly over the top and bottom faces.

Pressure test(local area) (when not operating)



Localized pressure is applied to the bottom face.

Hinge endurance test



In this test the cover with the LCD panel is repeatedly opened and shut.

Keyboard typing test



Each key is repeatedly struck.

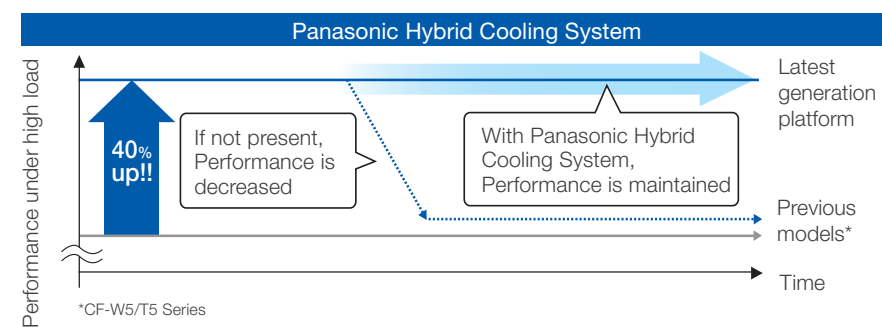
Visit our website to see this on video >>> >>> <http://www.panasonic.com.sg/toughbook>

Uncompromised high performance

Higher performance thanks to unique technology

Panasonic Hybrid Cooling System for high performance, lightweight, and long battery life

One way to maintain high performance in a PC is to install a large fan for cooling. However, the TOUGHBOOK achieves efficient cooling through a technology (Panasonic Hybrid Cooling System) that combines a small, lightweight fan with Dynamic Power Performance Management Technology, a technology that lowers both CPU heat and power consumption even under high computing loads. While maintaining high performance, long battery life and lightweight are achieved.



Dynamic Power Performance Management (DPPM) Technology: jointly developed with Intel Corporation

Jointly developed with Intel Corporation, Dynamic Power Performance Management Technology takes CPU and chipset performance to their maximum. Power is saved without compromising performance by controlling the operating condition of the CPU in accordance with the type of processing being conducted.

Large capacity HDD and RAM mean you can take your deskwork on the road (CF-F8)

The large-capacity 160 GB hard disk lets you take all the data you need for your job with you. And with 3 GB of RAM, you have a PC on the road that's as comfortable to use as the one in your office.

Ideal for mobile computing Intel® Centrino® 2 with vPro™ Technology built in*

Using a new platform specially designed for mobile computing we have achieved the function to remotely manage both wired and wireless PCs from the same IT console with hardware-assisted security and remote manageability.

Besides the above remote management improvement, greater proactive security and maintenance are enhanced as well.

*Limited to models with built-in wireless LAN feature.



*Some models excluded.



Strategy to strengthen security in today's era of data protection

Security chip provides strong security

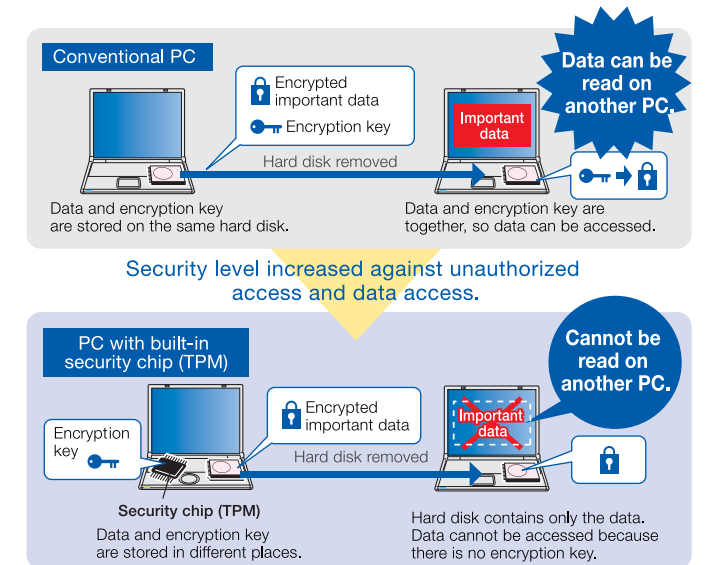
Built-in Security Chip (TPM)*

Powerful security is achieved since the encryption key is stored on a separate hardware (security chip) from the hard disk where data is stored. In the event of unauthorized access, theft, or loss of the hard disk, the encryption key cannot be accessed.

*Installation of Infineon TPM Professional Package is required to use this feature. *Some models excluded.

What is a Security Chip (TPM)*

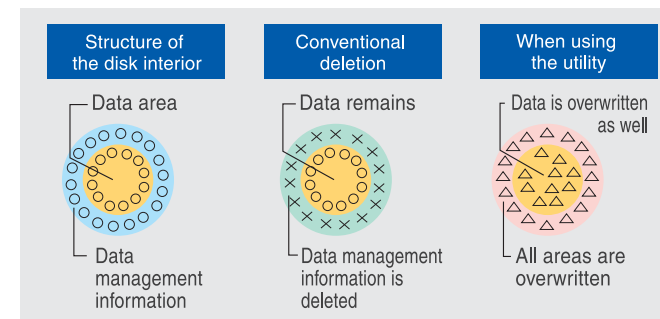
Established by TCG (Trusted Computing Group), an organization promoting security standardization, TPM (Trusted Platform Module) is a computer chip that contains an encryption key for security and privacy protection.



Easy security function and various data leak prevention strategies available

Hard disk data erase utility

Special software renders all of the data stored in the hard disk unreadable. You can use this software to easily minimize the danger of data being stolen when you dispose the mobile PC.



Hard disk protection

You can specify a password for accessing the hard disk. Even if someone removes the hard disk and connects it to another computer, the data cannot be accessed without the password.

Security slot for theft prevention

The mobile PC is subject to being stolen not only when outdoors or in the car. To protect yourself from theft in the office, TOUGHBOOK offers a strong lock system that lets you actually lock it to your desk.

*The Kensington Slim MicroSaver, a security lock that was used for testing the security of the TOUGHBOOK, is recommended. However, using a security lock or security cable does not guarantee protection against theft.



CF-F8

High Performance, Wide-Screen LCD with Easy-to-Grip Handle



- OS** Genuine Windows Vista® Business Service Pack 1
- CPU** Intel®Core™2 Duo Processor SP9300 (2.26 GHz, 6 MB L2 cache, 1,066MHz FSB)
- Color TFT-LCD** 14.1" XGA
- HDD** 160 GB*2
- RAM** 3 GB*1



Easy-to-grip handle helps you get around in your company
Carry documents in one hand and use your free hand to grip the handle and take the PC with you. Leaving your desk is easier as well as getting it in and out of your briefcase or bag.

Light Weighing only about 1,670 g*3 with a 14.1" LCD and integrated optical drive.

76cm Passed a 76 cm free-fall test*5 and a 100-kgf pressurized vibration test*64.

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

Battery Runs for approx. 6 hours*4 on standard battery power.

Water Spill-resistant keyboard*7.

This high-performance mobile PC can replace a desktop PC and change the way you do business.

In the office

Whether it's for deskwork or for meetings, let this single "office mobile" handle all your office needs and make you more efficient.



For meetings

Take advantage of the wide, high-resolution screen to display multiple documents at the same time when attending meetings.

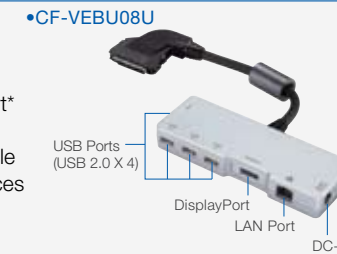


Intel® Core™ 2 Duo processor SP9300 with processing power that equals a desktop PC

This processor is made using the very latest 45 nm-process technology which translates to less power and faster processing. Consuming 25 W, the thermal design power has been cut 30%. High processing capacity is realized while achieving long running times. With power equaling desktop PCs, this means you can take your deskwork with you on the road any time you please.

Mini Port Replicator with DisplayPort for digital output

The Mini Port Replicator (sold separately) reduces LAN and peripheral connections to a single cable and it comes with DisplayPort* which enables digital output. By connecting a DisplayPort compatible display, it can be used at conferences and presentations.



*DisplayPort is a display interface capable of high-speed data transfer put forth by VESA (Video Electronics Standards Association). It is different from DVI and HDMI. If you wish to connect an analog VGA display or projector, please use the external display connector on the CF-F8.

Large, wide LCD for greater work efficiency

The high-resolution WXGA (1,280 x 800 dots) LCD features approximately 1.3 times the display area of XGA, which means you can work more efficiently. Open several documents at the same time and speed up the way you work by being able to compare documents side by side.

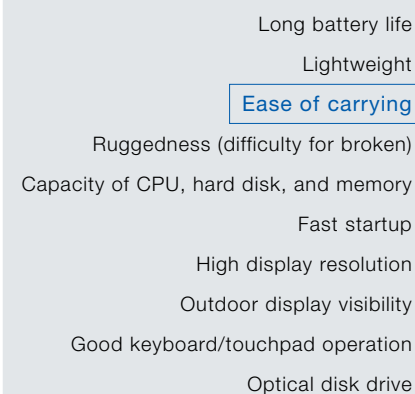


AC adaptor that can be stored with the cord wrapped

The design of the AC adaptor has been improved so that the DC cable can be wrapped easily around it. When carrying the PC with you, the cord can be quickly organized and neatly stored in your briefcase or bag. Also, the cord has plenty of length in consideration of the distance from your desk to the wall outlet.



- Improved ease of carrying, a feature highly sought after a portable PC
- Features sought after a portable PC



Unexpectedly, one of the features most sought after a mobile computer is the ability to easily carry it. The CF-F8, while featuring ruggedness, lightweight, and long battery life, has also been designed to be easily carried. The easy-to-grip handle reduces the risk of dropping even when carrying it together with such things as packages and documents. This not only makes it great when you are on the road, but also when carrying it around the office or to conference rooms within your company.

Source: IDC Japan, April, 2008 whitepaper, "Causal Relationship between Breakdowns and Breakdown Reasons in Portable PCs" sponsored by Panasonic (201045)
*Multiple answers (Gross number of answers: 2,281)
*Unknown causes excluded.

Equipped with a handle, this rugged, lightweight, long-running mobile PC is great for the office.

High capacity battery for long battery life

Long battery life is achieved by an industry top-standard high-capacity lithium ion battery pack (1 cell :2,900 mAh).



* The photograph shows the CF-F8 battery.

Around the Office

Pacing emphasis on weight over thinness, the case has also been designed with a handle to make it easy to carry and reduce the possibility of dropping.



*1 1 MB = 1,048,576 bytes / 1 GB = 1,073,741,824 bytes. *2 1 GB = 1,000,000,000 bytes. Your operating system or some application software will report as fewer GB. *3 Average weight. The actual weight of each product may vary slightly. *4 Measured using MobileMark® 2007. The Economy Mode (ECO) was disabled during measurement. When Economy Mode (ECO) is enabled, the operating time becomes approximately 20% shorter than when it is disabled. The period of battery operation time varies according to the operating environment, LCD brightness, and system settings. *5 Carried out in Panasonic technical research lab. Dropped on to bottom (in operation-mode).

*6 Carried out in a Panasonic laboratory in non-operation mode. Vibration with pressure of 980 N (100 kgf) is applied uniformly over the top and bottom faces. *7 Spill resistance applies to all of the keyboard. It does not apply to the side panel, battery section, speakers, and DVD drive when it is open. The Spill-resistant performance of the product does not guarantee that it will be free from damage or malfunction. If water is spilled onto it, be sure to have it repaired. (Note that a fee will be charged for this repair service.) *8 Installation of Infineon TPM Professional Package is required to use this feature. * The shock resistance, pressure resistance, and splash-proof functions are not a guarantee against damage or malfunction.

CF-W8

1.290g*¹ (approx.) lightweight all-in-one mobile PC



OS	Genuine Windows Vista® Business Service Pack 1
CPU	Intel® Core™2 Duo Processor SU9300 (1.20 GHz, 3 MB* ² L2 cache, 800MHz FSB)
Color TFT-LCD	12.1" XGA
HDD	120 GB* ³
RAM	3 GB* ²

Developed by Panasonic. Strong and light shell drive.

Equipped with Mini Port Replicator Connector. (Option)



•CF-VEBU05BU



Light Weighing only about 1,290 g*¹ with a 12.1" LCD and integrated optical drive.

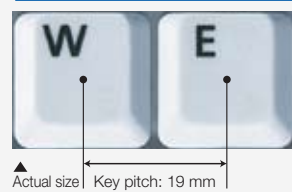
76cm Passed a 76 cm free-fall test*⁵ and a 100-kgf pressurized vibration test*⁶.

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

Sun Runs for approx. 8 hours*⁴ on standard battery power.

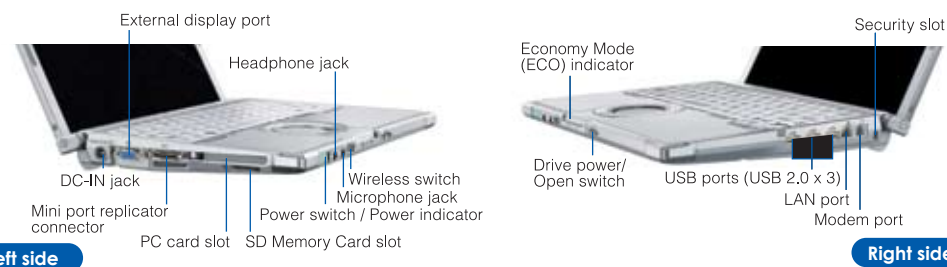
Water Spill-resistant keyboard*⁷.

Keyboard



Actual size | Key pitch: 19 mm
Laser printing has improved the durability of the characters printed on the key tops.

Interface



Left side

Right side

*¹ Average weight. The actual weight of each product may vary slightly. *² 1 MB = 1,048,576 bytes/1 GB = 1,073,741,824 bytes. *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 Measured using MobileMark® 2007. The Economy Mode (ECO) was disabled during measurement. When Economy Mode (ECO) is enabled, the operating time becomes approximately 20% shorter than when it is disabled. The period of battery operation time varies according to the operating environment, LCD brightness, and system settings. *⁵ Carried out in Panasonic technical research lab. Dropped on to bottom (in operation-mode). *⁶ Carried out in a Panasonic laboratory in non-operation mode. Vibration with pressure of 980 N (100 kgf) is applied uniformly over the top and bottom faces. *⁷ Spill resistance applies to all of the keyboard. It does not apply to the side panel, battery section, speakers, and DVD drive when it is open. The Spill-resistant performance of the product does not guarantee that it will be free from damage or malfunction. If water is spilled onto it, be sure to have it repaired. (Note that a fee will be charged for this repair service.) *⁸ Installation of Infineon TPM Professional Package is required to use this feature. * The shock resistance, pressure resistance, and splash-proof functions are not a guarantee against damage or malfunction.

CF-T8*

*Available for specific project basis

8 hours*¹ (approx.) long battery life mobile PC with touch panel and hand strap for PDA style



OS	Genuine Windows Vista® Business Service Pack 1
CPU	Intel® Core™2 Duo Processor SU9300 (1.20 GHz, 3 MB* ² L2 cache, 800MHz FSB)
Color TFT-LCD	12.1" XGA
HDD	120 GB* ³
RAM	3 GB* ²

The standard strap and stylus ensure easy, on-site handling.

Equipped with Mini Port Replicator Connector. (Option)



•CF-VEBU05BU



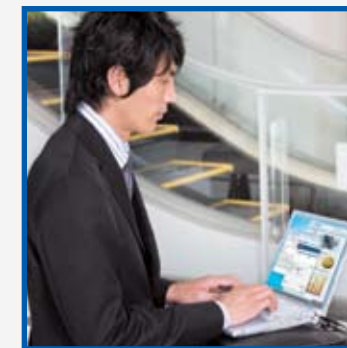
Light Weighing only about 1,485 g*⁴ including the stylus.

76cm Passed a 76 cm free-fall test*⁵ and a 100-kgf pressurized vibration test*⁶.

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

Sun Runs for approx. 8 hours*¹ on standard battery power.

Water Spill-resistant keyboard*⁷.



*¹ Measured using MobileMark® 2007. The Economy Mode (ECO) was disabled during measurement. When Economy Mode (ECO) is enabled, the operating time becomes approximately 20% shorter than when it is disabled. The period of battery operation time varies according to the operating environment, LCD brightness, and system settings. *² 1 MB = 1,048,576 bytes/1 GB = 1,073,741,824 bytes. *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 weight. The actual weight of each product may vary slightly. *⁵ Carried out in Panasonic technical research lab. Dropped on to bottom (in operation-mode). *⁶ Carried out in a Panasonic laboratory in non-operation mode. Vibration with pressure of 980 N (100 kgf) is applied uniformly over the top and bottom faces. *⁷ Spill resistance applies to all of the keyboard. It does not apply to the side panel, battery section, speakers. The Spill-resistant performance of the product does not guarantee that it will be free from damage or malfunction. If water is spilled onto it, be sure to have it repaired. (Note that a fee will be charged for this repair service.) *⁸ Installation of Infineon TPM Professional Package is required to use this feature. * The shock resistance, pressure resistance, and splash-proof functions are not a guarantee against damage or malfunction.

All the way from PCB mounting to final product assembly Made in Japan*

*Some models excluded.

While there are many PC manufacturers who outsource their production today, Panasonic designs and develops its PCs completely in-house, and uses an integrated manufacturing system that extends from PCB mounting to final product assembly --- all in its own factory in Japan. This allows Panasonic to respond to customers' needs by incorporating unique technologies into the product development stage.



Kobe Factory, Japan

Obtaining ISO 9001, ISO 14001 and ISO/IEC27001 for high-level production management

Our Kobe Factory is certified with both ISO 9001 and ISO 14001, which attest to our advanced quality and environmental management systems. We are continuously striving to improve our production system.



ISO9001 ISO 9001 is an international standard for quality management systems that enhance product quality assurance and customer satisfaction.

ISO14001 ISO 14001 is an international standard for environmental management systems that minimize or prevent environmental impacts and risks.

Certified with international standard for information security (ISO/IEC27001)

Our IT Products Division is certified for ISO/IEC27001:2005, the Information Security Management System (ISMS) standard. We have an established information security control system that we continually implement.



Three reasons for insisting on "Made in Japan" quality

In-house product development with a host of advanced technologies

We increase the added value of our products by fully utilizing the advanced technologies of our factory in Japan.



Half of the floors at factory 1 contain mounting areas. These facilities have enabled us to achieve high reliability with an advanced maintenance management system.

Flexible customization

We are able to flexibly customize our products according to customers' requests.



In response to these requests, we can install options or software through the teamwork of our development, production, and systems engineering sections.

Quick product improvement based on market opinion

Our customers' opinions are promptly reflected in our production lines, which allows us to quickly improve our products.



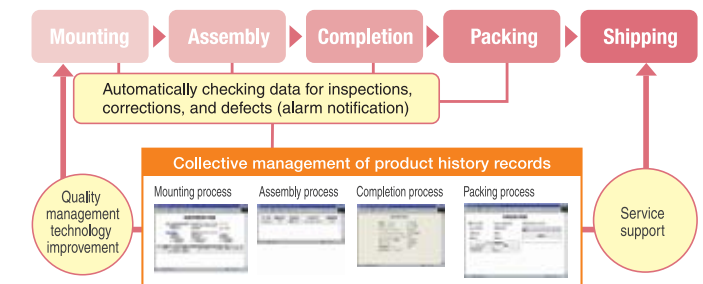
In product assembly, we have adopted a Cell Production System to flexibly cope with needs such as specification changes.

Quality management based on a production information network (KISS system)

We have adopted the KISS (Kobe Intranet Solution for Super-production) quality management system. Using QR codes laser-printed onto circuit boards, all manufacturing processes and post-production adjustments are managed by the KISS server to achieve highly reliable production.

Main features of the KISS system.

- Automatic notification of failures and problems
- Product history records to assure quality
- Inspections and corrections carried out for each production process (providing assurance by checking against specifications)
- Sharing product quality information over networks and through websites



Radio wave anechoic chamber built at Kobe Factory ! Precise and speedy testing enables manufacturing of highly reliable products

Preventing problems, at home and in the office, caused by electromagnetic radiation emitted by electronic devices.

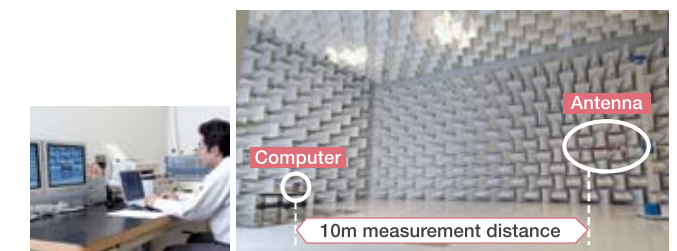
If an electronic device emits excessive electromagnetic radiation, it can interfere with nearby devices, thereby causing malfunctions and other problems. That is why regulatory bodies restrict electromagnetic emission to acceptable levels. Products made at the Kobe Factory are controlled and tested for conformity to relevant regulations.

Using an automatic measurement system, products made at the Kobe Factory are tested, at a distance of 10 m, with greater precision.

A radio wave anechoic chamber that enables 10 m protocol testing has been built at the site of the Kobe Factory. Here, isolation from the influence of outdoor electromagnetic radiation enables quick and accurate measurement. Because results can be immediately fed back to the factory, we are able to respond even more quickly to produce products that precisely conform to regulations for specific markets.

Resolving difficulties, since the coming of full-scale terrestrial digital broadcasting and an increasingly noisy electromagnetic environment, with outdoor testing.

In open conditions, the air is thick with TV, radio, and other electromagnetic waves. Now, with the coming of full-scale terrestrial digital broadcasting, outdoor testing of devices has become problematic.



High-quality inspection system that carries the R.S.T. certification logo

At the Kobe Factory we have introduced the Ultra-X ASIA PACIFIC Inc. R.S.T. memory approval program that is used by IT companies throughout the world as a diagnostic tool. Currently at our factory, all manufactured computers undergo the same inspection to guarantee stable operation.



Proof of high-quality memory that only applies to products that have undergone all the inspections.



This proves that after random inspection the product passed a test that presumes a heavy load such when used in servers.

Rugged, high-quality Panasonic mobile

According to research*1 by IDC Japan regarding average yearly repairs*2, in a company that introduced 1,000 mobile PCs, it was found that 3.25 units were sent for repair each month. PC breakdowns not only cost money, but waste time and labor while the repair is being done. To control such losses, an effective solution is to introduce a more rugged type of PC. The superior ruggedness of the Panasonic mobile PC reduces TCO by controlling losses caused by PC breakdowns and boosts TVO by increasing productivity and operating effectiveness.



PCs reduce TCO and increase TVO *Some models excluded.

TOUGHBOOK provides overwhelming cost effectiveness

TVO (Total Value of Ownership) comparison

With Standard Mobile PC

With TOUGHBOOK



Usual back-office operations



Increasing production efficiency

Expanded business opportunities

Increased customer satisfaction

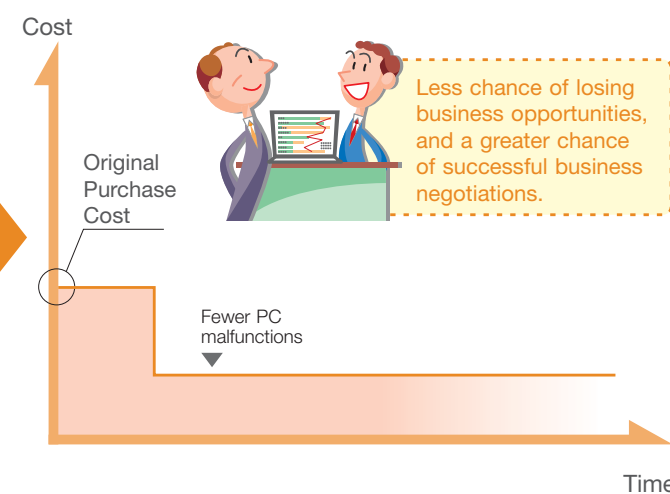
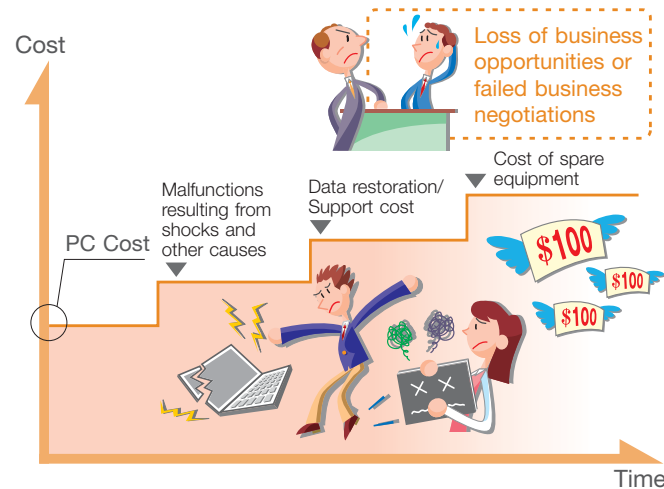
Mobile PCs help businesses expand

TOUGHBOOK ensures overwhelmingly low total cost

TCO (Total Cost of Ownership) comparison

With Standard Mobile PC

With TOUGHBOOK



Reducing PC malfunctions and lost opportunities

When a problem occurs in a PC, the average time consumed before and after a repair is 4 hours and 39 minutes. For a hard disk problem this becomes approximately 9 hours. In its research*1, IDC Japan reported that approximately 2 days per month are spent by IT administrators to fix PCs. By using rugged Panasonic mobile PCs, you can cut costs stemming from lost time and repairs, and reduce lost opportunities caused by PC breakdown.

Avoid doubling your system investment

Using a lightweight, long-running Panasonic mobile PC will eliminate the redundancy of having to use separate PCs in and out of the office. For mobile use you will not need to procure PDAs and suffer the accompanying equipment, system design, and training costs. Also, when a TOUGHBOOK is used together with the mini port replicator, the transition between office and mobile use is smooth and easy.

What is TCO (Total Cost of Ownership) ?

TCO indicates how much it actually costs to own information system hardware. TCO includes the total sum of costs required for building, operating, maintaining, and disposing of a system, including lost profits, in addition to the cost of introducing the system.

Increasing business productivity

The business-rugged mobile PCs in Panasonic's TOUGHBOOK Series are lightweight and compact, have wireless LAN function. With TOUGHBOOK, you can connect to the office from remote locations, allowing quick decisions, supporting operations that require speed, and greatly increasing office productivity and efficiency.

Improving your customer support capability

The business-rugged mobile PCs in Panasonic's TOUGHBOOK Series make it possible to build a business style of traveling to the site and then straight back home, allowing you to spend the whole day in business activities. You can contact your office by e-mail at home in the morning and directly visit your business sites. You can access information through your office's intranet in quick response to questions, such as inquiries about inventory levels. TOUGHBOOK gives you quick customer support, so you won't miss any more business opportunities.

Increasing work site productivity (e.g., Construction sites)

In the past, the use of mobile PCs were said to be difficult at construction and factory sites. Panasonic's TOUGHBOOK Series of fully-rugged mobile PCs can be used even in these severe conditions. You can operate the TOUGHBOOK without leaving the site, which greatly contributes to productivity and efficiency.



What is TVO (Total Value of Ownership) ?

TVO indicates the cost effectiveness of a business, and aims at expanding the value of the business, by means such as acquiring new business opportunities, improving productivity, and enhancing customer satisfaction with the appropriate distribution of management resources.

*1 Source: IDC Japan, April 2008 whitepaper "Causal Relationship between Breakdowns and Breakdown Reasons in Portable PCs" sponsored by Panasonic (201045)

*2 Number of respondent computers repaired in one year divided by total number of respondent computers.



	Fully-rugged			
	CF-19	CF-30	CF-U1	CF-H1
Operating system	Genuine Windows Vista® Business with Service Pack 1 ¹¹			
CPU	Intel® Core™ 2 Duo Processor SU9300 (1.20 GHz, 3 MB ² L2 cache, 800 MHz FSB)	Intel® Core™ 2 Duo Processor SL9300 (1.60 GHz, 6 MB ² L2 cache, 1066 MHz FSB)	Intel® Atom™ Processor Z520 (1.33 GHz, 512KB ² L2 cache, 533 MHz FSB)	Intel® Atom™ Processor Z540 (1.86 GHz, 512 KB ² L2 cache, 533 MHz FSB)
Chip Set	Mobile Intel® GS45 Express chip set		Intel® System Controller Hub	
Memory	2 GB ² , DDR2 SDRAM (4 GB ² Max)		1 GB DDR2 SDRAM	
Video Memory	UMA 797 MB Max. (When Memory is 2 GB) / UMA 1551 MB Max. (When Memory is 4 GB) ²		256 MB ¹ Max.	
Hard Disk Drive	160 GB ³		Flash Memory Drive 16 GB ³	80 GB (Serial ATA) ³
Optical Drive	Optional USB Combo Drive	Optional Integrated Multi Drive	N.A.	N.A.
Keyboard	82 keys US English Keyboard / Touch Pad / Touchscreen (Anti-Reflection, Stylus (included) touch capable)	87 keys US English Keyboard / Touch Pad / Touchscreen (Anti-Reflection, Stylus (included) touch capable)	61 English Mini Qwerty Keyboard / Touchscreen	Dual Touch (Touch Panel with Anti-Reflection, Digitizer)
Display	10.4 XGA type (TFT) (1024 x 768 dots) ⁴ with Toughscreen Option: Digitizer	13.3 XGA type (TFT) (1024 x 768 dots) ⁴ with Touchscreen	5.6" WSVGA type(TFT) (1024 X 600 dots) with Touchscreen ⁴	10.4" XGA type (TFT) (1024 X 768 dots) with Touchscreen ⁴
Wireless	Intel® WiFi Link 5100 IEEE802.11a/b/g/n draft2.0 compliant ⁵			
Bluetooth	Version 2.0 +EDR			
Mobile connectivity	Optional: HSDPA, 3G, GPS			
LAN	1000BASE-T / 100BASE-TX / 10Base-T		Available via cradle	Available via cradle
Modem	Data : 56 kbps (V.92) FAX : 14.4 kbps / voice not compatible		N.A.	N.A.
Card Slot	PC Card	x 1, Type I or Type II (CardBus support, Allowable current 3.3 V: 400 mA, 5 V: 400 mA)		N.A.
	ExpressCard	ExpressCard/34 or ExpressCard/54 x 1		N.A.
	Smart Card	ISO7816 x 1		N.A.
	SD Memory Card Slot ⁶	x 1		N.A.
Interface	USB Ports x 2 (USB2.0 x 2) ⁷ / Serial Port / Modem Port (RJ-11) / LAN Port (RJ-45) / External Display Port / Expansion Bus Connector / External Antenna Connector x 2 / IEEE 1394a Port / Microphone Jack / Headphone Jack	USB Ports x 3 (USB2.0 x 2) ⁷ / Serial Port / Modem Port (RJ-11) / LAN Port (RJ-45) / External Display Port / Expansion Bus Connector / External Antenna Connector x 2 / IEEE 1394a Port / Microphone Jack / Headphone Jack	USB Ports (USB 2.0) ⁷ x 1, Microphone Jack, Expansion Bus Connector Cradle interface: Serial, LAN (RJ45), VGA, Serial, Security lock	Expansion Bus Connector Cradle interface: USB2.0 ⁷ x 3, LAN(RJ45), VGA, Serial, Security lock
Battery Pack	Li-ion 10.65 V, 5.7 Ah	Li-ion 10.65 V, 8.55 Ah	Li-ion 7.2 V, 2.9 Ah x 2 packs	
Operating Time	Primary Batt:Approx. 9 hours ⁸	Primary batt:Approx. 9 hours ⁸ Primary + Secondary batt: Approx. 12.5 hours ⁸	Approx. 9 hours	Approx. 6 hours
Weight ⁹	Approx. 2.30 kg (Approx. 5.06 lb.) (Same for both Digitizer and Touch Screen Model) excluding dummy cards	Approx. 3.8kg (Approx. 8.4 lb.), excluding the dummy pack and dummy cards (Approx. 50g (Approx. 1.8 oz.))	Approx. 1.06 kg (Approx. 2.3 lb.) (including the hand strap)	Approx. 1.5 kg (Approx. 3.4 lb.) (including the carrying handle)
Ruggedness	Shock Resistant Body ensured by a 90cm free-fall test (non-operating mode)		Shock Resistant Body ensured by a 120cm free-fall test (operating mode)	Shock Resistant Body ensured by a 90cm free-fall test (non-operating mode)
	Fanless Design, Covered Ports, Shock Mounted HDD, LCD Mounting Protection, Magnesium Alloy Casing or Chassis, Spill-Resistant Keyboard, MIL-STD-810F Compliant, IP54 compliant		Vibration Resistance, Reinforced Resin and Magnesium Alloy Hybrid Casing, IP54 compliant ¹¹ , Dust-Proof, Fanless Design, Covered Ports, MILSTD-810F compliant	



* Available for specific project basis

	Semi-rugged	Business-rugged		
	CF-52*	CF-F8	CF-W8	CF-T8*
Operating system	Genuine Windows Vista® Business with Service Pack 1 (XP Pre-Installed) ¹¹	Genuine Windows Vista® Business with Service Pack 1 ¹¹		
CPU	Intel® Core™ 2 Duo Processor P8400 (2.26 GHz, 3 MB ² L2 cache, 1066 MHz FSB)	Intel® Core™ 2 Duo Processor SP9300 (2.26 GHz, 6 MB ² L2 cache, 1066 MHz FSB)	Intel® Core™ 2 Duo Processor Ultra Low Voltage SU9300 (1.20 GHz, 3 MB ² L2 cache, 800 MHz FSB)	
Chip Set	Mobile Intel® GS45 Express chip set			
Memory	1 GB ² , DDR2 SDRAM (4 GB Max.)	3 GB ² , DDR2 SDRAM (2 GB RAM module added to the RAM module slot.)	2 GB ² , DDR2 SDRAM (3 GB Max.)	3 GB ² , DDR2 SDRAM (2 GB RAM module added to the RAM module slot.)
Video Memory	UMA (512 MB ² Max / 1024 MB ² Max with expanded memory)	UMA (797 MB Max) Total: 1GB: 285 MB Max. 2GB: 797 MB Max. 3GB: 1309 MB Max.		
Hard Disk Drive	160 GB ³		120 GB ³	
Optical Drive	DVD MULTI Drive built-in, Buffer underrun error prevention function: Supported			N.A.
Keyboard	87 keys US English Keyboard / Touch Pad		84 keys US English Keyboard / Touch Pad	83 keys US English Keyboard / Touch Pad / Touchscreen (Stylus (included) touch capable)
Display	15.4 WXGA type (TFT) (1280 x 800 dots) ⁴	14.1 WXGA type (TFT) (1280 x 800 dots) ⁴	12.1 XGA type (TFT) (1024 x 768 dots) ⁴	12.1 XGA type (TFT) (1024 x 768 dots) ⁴ with Touchscreen
Wireless	Intel® WiFi Link 5100 IEEE802.11a/b/g/n draft2.0 compliant ⁵			
Bluetooth	Version 2.0 +EDR			
Mobile connectivity	Optional: HSDPA, 3G, GPS			
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 / voice not compatible			
Card Slot	PC Card	x 2, Type I or Type II (CardBus support, Allowable current 3.3 V: 400 mA, 5 V: 400 mA)	x 1, Type II (CardBus support, Allowable current 3.3 V: 400 mA, 5 V: 400 mA)	
	SD Memory Card Slot ⁶	x 1		
Interface	USB Ports x 4 (USB2.0 x 2) ⁷ / Serial Port / Modem Port (RJ-11) / LAN Port (RJ-45) / External Display Port / Expansion Bus Connector / IEEE 1394a Port / Microphone Jack / Headphone Jack		USB Ports x 3 (USB2.0 x 3) ⁷ / Modem Port (RJ-11) / LAN Port (RJ-45) / External Display Port / Microphone Jack / Headphone Jack / Mini Port Replicator connector	
Battery Pack	Li-ion 11.1 V, 7.8 Ah		Li-ion 10.8 V, 5.8 Ah (typ.), 5.4 Ah (min.)	
Operating Time	Approx. 7 hours		Approx. 6 hours (Economy Mode (ECO) - Disable) ⁸	Approx. 8 hours (Economy Mode (ECO) - Disable) ⁸
Weight ⁹	Approx. 3,400 g (7.38 lb.)		Approx. 1,670 g (3.7 lb.)	Approx. 1,290 g (2.8 lb.)
Ruggedness	Passed a 76cm 6 Sides free-fall test (non-operating mode) Passed a 100 kgf pressurized vibration test ¹²		Passed a 76cm bottom case free-fall test (operating mode) Passed a 30cm 26 sides/angles drop (non operating mode) Passed a 100 kgf pressurized vibration test ¹²	
	Shock Mounted HDD, LCD Mounting Protection, Bonnet Structure magnesium rear LCD, Spill-Resistant Keyboard			

¹¹ 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. ¹² 1 MB = 1,048,576 bytes. 1 GB = 1,073,741,824 bytes. ¹³ 1 GB = 1,000,000,000 bytes. Your operating system or some application software will report as fewer GB. ¹⁴ Maximum resolution depends on the specifications of the external display. Display may be impossible using some connected external displays. ¹⁵ IEEE 802.11n is draft version. When use Wireless LAN access point compliant to J52, need to upgrade firmware of Wireless LAN access point side to W52 compliant. ¹⁶ This slot is compatible with High-Speed Mode. Operation has been tested and confirmed using Panasonic SD/SDHC Memory Cards with a capacity of up to 32 GB.

¹⁷ Operation on all USB-compatible peripherals is not guaranteed. ¹⁸ Measured at (LCD brightness: 60 cd/m2, Windows Vista MobileMark® 2007, Windows XP MobileMark® 2005) Varies depending on the usage conditions, or when an external device is attached. ¹⁹ Average value. Each product weight may be different. ²⁰ Test conducted in non-operating conditions. The shock & vibration resistance, dust-proof & splash-proof performances do not guarantee against damage or malfunction. ²¹ Refers to only main unit, excludes stylus. ²² Carried out in a Panasonic laboratory in non-operation mode. Vibration with pressure of 980 N (100 kgf) is applied uniformly over the top and bottom faces. ²³ When 25 or more units will be purchased in one year