

## OPERATING INSTRUCTIONS

Personal Computer

Model No. **CF-31** series



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Getting Started

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Troubleshooting

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Appendix

For further information about the computer, you can refer to the on-screen manual.  
To access the on-screen manual  
→ page 19 "On-screen Manual"

# Introduction

Thank you for purchasing this Panasonic product. For optimum performance and safety, please read these instructions carefully.

## ■ Terms and illustrations in these instructions

<b>CAUTION</b> :	Conditions that may result in minor or moderate injury.
<b>NOTE</b> :	Useful and helpful information.
<b>Enter</b> :	Press [Enter] key.
<b>Fn + F5</b> :	Press and hold [Fn] key, and then press [F5] key.
<b>Windows 7</b>	
 (Start) - [All Programs] :	Click  (Start), and then click [All Programs]. You may need to double-click in some cases.
<b>Windows XP</b>	
[start] - [Run] :	Click [start], and then click [Run]. You may need to double-click in some cases.
→ :	Page in these Operating Instructions or in the Reference Manual.
 :	Reference to the on-screen manuals.

- **Windows 7** indicates Genuine Windows® 7 Professional Operating System.
- **Windows XP** indicates Genuine Microsoft® Windows® XP Professional Operating System.
- Some illustrations are simplified to help your understanding and may look different from the actual unit.
- If you do not log on as an administrator, you cannot use some functions or cannot display some screens.
- Refer for the latest information about optional products to the catalogs, etc.
- In these instructions, the names and terms are referred as follows.
  - “Genuine Windows® 7 Professional” as “Windows” or “Windows 7”
  - “Genuine Microsoft® Windows® XP Professional Service Pack 3” as “Windows”, “Windows XP” or “Windows XP Professional”
  - DVD-ROM & CD-R/RW drive and DVD MULTI drive as “CD/DVD drive”
  - Circular media including DVD-ROM and CD-ROM as “discs”
  - “Multilanguage User Interface” as “MUI”

## ■ Disclaimer

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# Read Me First

## Models for Europe

<Only for model with a “CE Ⓞ” mark on the bottom of the computer>

### Declaration of Conformity (DoC)



“Hereby, Panasonic declares that this Personal Computer is in compliance with the essential requirements and other relevant provisions of the Directive 1999/5/EC.”

Hint:

If you want to get a copy of the original DoC of our above mentioned products, please contact our web address: <http://www.doc.panasonic.de>

Authorised Representative:

Panasonic Testing Centre  
Panasonic Marketing Europe GmbH  
Winsbergring 15, 22525 Hamburg, Germany

Network connection of Wired Modem.

The terminal equipment is intended for connection to the following public network;  
In all the countries of European Economical Area and Turkey;  
- Public Switched Telephony Networks

Technical Features of Wired Modem.

The terminal equipment includes the following features;  
- DTMF dialing  
- Maximum bitrate receiving mode: 56 kbit/s  
- Maximum bitrate sending mode: 33.6 kbit/s

Indication of the countries where WLAN is intended to be used:

AT BE BG CH CY CZ DE DK EE ES  
FI FR GB GR HU IE IS IT LT LU  
LV MT NL NO PL PT RO SE SI SK TR

18-25-E-1

<Only for model with a “CE” mark on the bottom of the computer>

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<Only for model with modem>

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The terminal equipment includes the following features;  
- DTMF dialing  
- Maximum bitrate receiving mode: 56 kbit/s  
- Maximum bitrate sending mode: 33.6 kbit/s

18-E-1

# Read Me First

## Models for UK

### Warning

#### This apparatus must be earthed for your safety.

To ensure safe operation the three-pin plug must be inserted only into a standard three-pin power point which is effectively earthed through the normal household wiring.

Extension cords used with the equipment must be three-core and be correctly wired to provide connection to earth. Wrongly wired extension cords are a major cause of fatalities.

The fact that the equipment operates satisfactorily does not imply that the power point is earthed and that the installation is completely safe.

For your safety, if you have any doubt about the effective earthing of the power point, consult a qualified electrician.

### FOR YOUR SAFETY PLEASE READ THE FOLLOWING TEXT CAREFULLY

This appliance is supplied with a moulded three pin mains plug for your safety and convenience. A 3 amp fuse is fitted in this plug.

Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 3 amps and that it is approved by ASTA or BSI to BS 1362.

Check for the ASTA mark  or the BSI mark  on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.

If you lose the fuse cover the plug must not be used until a replacement cover is obtained.

A replacement fuse cover can be purchased from your local Panasonic Dealer.

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.

THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13 AMP SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.


If in any doubt please consult a qualified electrician.

### Warning: THIS APPLIANCE MUST BE EARTHED.

#### Important

The wires in this mains lead are coloured in accordance with the following code:

Green-and-yellow:	Earth
Blue:	Neutral
Brown:	Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows: The wire which is coloured GREEN-and-YELLOW must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol  coloured GREEN or GREEN-and-YELLOW.

The wire which is coloured Blue must be connected to the terminal which is marked with the letter N or coloured BLACK.

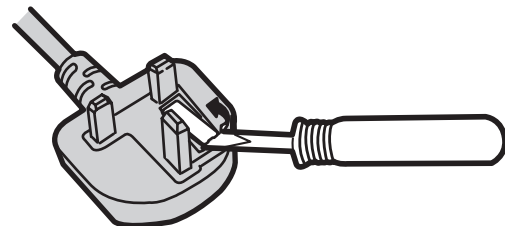
The wire which is coloured Brown must be connected to the terminal which is marked with the letter L or coloured RED.

The mains plug on this equipment must be used to disconnect the mains power.

Please ensure that a socket outlet is available near the equipment and shall be easily accessible.

### ■ How to replace the fuse

Open the fuse compartment with a screwdriver and replace the fuse.



### Warnings

- This equipment is not designed for connection to an IT power system.

(An IT system is a system having no direct connections between live parts and Earth; the exposed-conductive-parts of the electrical installation are earthed.

An IT system is not permitted where the computer is directly connected to public supply systems in the U.K.)

- Disconnect the mains plug from the supply socket when the computer is not in use.

This equipment is produced to BS800/1983.

## Important Safety Instructions

<Only for model with modem>

When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the following:

1. Do not use this product near water, for example, near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.

3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.

SAVE THESE INSTRUCTIONS

19-E-1

## Information to the User

<Only for model with wireless LAN/Bluetooth>

### This product and your Health

This product, like other radio devices, emits radio frequency electromagnetic energy. The level of energy emitted by this product however is far much less than the electromagnetic energy emitted by wireless devices like for example mobile phones. Because this product operates within the guidelines found in radio frequency safety standards and recommendations, we believe this product is safe for use by consumers. These standards and recommendations reflect the consensus of the scientific community and result from deliberations of panels and committees of scientists who continually review and interpret the extensive research literature.

In some situations or environments, the use of this product may be restricted by the proprietor of the building or responsible representatives of the organization. These situations may for example include:

- Using this product on board of airplanes, or
- In any other environment where the risk of interference to other devices or services is perceived or identified as harmful.

If you are uncertain of the policy that applies on the use of wireless devices in a specific organization or environment (e.g. airports), you are encouraged to ask for authorization to use this product prior to turning on the product.

### Regulatory Information

We are not responsible for any radio or television interference caused by unauthorized modification of this product. The correction of interference caused by such unauthorized modification will be the responsibility of the user. We and its authorized resellers or distributors are not liable for damage or violation of government regulations that may arise from failing to comply with these guidelines.

26-M-1

## Lithium Battery

### Lithium Battery!

This computer contains a lithium battery to enable the date, time, and other data to be stored. The battery should only be exchanged by authorized service personnel.

Warning!

A risk of explosion from incorrect installation or misapplication may possibly occur.

15-E-1

## For Used in Motor Vehicle

Warning: Check the following Commission Recommendation to determine proper installation and usage of this product while operating within a motor vehicle.

“Commission Recommendation on safe and efficient in-vehicle information and communication systems: A European statement of principles on human machine interface.”

Commission Recommendation is available from Official Journal of the European Communities.

35-E-1

## Safety Precautions

<Only for model with wireless WAN>

The following safety precautions must be observed during all phases of the operation, usage, service or repair of any Personal Computer or Handheld Computer incorporating wireless WAN modem. Manufacturers of the cellular terminal are advised to convey the following safety information to users and operating personnel and to incorporate these guidelines into all manuals supplied with the product. Failure to comply with these precautions violates safety standards of design, manufacture and intended use of the product. Panasonic assumes no liability for customer failure to comply with these precautions.



When in a hospital or other health care facility, observe the restrictions on the use of mobiles. Switch Personal Computer or Handheld Computer incorporating wireless WAN modem off, if instructed to do so by the guidelines posted in sensitive areas. Medical equipment may be sensitive to RF energy.

The operation of cardiac pacemakers, other implanted medical equipment and hearing aids can be affected by interference from Personal Computer or Handheld Computer incorporating wireless WAN modem placed close to the device. If in doubt about potential danger, contact the physician or the manufacturer of the device to verify that the equipment is properly shielded. Pacemaker patients are advised to keep their Personal Computer or Handheld Computer incorporating wireless WAN modem away from the pacemaker, while it is on.

# Read Me First



Switch off Personal Computer or Handheld Computer incorporating wireless WAN modem before boarding an aircraft. Make sure it cannot be switched on inadvertently. The operation of wireless appliances in an aircraft is forbidden to prevent interference with communications systems. Failure to observe these instructions may lead to the suspension or denial of cellular services to the offender, legal action, or both. For details on usage of this unit in aircrafts please consult and follow instruction provided by the airline.



Do not operate Personal Computer or Handheld Computer incorporating wireless WAN modem in the presence of flammable gases or fumes. Switch off the cellular terminal when you are near petrol stations, fuel depots, chemical plants or where blasting operations are in progress. Operation of any electrical equipment in potentially explosive atmospheres can constitute a safety hazard.



Your Personal Computer or Handheld Computer incorporating wireless WAN modem receives and transmits radio frequency energy while switched on. Remember that interference can occur if it is used close to TV sets, radios, computers or inadequately shielded equipment. Follow any special regulations and always switch off Personal Computer or Handheld Computer incorporating wireless WAN modem wherever forbidden, or when you suspect that it may cause interference or danger.



Road safety comes first! Do not use a Personal Computer or Handheld Computer incorporating wireless WAN modem while driving a vehicle. Do not place the computer with wireless WAN modem in an area where it could cause personal injury to the driver or passengers. It is recommended to stow the unit in the boot or secure stowage area while driving.

Do not place the computer with wireless WAN modem in an area over an air bag or in the vicinity where an air bag may deploy.

Air bags inflate with great force and if the computer with wireless WAN modem is placed in the air bag deployment area may be propelled with great force and cause serious injury to occupants of the vehicle.



SOS

## IMPORTANT!

Personal Computer or Handheld Computer incorporating wireless WAN modem operate using radio signals and cellular networks cannot be guaranteed to connect in all conditions. Therefore, you should never rely solely upon any wireless device for essential communications, for example emergency calls.

Remember, in order to make or receive calls, Personal Computer or Handheld Computer incorporating wireless WAN modem must be switched on and in a service area with adequate cellular signal strength.

Some networks do not allow for emergency calls if certain network services or phone features are in use (e.g. lock functions, fixed dialing etc.). You may need to deactivate those features before you can make an emergency call.

Some networks require that a valid SIM card be properly inserted in Personal Computer or Handheld Computer incorporating wireless WAN modem.

27-1-2

## When using Port Replicator or Car Mounter on which an external antenna can be installed:

- External antenna for wireless LAN must be professionally installed.
- The gain of external antenna for wireless LAN must not exceed 5dBi.
- The user must maintain minimum of 20 cm spacing between the external antenna and all people (excluding extremities of hands, wrist and feet) during wireless modes of operation.

41-E-1-1

## CD/DVD Drive Caution

### CAUTION!

THIS PRODUCT UTILIZES A LASER.

USE OF CONTROLS, ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

DO NOT OPEN COVERS AND DO NOT REPAIR YOURSELF.

REFER SERVICING TO QUALIFIED PERSONNEL.

12-E-1

Laser safety information is appropriate only when drive with laser is installed.

12-M-2-1

## Precautions

THIS PRODUCT IS NOT INTENDED FOR USE AS, OR AS PART OF, NUCLEAR EQUIPMENT/SYSTEMS, AIR TRAFFIC CONTROL EQUIPMENT/SYSTEMS, AIRCRAFT COCKPIT EQUIPMENT/SYSTEMS<sup>1</sup>, MEDICAL DEVICES OR ACCESSORIES<sup>2</sup>, LIFE SUPPORT SYSTEMS OR OTHER EQUIPMENTS/DEVICES/SYSTEMS THAT ARE INVOLVED WITH ENSURING HUMAN LIFE OR SAFETY. PANASONIC WILL NOT BE RESPONSIBLE FOR ANY LIABILITY RESULTING FROM THE USE OF THIS PRODUCT ARISING OUT OF THE FOREGOING USES.

<sup>1</sup> AIRCRAFT COCKPIT EQUIPMENT/SYSTEMS include Class2 Electrical Flight Bag (EFB) Systems and Class1 EFB Systems when used during critical phases of flight (e.g., during take-off and landing) and/or mounted on to the aircraft. Class1 EFB Systems and 2 EFB Systems are defined by FAA: AC (Advisory Circular) 120-76A or JAA: JAA TGL (Temporary Guidance Leaflets) No.36.

<sup>2</sup> As defined by the European Medical Device Directive (MDD) 93/42/EEC.

Panasonic cannot guarantee any specifications, technologies, reliability, safety (e.g. Flammability/Smoke/Toxicity/Radio Frequency Emission, etc) requirements related to aviation standards and medical equipment standards that differ from the specifications of our COTS (Commercial-Off-The-Shelf) products.

This computer is not intended for use in medical equipment including life-support systems, air traffic control systems, or other equipment, devices or systems that are involved with ensuring human life or safety. Panasonic cannot be held responsible in any way for any damages or loss resulting from the use of this unit in these types of equipment, devices or systems, etc.

The CF-31 was developed based on thorough research into the real-world portable computing environments. Exhaustive pursuit of usability and reliability under harsh conditions led to innovations such as the magnesium alloy exterior, vibration damped hard disk drive and floppy disk drive, flexible internal connections. The CF-31's outstanding engineering has been tested using the strict MIL-STD- 810F (for vibration and shock) and IP (for dust and water) based procedures.

As with any portable computer device precautions should be taken to avoid any damage. The following usage and handling procedures are recommended.

Before putting the computer away, be sure to wipe off any moisture.

### If a Malfunction or Trouble Occurs, Immediately Stop Use

#### If a Malfunction Occurs, Immediately Unplug the AC Plug and the Battery Pack

- This product is damaged
- Foreign object inside this product
- Smoke emitted
- Unusual smell emitted
- Unusually hot

Continuing to use this product while any of the above conditions are present may result in fire or electric shock.

- If a malfunction or trouble occurs, immediately unplug the AC plug and remove the unit from this product. Then, contact your technical support office for repair.

#### Do Not Touch This Product and Cable When It Starts Thundering

Electric shock may result.

#### Do Not Connect the AC Adaptor to a Power Source Other Than a Standard Household AC Outlet

Otherwise, a fire due to overheating may result. Connecting to a DC/AC converter (inverter) may damage the AC adaptor. On an airplane, only connect the AC adaptor/charger to an AC outlet specifically approved for such use.

#### Do Not Do Anything That May Damage the AC Cord, the AC Plug, or the AC Adaptor

Do not damage or modify the cord, place it near hot tools, bend, twist, or pull it forcefully, place heavy objects on it, or bundle it tightly.

Continuing to use a damaged cord may result in fire, short circuit, or electric shock.

#### Do Not Pull or Insert the AC Plug If Your Hands Are Wet

Electric shock may result.

#### Clean Dust and Other Debris of the AC Plug Regularly

If dust or other debris accumulates on the plug, humidity, etc.

may cause a defect in the insulation, which may result in a fire.

- Pull the plug, and wipe it with a dry cloth.

Pull the plug if the computer is not being used for a long period of time.

#### Insert the AC Plug Completely

If the plug is not inserted completely, fire due to overheating or electric shock may result.

- Do not use a damaged plug or loose AC outlet.

#### Close the Connector Cover Tightly When Using This Product Where Is a Lot of Water, Moisture, Steam, Dust, Oily Vapors, etc.

The entry of foreign matter may cause a fire or electric shocks.

- If foreign matter has found its way inside, immediately turn the power off and unplug the AC cord, and then remove the battery pack. Then contact your technical support office.

#### Do Not Disassemble This Product

The high-voltage areas inside may give you an electric shock, or foreign matter may enter and result in a fire.

#### Keep SD Memory Cards Away from Infants and Small Children

Accidental swallowing will result in bodily injury.

- In the event of accidental swallowing, see a doctor immediately.

#### Do Not Place This Product on Unstable Surface

If balance is lost, this product may fall over or drop, resulting in an injury.

#### Avoid Stacking

If balance is lost, this product may fall over or drop, resulting in an injury.

#### Do Not Leave This Product in High Temperature Environment for a Long Period of Time

Leaving this product where it will be exposed to extremely high temperatures such as near fire or in direct sunlight may deform the cabinet and/or cause trouble in the internal parts. Continued use in such a resulting condition may lead to short-circuiting or insulation defects, etc. which may in turn lead to a fire or electric shocks.

#### Do Not Block the Ventilation Hole

Otherwise, heat will build up inside, possibly resulting in a fire.

#### Hold the Plug When Unplugging the AC Plug

Pulling on the cord may damage the cord, resulting in a fire or electric shock.

#### Do Not Move This Product While the AC Plug Is Connected

The AC cord may be damaged, resulting in fire or electric shock.

- If the AC cord is damaged, unplug the AC plug immediately.

#### Use Only the Specified AC Adaptor With This Product

Using an AC adaptor other than the one supplied (supplied with the unit or one sold separately as an accessory) may result in a fire.

#### Do Not Subject the AC Adaptor to Any Strong Impact

Using the AC adaptor after a strong impact such as being dropped may result in electric shock, short circuit, or fire.

# Read Me First

## Take a Break of 10-15 Minutes Every Hour

Using this product for long periods of time may have detrimental health effects on the eyes or hands.

## Do Not Turn the Volume Up To Loud When Using Headphones

Listening at high volumes that overstimulate the ear for long periods of time may result in loss of hearing.

## Do Not Connect a Telephone Line, or a Network Cable Other Than the One Specified, into the LAN Port

If the LAN port is connected to a network such as the ones listed right, a fire or electric shock may result.

- Networks other than 1000BASE-T, 100BASE-TX, or 10BASE-T
- Phone lines (IP phone (Internet Protocol Telephone), Telephone lines, internal phone lines (on-premise switches), digital public phones, etc.)

## Do Not Use With Exposing the Skin To This Product For a Long Period of Time

Using this product with exposing the skin to the heat source of this product or AC adaptor for a long period of time can cause a low-temperature burn.

<Only for model with modem>

## Use the Modem with a Regular Telephone Line

Connection to an internal phone line (on-premise switches) of a company or business office, etc. or to a digital public phone or use in a country or area not supported by the computer may result in a fire or electric shocks.

- Do not place the computer near a television or radio receiver.
- Keep the computer away from magnets. Data stored on the hard disk may be lost.

### Interface Cable

Use of an interface cable longer than 3 m (9.84 feet) is not recommended.

11-E-1



## Precautions (Battery Pack)

### Do Not Use With Any Other Product

The battery pack is rechargeable and was intended for the specified product. If it is used with a product other than the one for which it was designed, electrolyte leakage, generation of heat, ignition or rupture may result.

### Do Not Charge the Battery Using Methods Other Than Those Specified

If the battery is not charged using one of the specified methods, electrolyte leakage, generation of heat, ignition or rupture may result.

### Do Not Throw the Battery Pack Into a Fire or Expose It to Excessive Heat

Generation of heat, ignition or rupture may result.

### Avoid Extreme Heat (Near the Fire, In Direct Sunlight, for Example)

Electrolyte leakage, generation of heat, ignition or rupture may result.

### Do Not Insert Sharp Objects Into the Battery Pack, Expose It to Bumps or Shocks, Disassemble, or Modify It

Electrolyte leakage, generation of heat, ignition or rupture may result.

- If this product is subjected to a strong impact, stop using it immediately.

### Do Not Short the Positive (+) and Negative (-) Contacts

Generation of heat, ignition or rupture may result.

- Do not place the battery pack together with articles such as necklaces or hairpins when carrying or storing.

### Do Not Use This Product with a Battery Pack Other Than the One Specified

Use only the specified battery pack (→ page 13) with your product. Use of battery packs other than those manufactured and supplied by Panasonic may present a safety hazard (generation of heat, ignition or rupture).

### When the battery pack has become degraded, replace it with a new one

Continued use of a damaged battery pack may result in heat generation, ignition or battery rupture.

- Do not touch the terminals on the battery pack. The battery pack may no longer function properly if the contacts are dirty or damaged.
- Do not expose the battery pack to water, or allow it to become wet.
- If the battery pack will not be used for a long period of time (a month or more), charge or discharge (use) the battery pack until the remaining battery level becomes 30% to 40% and store it in a cool, dry place.
- This computer prevents overcharging of the battery by recharging only when the remaining power is less than approx. 95% of capacity.
- The battery pack is not charged when the computer is first purchased. Be sure to charge it before using it for the first time. When the AC adaptor is connected to the computer, charging begins automatically.
- Should the battery leak and the fluid get into your eyes, do not rub your eyes. Immediately flush your eyes with clear water and see a doctor for medical treatment as soon as possible.



#### CAUTION:

Risk of Explosion if Battery is replaced by an Incorrect Type.

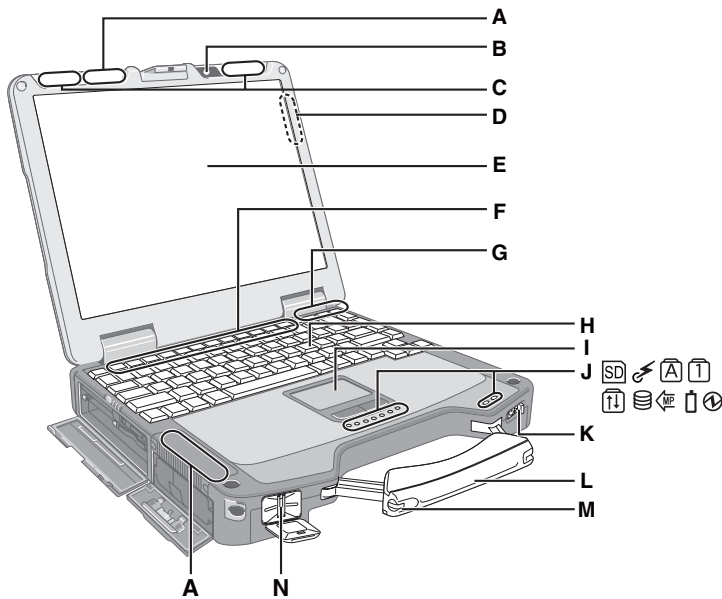
Dispose of Used Batteries According to the Instructions.

58-E-1

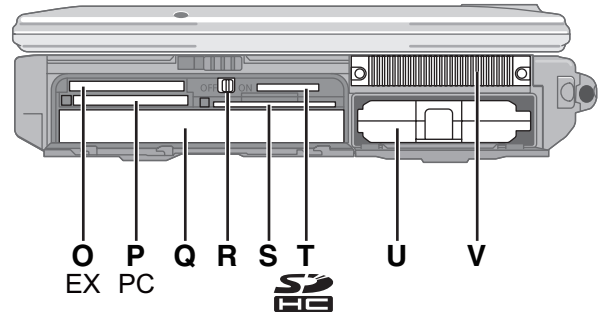
#### NOTE

- The battery pack may become warm during recharging or normal use. This is completely normal.
- Recharging will not commence if internal temperature of the battery pack is outside of the allowable temperature range (0 °C to 50 °C).  
(→  *Reference Manual* “Battery Power”) Once the allowable range requirement is satisfied, charging begins automatically. Note that the recharging time varies based on the usage conditions. (Recharging takes longer than usual when the temperature is 10 °C or below.)
- If the temperature is low, the operating time is shortened. Only use the computer within the allowable temperature range.
- This computer has a high temperature mode function that prevents the degradation of the battery in high temperature environments. (→  *Reference Manual* “Battery Power”) A level corresponding to a 100% charge for high temperature mode is approximately equivalent to an 80% charge level for normal temperature mode.
- The battery pack is a consumable item. If the amount of time the computer can be run by using a particular battery pack becomes dramatically shorter and repeated recharging does not restore its performance, the battery pack should be replaced with a new one.
- When transporting a spare battery inside a package, briefcase, etc., it is recommended that it be placed in a plastic bag so that its contacts are protected.
- Always power off the computer when it is not in use. Leaving the computer on when the AC adaptor is not connected will exhaust the remaining battery capacity.

# Description of Parts



## Left side



### A: Wireless LAN Antenna

<Only for model with wireless LAN>  
 → *Reference Manual* "Wireless LAN"

### B: Web Camera

<Only for model with Web Camera>  
 To use the Web Camera, the software corresponding to the web camera is needed.

### C: Wireless WAN Antenna

<Only for model with wireless WAN>

### D: GPS Antenna (Rear side)

<Only for model with GPS>

### E: LCD/Touchscreen

→ *Reference Manual* "Touchscreen" (Only for model with touchscreen)

### F: Function Key

→ *Reference Manual* "Key Combinations"

### G: Bluetooth Antenna

<Only for model with Bluetooth>  
 → *Reference Manual* "Bluetooth"

### H: Keyboard

### I: Touch Pad

### J: LED Indicator

: SD Memory Card Indicator  
 (Blinking: During access)  
 → *Reference Manual* "SD Memory Card"

: Wireless ready  
 This indicator lights when Wireless LAN, Bluetooth, and/or Wireless WAN are connected and ready. It does not necessarily indicate the On/Off condition of the wireless connection.  
 → *Reference Manual* "Wireless LAN", "Bluetooth", "Disabling/Enabling Wireless Communication"

: Caps lock

: Numeric key (NumLk)

: Scroll lock (ScrLk)

: Hard disk drive status

: Power status of the multimedia pocket

: Battery status

→ *Reference Manual* "Battery Power"

: Power status

(Off: Power off/Hibernation, Green: Power on, Blinking green: Sleep (**Windows 7**)/Standby (**Windows XP**), Blinking green rapidly: Cannot power on or resume due to low temperature.)

### K: Power Switch

### L: Carrying Handle

### M: Stylus Holder

### N: Fingerprint Reader

<Only for model with Fingerprint Reader>  
 → *Reference Manual* "Fingerprint Reader"

### O: ExpressCard Slot

→ *Reference Manual* "PC Card / ExpressCard"

### P: PC Card Slot

→ *Reference Manual* "PC Card / ExpressCard"

### Q: Multimedia Pocket

→ *Reference Manual* "Multimedia Pocket"

### R: Wireless Switch

→ *Reference Manual* "Disabling/Enabling Wireless Communication"

### S: Smart Card Slot

<Only for model with Smart Card slot>  
 → *Reference Manual* "Smart Card"

### T: SD Memory Card Slot

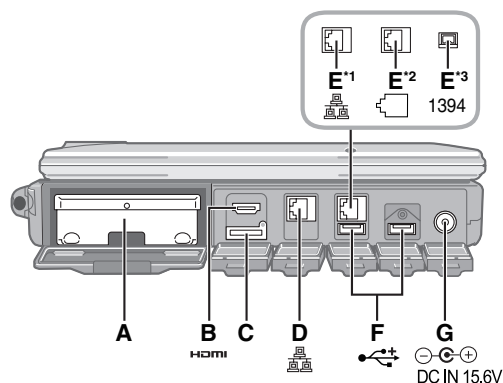
→ *Reference Manual* "SD Memory Card"

### U: Battery Pack

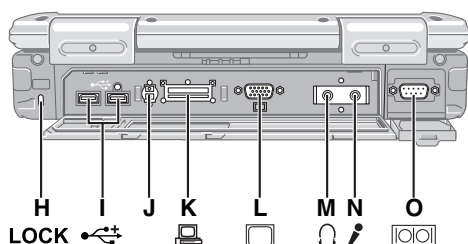
Specified Battery pack: CF-VZSU46AU/CF-VZSU65U

### V: Ventilation Hole (Exhaust)

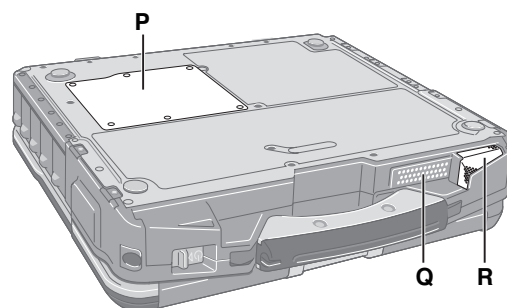
## Right side



## Rear side



## Bottom



### A: Hard Disk Drive

→ Reference Manual "Hard Disk Drive"

### B: HDMI Port

→ Reference Manual "External Display"

### C: SIM Card Slot

<Only for model with wireless WAN>

Insert the SIM card into the SIM card slot with the contact side facing downward and with the cut corner oriented.

### D: LAN Port

→ Reference Manual "LAN"

### E: 2nd LAN Port<sup>1</sup> / Modem Port<sup>2</sup> / IEEE 1394 Interface Connector<sup>3</sup>

<sup>1</sup> <Only for model with 2nd LAN>

→ Reference Manual "LAN"

<sup>2</sup> <Only for model with Modem>

→ Reference Manual "Modem"

<sup>3</sup> <Only for model with IEEE 1394>

→ Reference Manual "IEEE 1394 Devices"

### F: USB Port

→ Reference Manual "USB Devices"

### G: DC-IN Jack

### H: Security Lock

A Kensington cable can be connected.

For further information, read the manual that comes with the cable.

### I: USB Port

→ Reference Manual "USB Devices"

### J: External Antenna Connector

### K: Expansion Bus Connector

→ Reference Manual "Port Replicator / Car Mounter"

### L: External Display Port

→ Reference Manual "External Display"

### M: Headphone Jack

You can connect headphones or amplified speakers.

When they are connected, audio from the internal speakers is not heard.

### N: Microphone Jack

A condenser microphone can be used. If other types of microphones are used, audio input may not be possible, or malfunctions may occur as a result. Before recording, adjust to an appropriate volume.

- When recording in stereo using a stereo microphone:

#### Windows 7

Click (Start) - [Control Panel] - [Hardware and Sound] - [Sound] - [Recording] - [Microphone] - [Properties], and then remove a check mark of [Enable Audio Enhancements] in [Advanced].

#### Windows XP

Click [start] - [Control Panel] - [Sound, Speech, and Audio Device] - [SmartAudio] - and then select neither [Voice Recording] nor [Voice Over IP].

- When using a monaural microphone with a 2-terminal plug:

#### Windows 7

Click (Start) - [Control Panel] - [Hardware and Sound] - [Sound] - [Recording] - [Microphone] - [Properties], and then add a check mark for [Enable Audio Enhancements] in [Advanced]. Otherwise, only audio on the left track will be recorded.

#### Windows XP

Click [start] - [Control Panel] - [Sound, Speech, and Audio Device] - [SmartAudio] - and then select [Voice Recording].

Otherwise, only audio on the left track will be recorded.

### O: Serial Port

### P: RAM Module Slot

→ Reference Manual "RAM Module"

### Q: Speaker

→ Reference Manual "Key Combinations"

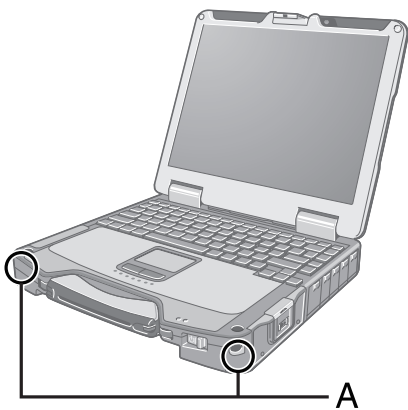
### R: Ventilation Hole (Intake)

# Description of Parts

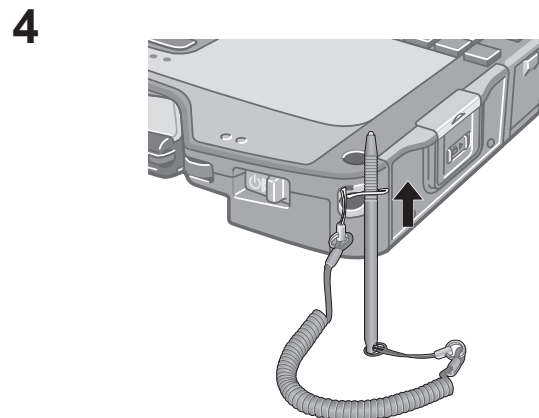
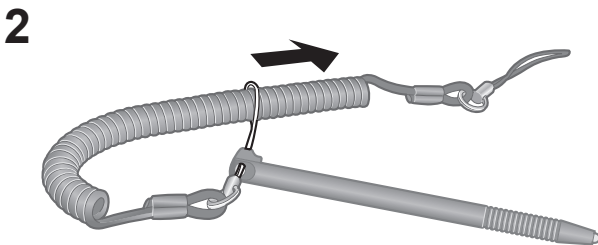
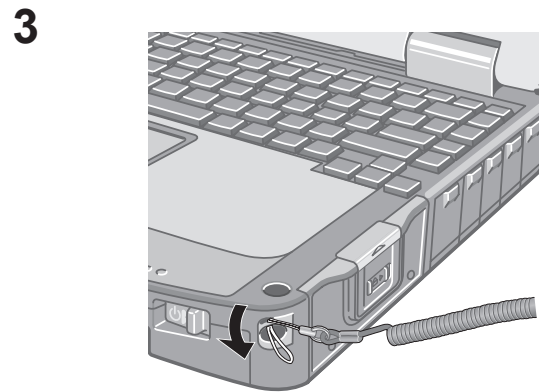
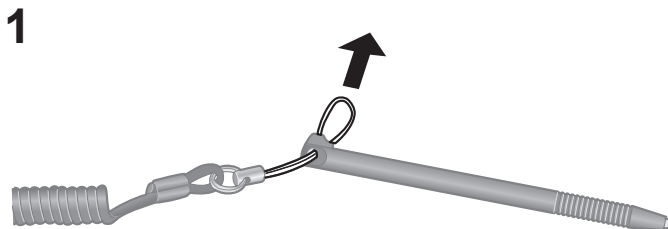
- This computer contains a magnet and magnetic products at the locations circled in the illustration at right. Avoid leaving metallic object or magnetic media in contact with these areas.



## Attaching the stylus to the computer (only for model with touchscreen)



Use the tether to attach the stylus to the computer so you will not lose it. There are holes (A) to attach it.



### CAUTION

- Do not pull the tether with excessive force. The stylus may hit the computer, person's body or other objects when released.

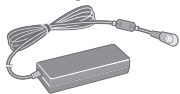
# First-time Operation

## ■ Preparation

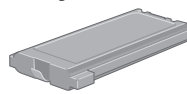
① Check and identify the supplied accessories.

If you do not find the described accessories, contact Panasonic Technical Support.

- AC Adaptor. . . . . 1
- AC Cord . . . . . 1
- Battery Pack . . . . . 1



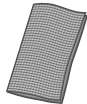
Model No: CF-AA5713A



Model No: CF-VZSU46AU or CF-VZSU65U  
(Refer to “Specifications” (→ page 31).)

<Only for model with touchscreen>

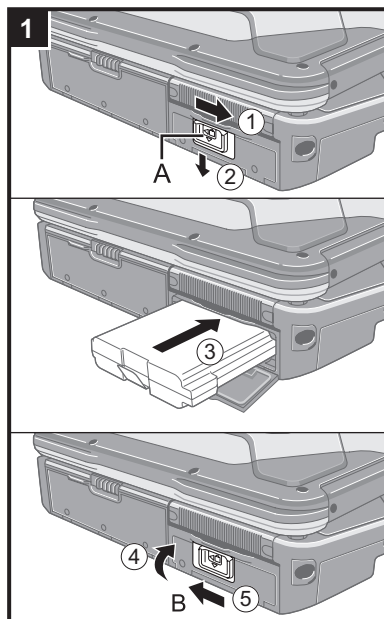
- Soft Cloth . . . . . 1
- Tether . . . . . 1
- Stylus . . . . . 1



(→ Reference Manual “Touchscreen”)

- Operating Instructions (This book) . . . . . 1
- Product Recovery DVD-ROM Windows® 7 Professional  
  <For localized OS model> . . . . . 1
- <For MUI OS model> . . . . . 2
- Product Recovery DVD-ROM Windows® XP Professional. . . . . 1

② Read the LIMITED USE LICENSE AGREEMENT before breaking the seal on the computer’s packaging (→ page 29).



### 1 Inserting the Battery Pack

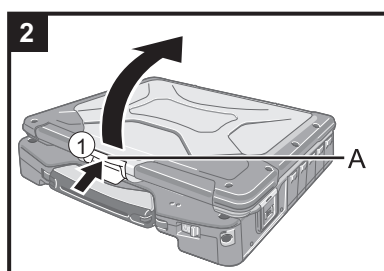
- ① Slide the latch (A) to the right to unlock the cover.
- ② Slide the latch (A) down, and open the cover.
- ③ Insert the battery pack until it securely fits the connector.
- ④ Close the cover until it clicks.
- ⑤ Slide the latch (B) to the left to lock the cover.

#### CAUTION

- Make sure the latch is securely locked. Otherwise the battery pack may fall when you carry the computer.
- Do not touch the terminals of the battery pack and the computer. Doing so can make the terminals dirty or damaged, and may cause malfunction of the battery pack and the computer.

#### NOTE

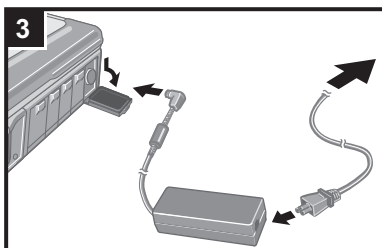
- Note that the computer consumes electricity even when the computer power is off. If the battery pack is fully charged, the battery will fully discharge in the following period of time:
    - When power is off: Approx. 4 weeks (with CF-VZSU46AU) / Approx. 3 weeks (with CF-VZSU65U)
    - In sleep (**Windows 7**)/standby (**Windows XP**): Approx. 3 days<sup>\*1</sup> (with CF-VZSU46AU) / Approx. 2 days<sup>\*1</sup> (with CF-VZSU65U)
    - In hibernation: Approx. 6 days<sup>\*1</sup> (with CF-VZSU46AU) / Approx. 4 days<sup>\*1</sup> (with CF-VZSU65U)
- <sup>\*1</sup> If “Wake Up from wired LAN” is disabled, the period of time will be longer.



### 2 Opening the Display

- ① Push and hold the latch (A), and lift open the display.

# First-time Operation

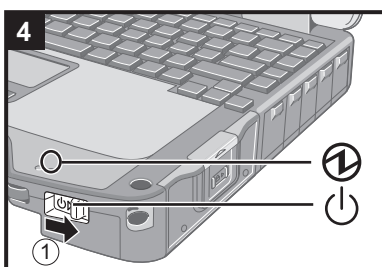


### 3 Connect your computer to a power outlet.



The battery charging starts automatically.

#### CAUTION


- Do not disconnect the AC adaptor and do not switch the wireless switch to on until the first-time operation procedure is completed.
- When using the computer for the first time, do not connect any peripheral device except the battery pack and AC adaptor.
- **Handling the AC adaptor**
  - Problems such as sudden voltage drops may arise during periods of thunder and lightning. Since this could adversely affect your computer, an uninterruptible power source (UPS) is highly recommended unless running from the battery pack alone.



### 4 Turn on the computer.


- ① Slide and hold the power switch  for approximately 1 second until the power indicator  lights.

#### CAUTION

- Do not slide the power switch repeatedly.
- The computer will forcibly be turned off if you slide and hold the power switch for 4 seconds or longer.
- Once you turn off the computer, wait for 10 seconds or more before you turn on the computer again.
- Do not perform the following operation until the hard disk drive indicator  turns off.
  - Connecting or disconnecting the AC adaptor
  - Sliding the power switch
  - Touching the keyboard, touch pad or touchscreen (only for model with touchscreen)
  - Closing the display
  - Turn on/off the wireless switch
- When the CPU temperature is high, the computer may not start up to prevent overheating of the CPU. Wait until the computer cools down, and then turn the power on again. If the computer does not power on even after cooling down, contact Panasonic Technical Support.
- Any changes from the default setting of the Setup Utility must not be made until the First-time Operation is completed.

### 5 Setup Windows.

Follow the on-screen instructions.

- The computer restarts several times. Do not touch the keyboard or touch pad, and wait until the hard disk drive indicator  has turned off.
- During setup of Windows, use the touch pad and clicking to move the cursor and to click an item.

#### Windows 7

- After the computer is turned on, the screen remains black or unchanged for a while. This is not a malfunction. Wait for a moment until the Windows setup screen appears.
- Setup of Windows will take approximately 20 minutes.  
Go to the next step, confirming each message on the display.
- “Join a wireless network” screen may not appear.  
You can set the Wireless Network after the setup of Windows is complete.  
<For MUI OS model>


#### Windows 7

- Select language on “Setup Windows” screen and click [Next].
- Carefully choose your language because you cannot change it later. If you set a wrong language, you need to reinstall Windows (→ page 22).

#### Windows XP

- For some languages, the characters on the key and inputted character may not match. Set the keyboard properly after the setup is complete. Then set the password.

**CAUTION**

- You can change the user name, password, image and security setting after setup of Windows.
- Remember your password. If you forget the password, you cannot use the Windows. Creating a password reset disk beforehand is recommended.
- Wait until the hard disk drive indicator  has turned off.

**Windows 7**

- Do not use the following words for user name: CON, PRN, AUX, CLOCK\$, NUL, COM1 to COM9, LPT1 to LPT9, @. In particular, if you create a user name (account name) that includes the "@" mark, a password will be requested at the log-on screen, even if no password has been set. If you try to log on without entering a password, "The user name or password is incorrect." may be displayed and you will not be able to log on to Windows (→ page 26).
- The wallpaper for the first logon user has already been preset on "5 Setup Windows.". When using this computer under the Sun, the screen becomes easily viewable by changing the wallpaper to the white wallpaper.
  - ① Right-click on the desktop, and click [Personalize] - [Desktop Background].
  - ② Select [Solid Colors] at [Picture Location].
  - ③ Select the white wallpaper and click [Save changes].

<For MUI OS model>

- When setting up the keyboard, choose the appropriate one to your computer. Otherwise, input by the keyboard may become unavailable.

**Windows XP**

- You cannot choose the following words for user name and password: CON, PRN, AUX, CLOCK\$, NUL, COM1 to COM9, LPT1 to LPT9.
- When you set date/time/time zone and click [Next], the screen may not go to the next step for a few minutes. Do not touch the keyboard or touch pad, and wait until the screen changes.
- If "An unexpected error has occurred ..." (or a similar message) is displayed, click [OK]. This is not a malfunction.

<For MUI OS model>

- The keyboard will operate as the US keyboard until the keyboard setting is changed. Because of this, some alphabets shown on display may differ from inputted ones.
 


To avoid the accidental selections, during setting up Windows,

  - Use the touch pad to make some selections.
  - Press the NumLock key and input in the Ten-key mode to input numbers.
- To match the languages, change the language settings after setting up Windows (→ page 16). Do not change the settings in [To change system or these settings, click Customize] of [Regional and Language Options] during setting up Windows.

## 6 <For MUI OS model> Install Adobe Reader.

Install Adobe Reader to read the Important Tips and the Reference Manual.

**Windows 7**

- ① Click  (Start) and input the following in [Search programs and files], then press **Enter**.

**Windows XP**

- ① Click [start] - [Run], input the following, then click [OK].

[c:\util\reader\\*\*\setup.exe]

- "\*\*" depends on the language.

English : m	Arabic : ar	Bulgarian : bg	Chinese (Simplified) : sc
Chinese (Traditional) : tc	Croatian : yx	Czech : cs	Danish : da
Dutch : nl	Estonian : et	Finnish : fi	French : f
German : g	Greek : el	Hebrew : he	Hungarian : hu
Italian : t	Japanese : ja	Korean : ko	Latvian : lv
Lithuanian : lt	Norwegian : no	Polish : pl	Portuguese : pt
Romanian : ro	Russian : ru	Slovak : sk	Slovenian : sl
Spanish : p	Swedish : s	Turkish : tr	

**Windows 7** Ukrainian :uk

## Windows XP

### 7 <For MUI OS model> Change the language settings.

<Languages installed in this computer>

·English	·Arabic	·Bulgarian	·Chinese (Simplified)	·Dutch
·Chinese (Traditional)	·Croatian	·Czech	·Danish	·Hebrew
·Estonian	·Finnish	·French	·German	·Greek
·Hungarian	·Italian	·Japanese	·Korean	·Latvian
·Norwegian	·Polish	·Portuguese	·Portuguese (Brazilian)	·Lithuanian
·Russian	·Slovak	·Slovenian	·Spanish	·Romanian
·Turkish			·Swedish	·Thai

Change the language settings in the following menu.

[start] - [Control Panel] - [Date, Time, Language, and Regional Options] - [Regional and Language Options]

- [Regional Options] - [Standards and Formats]
- [Languages] - [Language used in menus and dialogs]
- [Languages] - [Details] - [Default input language]
- [Advanced] - [Language for non-unicode Programs]

#### NOTE

- When you use MUI OS and localized OS versions together on the same network, use English computer names on localized versions of Windows.
- Some UI (User Interface) strings remain in English even if the user's UI is set to another language.  
For further information, refer to "c:\windows\mui\relnotes.txt".
- If you change the language in [Languages] - [Language used in menus and dialogs], the desktop color will be changed when logging on to Windows next time. The desktop color can be changed by following the procedure below.  
Click [start] - [Control Panel] - [Appearance and Themes] - [Display] - [Desktop] and select color from [Color], then click [OK].


### 8 <Only for model with touchscreen> Perform the touchscreen calibration.

#### Windows 7

- Before performing the calibration, close Tablet PC Input Panel.


#### NOTE

- At first, log on to Windows as an administrator, and perform this calibration.

- ① Click  (Start) - [Control Panel] - [Hardware and Sound] - [Tablet PC Setting].
- ② Click [Calibrate].
- ③ Using the stylus, touch each of the "+" target marks one by one, and then click [Yes].
- ④ Click [OK].

#### NOTE

- Perform the following calibration for each user.

- ① Click  (Start) - [Control Panel] - [Hardware and Sound] - [Tablet PC Setting].
  - ② Click [Calibrate].
  - ③ Using the stylus, touch each of the "+" target marks one by one, and then click [Yes].
  - ④ Click [OK].
- Perform the calibration for the orientation to be used.



**Windows XP**

- ① Click [start] - [All Programs] - [Fujitsu Touch Panel (USB)] - [Touch Screen Calibration Utility].
- ② Using the stylus, touch each of the 12 “+” target marks one by one until it blinks, and then press **Enter**.
- ③ Press **Enter**.

**Windows XP****9 Create a new account.**

Click [start] - [Control Panel] - [User Accounts] - [Create a new account].

**CAUTION**


- Remember your password. If you forget the password, you cannot use the Windows operating system. Creating a password reset disk beforehand is recommended.

**NOTE**● **PC Information Viewer**

This computer periodically records the management information of the hard disk, etc. The maximum data volume for each record is 1024 bytes.

This information is only used for estimating the cause when the hard disk goes down by any possibility. They are never sent to outside via network nor used for any other purpose except for the purpose described the above.

To disable the function, add the check mark for [Disable the automatic save function for management information history] in [Hard Disk Status] of PC Information Viewer, and click [OK].

(→  Reference Manual “Checking the Computer’s Usage Status”)

■ **Precaution against Starting Up/Shutting Down**

- Do not do the following
  - Connecting or disconnecting the AC adaptor
  - Sliding the power switch
  - Touching the keyboard, touch pad, touchscreen (only for model with touchscreen), or external mouse
  - Closing the display
  - Turn on/off the wireless switch

**NOTE**

- To conserve power, the following power saving methods are set at the time of purchase.
  - The screen automatically turns off after 15 minutes of inactivity.
  - The computer automatically enters sleep<sup>2</sup>(**Windows 7**)/standby<sup>2</sup>(**Windows XP**) after 20 minutes of inactivity.

<sup>2</sup> Refer to  Reference Manual “Sleep or Hibernation Functions” about resuming from sleep.

**Windows 7**■ **Note about access to the hard disk**


<For MUI OS model>

Languages other than the one selected at Windows Setup are uninstalled in the background while the computer stays idle.

During this period of time, the following issues may occur. These are caused by the specifications of Windows 7 and are not a malfunction.

- The uninstall process may continue for approximately 3 hours, during which time the computer may become unresponsive due to a continuous access to the hard disk, etc. You can restart or shutdown the computer during the process.
- The message “Configuring Windows features, preparing to configure Windows” may appear for up to about 20 minutes when shutting down or starting up the computer (including restart). Wait for the computer to shut down or start up normally.

Once the message is no longer displayed, follow the steps below to delete all but the most recent restore point. If you do not delete the restore points, the system files for languages other than the one selected will remain on the disk as backup data for the restore points, and the operation of the computer may become unresponsive.


- ① Click  (Start). And input “cleanmgr.exe” in [Search programs and files], and then, in the list of results, click [cleanmgr.exe].

# First-time Operation

- ② After a while, the “Disk Clean up for” setting screen appears.  
Click [Clean up system files] - [More Options] - [System Restore and Shadow Copies] - [Clean up] - [Delete] - [OK] - [Delete Files].
- ③ Restart the computer.

## ■ To change the partition structure

You can shrink a part of an existing partition to create unallocated disk space, from which you can create a new partition. This computer has a single partition as default setting.

- ① Click  (Start) and right-click [Computer], then click [Manage].
  - A standard user needs to enter an administrator password.
- ② Click [Disk Management].
- ③ Right-click the partition for Windows (“c” drive in the default setting), and click [Shrink Volume].
  - The partition size depends on the computer specifications.
- ④ Input the size in [Enter the amount of space to shrink in MB] and click [Shrink].
  - You cannot input a larger number than the displayed size.
  - To select [Reinstall to the first 2 partitions.] in reinstalling Windows 7 (→ page 22), 30000 MB<sup>\*3</sup> or more is necessary for [Total size after shrink in MB].
- ⑤ Right-click [Unallocated] (the shrunk space in the step ④) and click [New Simple Volume].
- ⑥ Follow the on-screen instructions to make the settings, and click [Finish].  
Wait until formatting is completed.

<sup>\*3</sup> For MUI OS model, 60000 MB or more is necessary.

### NOTE

- You can create an additional partition using remaining unallocated space or newly creating unallocated space.
- To delete a partition, right-click the partition and click [Delete Volume] in the step ③.

# On-screen Manual

You can access the Reference Manual and the Important Tips on the computer screen.

When you access the Reference Manual and the Important Tips for the first time, the License Agreement of the Adobe Reader may be displayed. Read it carefully and select [Accept] to proceed.

## ■ Reference Manual

The Reference Manual contains the practical information to help you fully enjoy the computer's performance.

### To access the Reference Manual:

**Windows 7** Double-click  on the desktop.

- Alternatively click  (Start) - [All Programs] - [Panasonic] - [On-Line Manuals] - [Reference Manual].

**Windows XP** Click [start] - [Reference Manual].

- Alternatively click [start] - [All Programs] - [Panasonic] - [On-Line Manuals] - [Reference Manual].

### NOTE

#### Windows 7

The Windows files included in the Windows 7 DVD-ROM are contained in the following folders:

#### <For localized OS model>

c:\windows\support\migwiz, c:\windows\support\tools, c:\windows\support\logging

#### <For MUI OS model>

- Some languages are not available depending on the model.

c:\windows\support\\*\*\migwiz, c:\windows\support\\*\*\tools, c:\windows\support\\*\*\logging

- “\*\*” depends on the language.


English : en	Dutch : nl	Finnish : fi	French : fr	German : de	Italian : it	Norwegian : no
Russian : ru	Spanish : es	Swedish : sv	Turkish : tr	Arabic : ar	Bulgarian : bg	
Chinese-Hong Kong : b3	Chinese-Simplified : xt	Chinese-Traditional : zh	Croatian : yx			
Czech : cs	Danish : da	Estonian : et	Greek : el	Hebrew : iw	Hungarian : hu	Japanese : ja
Korean : ko	Latvian : lv	Lithuanian : lt	Polish : pl	Portuguese : pt	Portuguese (Brazilian) : xc	
Romanian : ro	Serbian : st	Slovak : sk	Slovenian : sl	Thai : th	Ukrainian : uk	

## ■ Important Tips

The Important Tips will provide you with the battery information so that you can use the battery pack in the optimum condition to obtain longer operation time.

### To access the Important Tips:

**Windows 7** Double-click  on the desktop.

- Alternatively click  (Start) - [All Programs] - [Panasonic] - [On-Line Manuals] - [Important Tips].


**Windows XP** Double-click  on the desktop.

- Alternatively click [start] - [All Programs] - [Panasonic] - [On-Line Manuals] - [Important Tips].

### NOTE

- When Adobe Reader update notice is displayed, we recommend you follow the on-screen procedure and update. See <http://www.adobe.com/> for the latest version of Adobe Reader.

- <For model with Discrete Video Controller>

The factory preset of the Setup Utility has been changed. Refer to the following list instead of the one in  *Reference Manual* “Setup Utility”.

Underlined item is the factory preset.

Switchable Graphics	Switchable Power Saving Video <u>Performance Video</u>
---------------------	--

### CAUTION

- Do not remove a check mark for [IntelliMouse Wheel mode] in [Scroll Configuration] of [Touch Pad] in [Mouse] of [Control Panel]. The Adobe Reader scrolling function may not work correctly.

# Handling and Maintenance

## Operation environment

- Place the computer on a flat stable surface. Do not place the computer upright or turn it over. If the computer is exposed to an extremely strong impact, it may become damaged.
  - Temperature: Operation : 5 °C to 35 °C  
Storage : -20 °C to 60 °C
  - Humidity: Operation : 30% to 80% RH (No condensation)  
Storage : 30% to 90% RH (No condensation)
- Even within the above temperature/humidity ranges, using for a long time in an extreme environment will result in the product deterioration and will shorten the product life.
- Do not place the computer in the following areas, otherwise the computer may be damaged.
    - Near electronic equipment. Image distortion or noise may occur.
    - In extremely high or low temperature.
  - As the computer can become hot during operation, keep it away from items that are sensitive to heat.

## Handling cautions

This computer is designed to minimize shock to parts such as the LCD and the hard disk drive and equipped with a drip-proof keyboard, but no warranty is provided against any trouble caused by shock. Be extremely careful when handling the computer.

- When carrying the computer:
    - Turn off the computer.
    - Remove all external devices, cables, PC Cards and other protruding objects.
    - Remove a disc in the CD/DVD drive.
    - Do not drop or hit the computer against solid objects.
    - Do not leave the display open.
    - Do not grip the display part.
  - Do not put anything (e.g., a piece of paper) between the display and keyboard.
  - When you board an airplane, take the computer with you and never put it in your checked luggage. When using the computer on airplane, follow the airline's instructions.
  - When carrying a spare battery, put it in a plastic bag to protect its terminals.
  - The touch pad is designed to be used by finger tip. Do not place any object on its surface and do not press down strongly with sharp-pointed or hard objects that may leave marks (e.g., nails, pencils and ball point pens).
  - Avoid any harmful substances such as oil from getting into the touch pad. The cursor may not work correctly.
  - Be careful not to get injured by dropping or getting hit when carrying the computer.
- <Only for model with touchscreen>
- Use only the included stylus to touch the touchscreen. Do not place any object on its surface and do not press down strongly with sharp-pointed or hard objects that may leave marks (e.g., nails, pencils and ball point pens).
  - Do not use the touchscreen when dust or dirt (e.g., oil) is on the screen. Otherwise foreign particles on the screen/stylus can scratch the screen surface or obstruct the stylus operation.
  - Use the stylus only for touching the screen. Using it for any other purpose may damage the stylus and result in scratches on the screen.

### ■ When using peripheral devices

Follow these instructions and the Reference Manual to avoid any damage to the devices. Carefully read the instruction manuals of the peripheral devices.

- Use the peripheral devices conforming to the computer's specifications.
- Connect to the connectors in the correct direction.
- If it is hard to insert, do not try forcibly but check the connector's shape, direction, alignment of pins, etc.
- If screws are included, fasten them securely.
- Remove the cables when you carry the computer. Do not pull the cables forcibly.

### ■ Preventing your computer from unauthorized use via wireless LAN/Bluetooth/wireless WAN

<Only for model with wireless LAN/Bluetooth/wireless WAN>

- Before using wireless LAN/Bluetooth/wireless WAN, make the appropriate security settings such as data encryption.

## Maintenance

### To clean the LCD panel

<Only for model with touchscreen>

Use the soft cloth included with the computer.

#### NOTE

#### ● Suggestions About Cleaning the LCD Surface

To improve the outdoor visibility of the display, a low reflection coating has been added. In order to avoid scratches and peeling of this coating, an approved soft cloth has been included to wipe the LCD surface of the computer. Before using the computer, be sure to read the instructions provided below.

- **Be sure to wipe the LCD display to remove fingerprints, etc., with the soft cloth.**
- **Do not wipe areas other than the LCD display with the soft cloth.**

<How to use the soft cloth>

- Use the soft cloth when it is dry. Do not apply water or solvents to the soft cloth.
- First, lightly wipe foreign particles and dust adhering to the LCD display on one side of the soft cloth. Do not use force, since the LCD surface may be damaged with the foreign particles or dust. Next, wipe off fingerprint, etc., with the other side of the soft cloth. After wiping off foreign particles and dust, wash the soft cloth (refer to the following) to remove the foreign particles and dust from the soft cloth.
- When the soft cloth becomes dirty, wash it with neutral detergent. Do not use bleach or a fabric conditioner (softener), or carry out sterilization by boiling.
- If the LCD gets wet, wipe the surface lightly with the soft cloth.
- While wiping the LCD display, the computer must be turned off.

<Only for model without touchscreen>

Wipe with a soft dry cloth such as gauze.

### To clean areas other than the LCD panel

Wipe with a soft dry cloth such as gauze. When using detergent, dip a soft cloth in water-diluted detergent and wring it thoroughly.

#### CAUTION

- Do not use benzene, thinner, or rubbing alcohol since it may adversely affect the surface causing discoloration, etc. Do not use commercially-available household cleaners and cosmetics, as they may contain components harmful to the surface.
- Do not apply water or detergent directly to the computer, since liquid may enter inside of the computer and cause malfunction or damage.

# Reinstalling Software

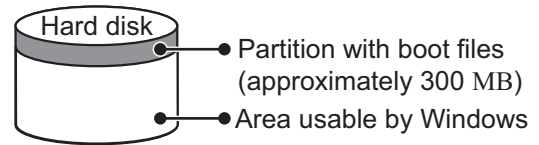
Reinstalling software will return the computer to the default condition. When you reinstall the software, the hard disk data will be erased.

Back up important data to other media or an external hard disk before reinstallation.

## CAUTION

### Windows 7

Do not delete the partition with boot files on the hard disk.  
The disk space in the partition is not available to store data.



## Preparation

- Prepare the following items:
  - The Product Recovery DVD-ROM (included)
  - Panasonic CD/DVD drive (optional)
- Remove all peripherals (except for the CD/DVD drive).
- Connect the AC adaptor and do not remove it until reinstallation is complete.

## NOTE

<For MUI OS model>

- To input numbers, press the NumLock key and input in the Ten-key mode.
- For German keyboard, press **Z** when you need to press **Y**.

- 1 Turn off the computer and insert the CD/DVD drive into the multimedia pocket (→ Reference Manual “Multimedia Pocket”).**
- 2 Turn on the computer, and press **F2** or **Del** while [Panasonic] boot screen is displayed.**  
The Setup Utility starts up.
  - If the password is requested, enter the Supervisor Password.
- 3 Write down all of the contents of the Setup Utility and press **F9**.**  
At the confirmation message, select [Yes] and press **Enter**.
- 4 Press **F10**.**  
At the confirmation message, select [Yes] and press **Enter**.  
Computer will restart.
- 5 Press **F2** or **Del** while [Panasonic] boot screen is displayed.**  
The Setup Utility starts up.
  - If the password is requested, enter the Supervisor Password.
- 6 Set the Product Recovery DVD-ROM for Windows which you install into the CD/DVD drive.**
- 7 Select the [Exit] menu, then select [TEAC-DV-W28XXX] in [Boot Override].**
- 8 Press **Enter**.**  
The computer will restart.

### Windows 7

- 9 Click [Reinstall Windows] and click [Next].**  
The License Agreement screen appears.
- 10 Click [Yes, I agree to the provisions above and wish to continue!] and click [Next].**
- 11 When reinstalling Windows 7 from Windows 7:**  
Select the settings and click [Next].
  - [Reinstall Windows to the whole Hard Disk to factory default.]  
You will have two partitions.
  - [Reinstall to the first 2 partitions.]<sup>\*1</sup>  
Select this option when the hard disk has already been divided into several partitions. For how to create a new partition, refer to “To change the partition structure” (→ page 18).  
You can keep the partition structure.  
<sup>\*1</sup> This does not appear if Windows cannot be reinstalled to the partition containing boot files and the area usable by Windows.

## When reinstalling Windows 7 from Windows XP:

Click [Next].

- 12 **At the confirmation message, click [YES].**  
Reinstallation starts according to the instructions on the screen. (It will take approximately 60 - 120 minutes.)
  - Do not interrupt reinstallation, for example by turning off the computer or pressing **Ctrl + Alt + Del**. Otherwise reinstallation may become unavailable as Windows may not start up or the data may be corrupted.
  - According to the instruction on the screen, switch Product Recovery DVD-ROM.
- 13 **Remove the Product Recovery DVD-ROM, and then click [OK] to turn off the computer.**
- 14 **Turn on the computer.**
  - If the password is requested, enter the Supervisor Password.
- 15 **Perform the “First-time Operation” (→ page 14).**
- 16 **Start the Setup Utility and change the settings as necessary.**
- 17 **Perform Windows Update.**

#### Windows XP

- 9 **Press 1 to execute [1. [Recovery]].**  
The License Agreement screen appears.
  - To cancel partway, press 0.
- 10 **Press 1 to select [1. Yes, I agree to the provisions above and wish to continue!].**
- 11 **Select the settings.**
  - [2]: Enter the size of operating system partition and press **Enter**.  
(The size of data partition will be determined by subtracting the operating system partition size from the maximum size.)
  - [3]: Windows will be installed in the first partition.  
(The size of the first partition must be 30 GB or more. If smaller, installation will not be possible.)

At the confirmation message, press Y.  
Reinstallation starts automatically. (It will take approximately 30 - 75 minutes.)


  - Do not interrupt reinstallation, for example by turning off the computer or pressing **Ctrl + Alt + Del**. Otherwise reinstallation may become unavailable as Windows may not start up or the data may be corrupted.
- 12 **Remove the Product Recovery DVD-ROM, and then press any key to turn off the computer.**
  - If additional instructions are included with the computer, be sure to read them. It may be necessary to perform additional operations during the following procedure.
- 13 **Turn on the computer.**
  - If the password is requested, enter the Supervisor Password.
- 14 **Perform the “First-time Operation” (→ page 14).**
- 15 **Start the Setup Utility and change the settings as necessary.**

#### ■ To change the drive letter of hard disk or CD/DVD drive

#### NOTE

- Drive letters of hard disk can be changed only when two or more partitions have been created on the hard disk drive.
- The name of the C: drive cannot be changed.
- Change the drive letters before installing applications.

#### ① Windows 7

Click  (Start) - [Control Panel] - [System and Security] - [Administrative Tools], and double-click [Computer Management].


- A standard user needs to enter an administrator password.

#### Windows XP


Click [start] - [Control Panel] - [Performance and Maintenance] - [Administrative Tools], and double-click [Computer Management].

- ② Click [Disk Management] from [Storage].
- ③ Right-click the hard disk partition or the CD/DVD drive name, and click [Change Drive Letter and Paths...].
- ④ Click [Change...].
- ⑤ Click [Assign the following drive letter] and select the new drive letter, and then click [OK].  
At the confirmation message, click [Yes].

# Troubleshooting (Basic)







Follow the instructions below when a problem has occurred. There is also an advanced troubleshooting guide in the "Reference Manual". For a software problem, refer to the software's instruction manual. If the problem persists, contact Panasonic Technical Support. You can also check the computer's status in the PC Information Viewer (→  Reference Manual "Troubleshooting (Advanced)").

## ■ Starting Up


<p>Cannot start up. The power indicator or battery indicator is not lit.</p>	<ul style="list-style-type: none"> <li>● Connect the AC adaptor.</li> <li>● Insert a fully charged battery.</li> <li>● Remove the battery pack and the AC adaptor, then connect them again.</li> <li>● If a device is connected to the USB port, disconnect the device, or set [USB Port] or [Legacy USB Support] to [Disable] in the [Advanced] menu of the Setup Utility.</li> <li>● If a device is connected to the ExpressCard slot, disconnect the device, or set [ExpressCard Slot] to [Disable] in the [Advanced] menu of the Setup Utility.</li> <li>● Press <b>Fn</b> + <b>F8</b> to turn off the concealed mode.</li> </ul>
<p>The power is turned on but "Warming up the system (up to 32 minutes)" appears.</p>	<ul style="list-style-type: none"> <li>● The computer is warming up before start up. Wait for the computer to start up (takes up to 32 minutes). If "Cannot warm up the system" is displayed, the computer failed to warm up and will not start. In this case, turn off the computer, leave it in an environment of 5 °C or higher temperature for about an hour, and then turn on the power again.</li> </ul>
<p>Cannot turn on the computer. The computer does not resume from sleep (<b>Windows 7</b>)/standby (<b>Windows XP</b>). (The power indicator blinks quickly in green.)</p>	<ul style="list-style-type: none"> <li>● Leave it in an environment of 5 °C or higher temperature for about an hour, then turn on the power again.</li> </ul>
<p>After adding or changing the RAM module, the power is turned on but nothing is displayed on the screen.</p>	<ul style="list-style-type: none"> <li>● Turn off the computer and remove the RAM module, then confirm whether the RAM module has complied to specification. When the RAM module has conformed to specification, install it again.</li> </ul>
<p><b>Windows 7</b> The computer does not enter sleep mode while the screen saver is running (The screen stays black).</p>	<ul style="list-style-type: none"> <li>● Slide and hold the power switch for four seconds or longer to shut down the computer forcibly. (Data not saved will be lost.) Then disable the screen saver.</li> </ul>
<p>You have forgotten the password.</p>	<ul style="list-style-type: none"> <li>● Supervisor Password or User Password: Contact Panasonic Technical Support.</li> <li>● Administrator password: <ul style="list-style-type: none"> <li>• If you have a password reset disk, you can reset the administrator password. Set the disk and enter any wrong password, then follow the on-screen instructions and set a new password.</li> <li>• If you do not have a password reset disk, reinstall (→ page 22) and set up Windows, and then set a new password.</li> </ul> </li> </ul>
<p>"Remove disks or other media. Press any key to restart" or a similar message appears.</p>	<ul style="list-style-type: none"> <li>● A floppy disk is in the drive (optional) and it does not contain system startup information. Remove the floppy disk and press any key.</li> <li>● If a device is connected to the USB port, disconnect the device, or set [USB Port] or [Legacy USB Support] to [Disable] in the [Advanced] menu of the Setup Utility.</li> <li>● If a device is connected to the ExpressCard slot, disconnect the device, or set [ExpressCard Slot] to [Disable] in the [Advanced] menu of the Setup Utility.</li> <li>● If the problem persists after removing the disk, it may be a hard disk failure. Contact Panasonic Technical Support.</li> </ul>
<p>Windows startup and operation is slow.</p>	<ul style="list-style-type: none"> <li>● Press <b>F9</b> in the Setup Utility (→  Reference Manual "Setup Utility") to return the Setup Utility settings (excluding the passwords) to the default values. Start the Setup Utility and make the settings again. (Note that the processing speed depends on the application software, so this procedure may not make Windows faster.)</li> <li>● If you installed a resident software after purchase, turn off the residence.</li> <li>● <b>Windows XP</b> Disable Indexing Service in the following menu. Click [start] - [Search] - [Change preferences] - [With Indexing Service (for faster local service)].</li> </ul>



## ■ Starting Up

<p>The date and time are incorrect.</p>	<ul style="list-style-type: none"> <li>● Make the correct settings. <ul style="list-style-type: none"> <li><b>Windows 7</b> Click  (Start) - [Control Panel] - [Clock, Language, and Region] - [Date and Time].</li> <li><b>Windows XP</b> Click [start] - [Control Panel] - [Date, Time, Language, and Regional Options] - [Date and Time].</li> </ul> </li> <li>● If the problem persists, the internal clock battery may need to be replaced. Contact Panasonic Technical Support.</li> <li>● When the computer is connected to LAN, check the date and time of the server.</li> <li>● The 2100 A.D. or later year will not be correctly recognized on this computer.</li> </ul>
<p>[Executing Battery Recalibration] screen appears.</p>	<ul style="list-style-type: none"> <li>● The Battery Recalibration was canceled before Windows was shut down last time. To start up Windows, turn off the computer by the power switch, and then turn on.</li> </ul>
<p>[Enter Password] does not appear when resuming from sleep (<b>Windows 7</b>)/standby (<b>Windows XP</b>)/ hibernation.</p>	<ul style="list-style-type: none"> <li>● Select [Enabled] in [Password On Resume] in the [Security] menu of the Setup Utility (→  <i>Reference Manual</i> "Setup Utility").</li> <li>● The Windows password can be used instead of the password set in the Setup Utility. <ul style="list-style-type: none"> <li><b>Windows 7</b> <ol style="list-style-type: none"> <li>① Click  (Start) - [Control Panel] - [User Accounts and Family Safety] - [Add or remove user accounts] and select the account, and set the password.</li> <li>② Click  (Start) - [Control Panel] - [System and Security] - [Power Option] - [Require a password when the computer wakes] and add a check mark for [Require a password].</li> </ol> </li> <li><b>Windows XP</b> <ol style="list-style-type: none"> <li>① Click [start] - [Control Panel] - [User Accounts] and select the account, and set the password.</li> <li>② Click [start] - [Control Panel] - [Performance and Maintenance] - [Power Options] - [Advanced] and add a check mark for [Prompt for password when computer resumes from standby].</li> </ol> </li> </ul> </li> </ul>
<p>Cannot resume.</p>	<ul style="list-style-type: none"> <li>● An error may occur when the computer automatically enters the sleep (<b>Windows 7</b>)/standby (<b>Windows XP</b>) or hibernation mode while the screensaver is active. In this case, turn off the screensaver or change the pattern of the screensaver.</li> </ul>
<p>Other startup problems.</p>	<ul style="list-style-type: none"> <li>● Press <b>F9</b> in the Setup Utility (→  <i>Reference Manual</i> "Setup Utility") to return the Setup Utility settings (excluding the passwords) to the default values. Start the Setup Utility and make the settings again.</li> <li>● Remove all peripheral devices.</li> <li>● Check to see if there was a disk error. <ul style="list-style-type: none"> <li><b>Windows 7</b> <ol style="list-style-type: none"> <li>① Remove all peripheral devices including external display.</li> <li>② Click  (Start) - [Computer] and right-click [Local Disk (C:)], and click [Properties].</li> <li>③ Click [Tools] - [Check Now...]. <ul style="list-style-type: none"> <li>• A standard user needs to enter an administrator password.</li> </ul> </li> <li>④ Select the option in [Check disk options] and click [Start].</li> <li>⑤ Click [Schedule disk check] and restart the computer.</li> </ol> </li> <li><b>Windows XP</b> <ol style="list-style-type: none"> <li>① Click [start] - [My Computer] and right-click [Local Disk(C:)], and click [Properties].</li> <li>② Click [Tools] - [Check Now].</li> <li>③ Select the option in [Check disk options] and click [Start].</li> </ol> </li> </ul> </li> <li>● Start the computer in Safe Mode and check the error details. When the [Panasonic] boot screen disappears<sup>*1</sup> at startup, press and hold <b>F8</b> until the Windows Advanced Options Menu is displayed. Select the Safe Mode and press <b>Enter</b>.</li> </ul> <p><sup>*1</sup> When [Password on boot] is set to [Enabled] in the [Security] menu of the Setup Utility, [Enter Password] appears after the [Panasonic] boot screen disappears. As soon as you enter the password and press <b>Enter</b>, press and hold <b>F8</b>.</p>

## ■ Entering Password

<p>On the [Enter Password] screen, the password cannot be entered.</p>	<ul style="list-style-type: none"> <li>● The computer may be in ten-key mode. If the NumLk indicator  lights, press <b>NumLk</b> to disable the ten-key mode, and then input.</li> <li>● Some keyboards have unusable keys (e.g. the "M" key on French keyboards). Use the other key when you press the key.</li> </ul>
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# Troubleshooting (Basic)

## ■ Entering Password

Even after entering the password ( <b>Windows 7</b> )/Locked ( <b>Windows XP</b> ), [Type your password] is displayed again.	<ul style="list-style-type: none"> <li>● The computer may be in ten-key mode. If the NumLk indicator <b>NumLk</b> lights, press <b>NumLk</b> to disable the ten-key mode, and then input.</li> <li>● The computer may be in Caps Lock mode. If the Caps Lock indicator <b>Caps Lock</b> lights, press <b>Caps Lock</b> to disable the Caps Lock mode, and then input.</li> </ul>
On the [Enter Password] screen while resuming, the password cannot be entered using the USB keyboard.	<ul style="list-style-type: none"> <li>● Set [Legacy USB Support] to [Enabled] in the [Advanced] menu of the Setup Utility.</li> <li>● When resuming from sleep (<b>Windows 7</b>) /standby (<b>Windows XP</b>), the USB keyboard cannot be used. Use the internal keyboard.</li> </ul>
<b>Windows 7</b> Cannot log on to Windows. ("The user name or password is incorrect." is displayed.)	<ul style="list-style-type: none"> <li>● The user name (account name) includes the "@" mark. <ul style="list-style-type: none"> <li>• If another user account exists: Log on to Windows using another user account, and delete the account that includes "@". Then create a new account.</li> <li>• If no other account exists: You need to reinstall Windows (→ page 22).</li> </ul> </li> </ul>


## ■ Shutting down

Windows does not shut down.	<ul style="list-style-type: none"> <li>● Remove the USB device and the ExpressCard.</li> <li>● Wait 1 or 2 minutes. It is not a malfunction.</li> </ul>
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## ■ Display

No display.	<ul style="list-style-type: none"> <li>● The external display is selected. Press <b>Fn + F3</b> or <b>⌘ + P</b><sup>*2</sup> to switch the display. Wait until the display has been switched completely before pressing <b>Fn + F3</b> or <b>⌘ + P</b><sup>*2</sup> again.</li> <li>● When using an external display, <ul style="list-style-type: none"> <li>• Check the cable connection.</li> <li>• Turn on the display.</li> <li>• Check the settings of external display.</li> </ul> </li> <li>● The display is turned off by the power-saving function. To resume, do not press the direct selection keys, but press any other key like <b>Ctrl</b>.</li> <li>● The computer entered sleep (<b>Windows 7</b>) /standby (<b>Windows XP</b>) or hibernation by the power-saving function. To resume, press the power switch.</li> </ul> <p><sup>*2</sup> Windows 7 only</p>
The screen is dark.	<ul style="list-style-type: none"> <li>● The screen is darker when the AC adaptor is not connected. Press <b>Fn + F2</b> and adjust the brightness. As you increase the brightness, battery consumption increases. You can separately set the brightness for when the AC adaptor is connected and when not connected.</li> <li>● Press <b>Fn + F8</b> to turn off the concealed mode.</li> </ul>
The screen does not become bright even if pressing <b>Fn + F2</b> .	<ul style="list-style-type: none"> <li>● The brightness is set low to avoid malfunction where surrounding temperature is high. Use it in an environment of between 5°C and 35°C.</li> </ul>
The screen is disordered.	<ul style="list-style-type: none"> <li>● Changing the number of display colors and resolution may affect the screen. Restart the computer.</li> <li>● Connecting/disconnecting an external display may affect the screen. Restart the computer.</li> </ul>
During Simultaneous display, one of the screens becomes disordered.	<ul style="list-style-type: none"> <li>● When using the Extended Desktop, use the same display colors for the external display as those used by the LCD.</li> <li>● If you continue to experience problems, try changing the display. <ul style="list-style-type: none"> <li><b>Windows 7</b> Right-click on the desktop, and click [Graphics Properties] - [Display Devices].</li> <li><b>Windows XP</b> Clicking [start] - [Control Panel] - [Other Control Panel Options] - [Intel(R) GMA Driver for Mobile] - [Display Devices].</li> </ul> </li> <li>● <b>Windows XP</b> When the [Command Prompt] is set to "Full Screen" by pressing <b>Alt + Enter</b>, the picture is displayed on one of the screens only. When the window display is restored by pressing <b>Alt + Enter</b>, the picture is displayed on both screens.</li> <li>● Simultaneous display cannot be used until Windows startup is complete (during Setup Utility, etc.).</li> </ul>
The external display does not work normally.	<ul style="list-style-type: none"> <li>● If the external display does not support the power saving function, it may not work normally when the computer enters the power saving mode. Turn off the external display.</li> </ul>


## ■ Display

<p><b>Windows 7</b> &lt;Only for model with GPS&gt; The cursor cannot be controlled properly.</p>	<ul style="list-style-type: none"> <li>● Operate the following steps.           <ol style="list-style-type: none"> <li>① Restart the computer and press <b>F2</b> or <b>Del</b> while [Panasonic] boot screen is displayed.</li> <li>② Set [GPS] to [Disable] in the sub-menu of [Serial and Parallel Port Settings] in the [Advanced] menu of the Setup Utility.</li> <li>③ Press <b>F10</b> and select [Yes] at the confirmation message, and press <b>Enter</b>. The computer will restart.</li> <li>④ Log on to Windows as an administrator.</li> <li>⑤ Click  (Start) and input "c:\util\drivers\gps\GPSVista.reg" in [Search programs and files], and press <b>Enter</b>.</li> <li>⑥ Click [Yes], click [Yes] and click [OK]. Then restart the computer.</li> <li>⑦ Press <b>F2</b> while [Panasonic] boot screen is displayed.</li> <li>⑧ Set [GPS] to [Enable] in the sub-menu of [Serial and Parallel Port Settings] in the [Advanced] menu.</li> <li>⑨ Press <b>F10</b> and select [Yes] at the confirmation message, and press <b>Enter</b>.</li> </ol> </li> </ul>
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## ■ Touch Pad / Touchscreen (only for model with touchscreen)


<p>The cursor does not work.</p>	<ul style="list-style-type: none"> <li>● When using the external mouse, connect it correctly.</li> <li>● Restart the computer using the keyboard.           <p><b>Windows 7</b></p>           Press  and press  twice, and press  to select [Restart] and press <b>Enter</b>. <p><b>Windows XP</b></p>           Press , <b>U</b>, and <b>R</b> to select [Restart].</li> <li>● If the computer does not respond to keyboard commands, read "No response" (→ page 28).</li> </ul>
<p>Cannot input using the touch pad.</p>	<ul style="list-style-type: none"> <li>● Set [Touch Pad] to [Enable] in the [Main] menu of the Setup Utility.</li> <li>● The drivers for some mice may disable the touch pad. Check your mouse's operating instructions.</li> </ul>
<p>&lt;Only for model with touch screen&gt; Cannot input using the touchscreen.</p>	<ul style="list-style-type: none"> <li>● <b>Windows 7</b> <ul style="list-style-type: none"> <li>● Set [Touchscreen Mode] to [Auto] or [Tablet] in the [Main] menu of the Setup Utility.</li> </ul> </li> <li>● <b>Windows XP</b> <ul style="list-style-type: none"> <li>● Set [Touchscreen Mode] to [Auto] or [Touchscreen Mode] in the [Main] menu of the Setup Utility.</li> </ul> </li> </ul>
<p>Cannot point the correct position using the included stylus.</p>	<ul style="list-style-type: none"> <li>● Perform the touchscreen calibration (→ page 16).</li> </ul>

## ■ Reference Manual


<p>The Reference Manual is not displayed.</p>	<ul style="list-style-type: none"> <li>● Install Adobe Reader.           <p>&lt;For localized OS model&gt;</p> <ol style="list-style-type: none"> <li>① Log on to Windows as an administrator.               <p><b>Windows 7</b></p> <ol style="list-style-type: none"> <li>② Click  (Start) and input "c:\util\reader\setup.exe" in [Search for programs and files] then press <b>Enter</b>.</li> <li>③ Update Adobe Reader to its latest version. If your computer is connected to the internet, start up Adobe Reader and click [Help] - [Check for Updates...].</li> </ol> <p><b>Windows XP</b></p> <ol style="list-style-type: none"> <li>② Click [start] - [Run], input "c:\util\reader\setup.exe", then click [OK].</li> <li>③ Update Adobe Reader to its latest version. If your computer is connected to the internet, start up Adobe Reader and click [Help] - [Check for updates now].</li> </ol> </li> </ol> <p>&lt;For MUI OS model&gt; → page 15</p> </li> </ul>
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# Troubleshooting (Basic)

## ■ Connecting Peripherals

Using a conventional port replicator	<ul style="list-style-type: none"><li>● When using a conventional port replicator (such as the CF-VEB272AW / CF-VEB272A2W), refer to the following cautions instead of the ones in  <i>Reference Manual</i> "Port Replicator / Car Mounter".<ul style="list-style-type: none"><li>● Use CF-AA5713A or CF-AA1653A. If you use an AC adaptor other than the above, the computer may become battery operation state, the battery indicator may blink red, etc.</li><li>● The CPU clock rate is lowered.</li></ul></li><li>&lt;When the discrete GPU with higher power consumption is activated&gt;<ul style="list-style-type: none"><li>● The discrete GPU will be forcibly deactivated, and the Intel® GPU with lower power consumption will be activated.</li><li>● If you connect a conventional port replicator to the computer while the computer is turned on, a message that prompts you to restart the computer will appear. Follow the instructions, and restart the computer.</li></ul></li><li>&lt;Only for CF-VEB272AW&gt;<ul style="list-style-type: none"><li>● To connect a USB 2.0 device, use the USB port of the computer.</li></ul></li></ul>
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## ■ Others

No response.	<ul style="list-style-type: none"><li>● Press <b>Ctrl+Shift+Esc</b> to open Task Manager and close the software application that is not responding.</li><li>● An input screen (e.g., password input screen at startup) may be hidden behind another window. Press <b>Alt+Tab</b> to check.</li><li>● Slide the power switch for 4 seconds or longer to shut down the computer, and then slide the power switch to turn it on. If the application program does not work normally, uninstall and reinstall the program. To uninstall,<ul style="list-style-type: none"><li>● <b>Windows 7</b> click  (Start) - [Control Panel] - [Uninstall a program].</li><li>● <b>Windows XP</b> click [start] - [Control Panel] - [Add or Remove Programs].</li></ul></li></ul>
Cannot enter characters correctly.	<ul style="list-style-type: none"><li>● Select the same language setting for Windows and the internal keyboard (→ page 16).</li></ul>

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# Specifications

This page provides the specifications for the basic model.  
The model number is different according to the unit configuration.

- To check the model number:  
Check the bottom of the computer or the box the computer came in at the time of purchase.
- To check CPU speed, memory size and the hard disk drive (HDD) size:  
Run the Setup Utility (→  *Reference Manual* "Setup Utility") and select [Information] menu.  
[Processor Speed]: CPU speed, [Memory Size]: Memory size, [Hard Disk]: Hard disk drive size

## ■ Main Specifications

Model No.	CF-31ATNAXDE / CF-31ATNAXPE	CF-31ATAAXDE / CF-31ATAAXPE	CF-31GT2AXDE / CF-31GT2AXPE
CPU	Intel® Core i5-540M (2.53 GHz, Intel® Smart Cache 3 MB <sup>*1</sup> )	Intel® Core i5-520M (2.4 GHz, Intel® Smart Cache 3 MB <sup>*1</sup> )	Intel® Core i3-350M (2.26 GHz, Intel® Smart Cache 3 MB <sup>*1</sup> )
Chip Set	Mobile Intel® QM57 Express Chipset		Mobile Intel® HM55 Express Chipset
Video controller	ATI Mobility Radeon™ HD 5650/ Built-in Chip Set	Built-in Chip Set	
Main Memory <sup>*2</sup>	2 GB <sup>*1</sup> , DDR3 SDRAM (8 GB <sup>*1</sup> Max.)		
Video Memory	<With ATI Mobility Radeon™ HD 5650> <b>Windows 7</b> 512 MB <sup>*1</sup> dedicated (1423 MB <sup>*1</sup> Max. / 1915 MB with expanded memory) <sup>*3</sup> <b>Windows XP</b> 512 MB <sup>*1</sup> dedicated (1024 MB <sup>*1</sup> Max.) <sup>*3</sup> <With Built-in Chip Set> <b>Windows 7</b> UMA (763 MB <sup>*1</sup> Max. / 1435 MB <sup>*1</sup> Max. with expanded memory) <sup>*3</sup> <b>Windows XP</b> UMA (1024 MB <sup>*1</sup> Max.) <sup>*3</sup>		
Hard Disk Drive	250 GB <sup>*4</sup> (Serial ATA) <b>Windows 7</b> Approx. 300 MB <sup>*4</sup> is used as a partition with recovery tools. (Users cannot use this partition.)	160 GB <sup>*4</sup> (Serial ATA) <b>Windows 7</b> Approx. 300 MB <sup>*4</sup> is used as a partition with recovery tools. (Users cannot use this partition.)	
Display Method	13.1 XGA type (TFT) (1024 × 768 dots) with Touchscreen or 13.1 XGA type (TFT) (1024 × 768 dots)		
Internal LCD	65,536/16,777,216 colors (800 × 600 dots/1024 × 768 dots) <sup>*5</sup>		
External Display <sup>*6</sup>	65,536/16,777,216 colors (800 × 600 dots/1024 × 768 dots/1280 × 768 dots/1280 × 1024 dots)		
Wireless LAN <sup>*7</sup>	Intel® Centrino® Advanced-N 6200 AGN (→ page 31)	IEEE802.11bgn Wireless LAN (→ page 31)	
Bluetooth™ <sup>*8</sup>	→ page 32		
LAN	IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX, IEEE 802.3ab 1000BASE-T (2nd LAN <sup>*9</sup> : IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX)		IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX, IEEE 802.3ab 1000BASE-T
Modem <sup>*10</sup>	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) <sup>*11</sup>		–
Card Slots	PC Card Slot	x 1, Type I or Type II, Allowable current 3.3 V: 400 mA, 5 V: 400 mA	
	ExpressCard Slot	x 1, ExpressCard/34 or ExpressCard/54	
	SD Memory Card Slot <sup>*12</sup>	x 1	
	Contact Smart Card Slot <sup>*13</sup>	x 1	
RAM Module Slot	x 1, DDR3 SDRAM, 204-pin, 1.5 V, SO-DIMM, PC3-8500 Compliant		
Interface	USB Ports (4-pin, USB 2.0) <sup>*14</sup> x 4 / Serial Port (Dsub 9-pin male) / Modem Port (RJ-11) <sup>*10</sup> / LAN Port (RJ-45) x 1 <sup>*15</sup> or x 2 <sup>*9</sup> / External Display Port (Mini Dsub 15-pin female) / HDMI Port (Type A) <sup>*16</sup> / IEEE1394a Interface Connector (4-pin) <sup>*17</sup> / Microphone Jack (Miniature jack, 3.5 DIA) / Headphone Jack (Miniature jack, 3.5 DIA, Impedance 32 Ω, Output Power 4 mW × 2, Stereo) / Expansion Bus Connector (Dedicated 100-pin female)		
Keyboard / Pointing Device	88 or 87 keys / Touch Pad		

## ■ Main Specifications

Model No.	CF-31ATNAXDE / CF-31ATNAXPE	CF-31ATAAXDE / CF-31ATAAXPE	CF-31GT2AXDE / CF-31GT2AXPE
Fingerprint Reader <sup>*18</sup>	Array Size : 192 x 4 pixels, Image Size : 192 x 512 pixels, Image Resolution : 508 DPI		
Web Camera <sup>*19</sup>	640 x 480 dots, 30 fps		–
Power Supply	AC adaptor or Battery pack		
AC Adaptor <sup>*20</sup>	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 8.55 Ah / Minimum 8.1 Ah (CF-VZSU46AU)		Li-ion 11.1 V, Typical 5.2 Ah / Minimum 5.0 Ah (CF-VZSU65U)
Operating Time <sup>*21</sup>	<b>Windows 7</b> Approx. 11.5 hours <sup>*22</sup>	<b>Windows 7</b> Approx. 11.5 hours	<b>Windows 7</b> Approx. 7 hours
	<b>Windows XP</b> Approx. 10 hours <sup>*22</sup>	<b>Windows XP</b> Approx. 10 hours	<b>Windows XP</b> Approx. 6 hours
Charging Time <sup>*23</sup>	Power on : Approx. 4.5 hours / Power off : Approx. 3.5 hours		Power on : Approx. 4.0 hours / Power off : Approx. 3.0 hours
Power Consumption <sup>*24</sup>	Approx. 55 W <sup>*25</sup> / Approx. 100 W (maximum when recharging in the ON state)	Approx. 45 W <sup>*25</sup> / Approx. 100 W (maximum when recharging in the ON state)	
Physical Dimensions (W × D × H) (including the carrying handle)	302 mm × 292 mm × 73.5 mm		
Weight (including the hand strap)	Approx. 3.72 kg		
Environment	Operating	Temperature	5 °C to 35 °C
		Humidity	30 % to 80 %
	Storage	Temperature	-20 °C to 60 °C RH
		Humidity	30 % to 90 % RH (No condensation)

## ■ Software

OS <sup>*26</sup>	Genuine Windows <sup>®</sup> 7 Professional	Genuine Windows <sup>®</sup> XP Professional Service Pack 3
Pre-installed Software	Adobe Reader <sup>*27</sup> , PC Information Viewer, Loupe Utility, Display Selector, Bluetooth™ Stack for Windows <sup>®</sup> by TOSHIBA <sup>*8</sup> , Wireless Switch Utility, Intel <sup>®</sup> PROSet / Wireless Software <sup>*28</sup> , Atheros Client Utility <sup>*29</sup> , Wireless Connection Disable Utility <sup>*7 *30</sup> , Hotkey Settings, Battery Recalibration Utility, Infineon TPM Professional Package <sup>*11 *30</sup> , Protector Suite QL <sup>*18 *30</sup> , Apto Setup Utility, Hard Disk Data Erase Utility <sup>*31</sup> , PC Diagnostic Utility, Concealed mode Utility <sup>*32</sup>	
	Panasonic Power Plan Extension Utility	Icon Enlarger, Power Saving Utility

## ■ Wireless LAN<sup>\*7</sup>

Wireless LAN	Intel <sup>®</sup> Centrino <sup>®</sup> Advanced-N 6200 AGN	IEEE802.11bgn Wireless LAN
Data Transfer Rates	IEEE802.11a : 54/48/36/24/18/12/9/6 Mbps (automatically switched) <sup>*33</sup> IEEE802.11b : 11/5.5/2/1 Mbps (automatically switched) <sup>*33</sup> IEEE802.11g : 54/48/36/24/18/12/9/6 Mbps (automatically switched) <sup>*33</sup> IEEE802.11n <sup>*34</sup> : (HT20) GI <sup>*35</sup> = 400ns: 144.4/130/115.6/86.7/72.2/65/57.8/43.3/39/28.9/21.7/14.4/7.2 Mbps (automatically switched) <sup>*33</sup> GI <sup>*35</sup> = 800ns: 130/117/104/78/65/58.5/52/39/26/19.5/13/6.5 Mbps (automatically switched) <sup>*33</sup> (HT40) GI <sup>*35</sup> = 400ns: 300/270/240/180/157.5/135/120/90/60/30/15 Mbps (automatically switched) <sup>*33</sup> GI <sup>*35</sup> = 800ns: 270/243/216/162/135/121.5/108/81/54/40.5/27/13.5 Mbps (automatically switched) <sup>*33</sup>	IEEE802.11b : 11/5.5/2/1 Mbps (automatically switched) <sup>*33</sup> IEEE802.11g : 54/48/36/24/18/12/9/6 Mbps (automatically switched) <sup>*33</sup> IEEE802.11n <sup>*34</sup> : (HT20) GI <sup>*35</sup> = 800ns: 65/58/52/39/26/19/13/6 Mbps (automatically switched) <sup>*33</sup> (HT40)GI <sup>*35</sup> = 400ns: 150/135/120/90/60/45/30/15 Mbps (automatically switched) <sup>*33</sup> GI <sup>*35</sup> = 800ns: 135/121/108/81/54/40/27/13 Mbps (automatically switched) <sup>*33</sup>
Standards Supported	IEEE802.11a / IEEE802.11b / IEEE802.11g / IEEE802.11n	IEEE802.11b / IEEE802.11g / IEEE802.11n
Transmission method	OFDM system, DSSS system	

# Specifications

## ■ Wireless LAN<sup>\*7</sup>

Wireless LAN	Intel® Centrino® Advanced-N 6200 AGN	IEEE802.11bgn Wireless LAN
Wireless Channels Used	IEEE802.11a : Channels 36/40/44/48/52/56/60 /64/100/104/108/112/116/132/ 136/140/149/153/157/161/165 IEEE802.11b/IEEE802.11g : Channels 1 to 13 IEEE802.11n : Channels 1-11/36/40/44/48/52/56/ 60/64/100/104/108/112/116/132/ 136/140/149/153/157/161/165	IEEE802.11b/IEEE802.11g/IEEE802.11n: Channels 1 to 13
RF Frequency Band	IEEE802.11a : 5.18 GHz - 5.32 GHz, 5.5 GHz - 5.7 GHz IEEE802.11b/IEEE802.11g : 2.412 GHz - 2.472 GHz IEEE802.11n : 2.412 GHz - 2.472 GHz, 5.18 GHz - 5.32 GHz, 5.5 GHz - 5.7 GHz	IEEE802.11b/IEEE802.11g/IEEE802.11n : 2.412 GHz - 2.472 GHz

## ■ Bluetooth™<sup>\*8</sup>

Bluetooth Version	version 2.1 +EDR
Transmission method	FHSS system
Wireless Channels Used	Channels 1 to 79
RF Frequency Band	2.402 GHz - 2.48 GHz

<sup>\*1</sup> 1 KB = 1,024 bytes / 1 MB = 1,048,576 bytes / 1 GB = 1,073,741,824 bytes

<sup>\*2</sup> 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.

<sup>\*3</sup> A segment of the main memory is allotted automatically depending on the computer's operating status. The size of the Video Memory cannot be set by the user. The size of Video memory is allotted depending on the operating system.

<sup>\*4</sup> 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.

<sup>\*5</sup> A 16,777,216 color display is achieved by using the dithering function.

<sup>\*6</sup> Display may be impossible using some connected external displays.

<sup>\*7</sup> Only for model with wireless LAN.

<sup>\*8</sup> Only for model with Bluetooth.

<sup>\*9</sup> Only for model with 2nd LAN.

<sup>\*10</sup> Only for model with modem.

<sup>\*11</sup> <Only for model with TPM>

For information on TPM, refer to the Installation Manual of "TrustedPlatform Module (TPM)" by the following procedure.

### Windows 7

Click  (Start) and input "c:\util\drivers\tpm\README.pdf" in [Search programs and files] and press **Enter**.

### Windows XP

Click [start] - [Run] and input "c:\util\drivers\tpm\README.pdf" and click [OK].

<sup>\*12</sup> 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 8 GB. Operation on other SD equipment is not guaranteed.

<sup>\*13</sup> Only for model with Smart Card slot.

<sup>\*14</sup> Does not guarantee operation of all USB-compatible peripherals.

<sup>\*15</sup> Only for model without 2nd LAN.

<sup>\*16</sup> Does not guarantee operation of all HDMI-compatible peripherals.

<sup>\*17</sup> Only for model with IEEE 1394a interface.

<sup>\*18</sup> Only for model with Fingerprint reader.

<sup>\*19</sup> Only for model with Web Camera.

<sup>\*20</sup> <Only for North America>

The AC adaptor is compatible with power sources up to 240 V AC adaptor. This computer is supplied with a 125 V AC compatible AC cord.

20-M-2-1

<sup>\*21</sup> Measured with LCD brightness : 60 cd/m<sup>2</sup>

Varies depending on the usage conditions, or when an optional device is attached.

<sup>\*22</sup> When ATI Mobility Radeon™ HD 5650 video controller is activated:

### Windows 7

Approx. 7.5 hours

### Windows XP

Approx. 7 hours

<sup>\*23</sup> Varies depending on the usage conditions, CPU speed, etc.

<sup>\*24</sup> 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.



- <sup>\*25</sup> Rated power consumption. 23-E-1
- <sup>\*26</sup> 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.  
Some parts of the software in the Product Recovery DVD-ROM may not be installed depending on a model.
- <sup>\*27</sup> <Only for MUI OS model>  
Must be installed before use.
- <sup>\*28</sup> Only for model with Intel® Centrino® Advanced-N 6200 AGN
- <sup>\*29</sup> Only for model with IEEE802.11bgn Wireless LAN
- <sup>\*30</sup> Must be installed before use.
- <sup>\*31</sup> The Product Recovery DVD-ROM is required.
- <sup>\*32</sup> Concealed Mode may not work properly during battery recalibration.
- <sup>\*33</sup> These are speeds specified in IEEE802.11a+b+g+n standards.  
Actual speeds may differ.
- <sup>\*34</sup> Available when set to "WPA-PSK", "WPA2-PSK" or "none".
- <sup>\*35</sup> Only available when HT40 enabled by the computer and access point which associated supports HT40.

# Standard Limited Warranty

## PANASONIC COMPUTER PRODUCTS EUROPE

Panasonic Computer Products Europe (referred to as "Panasonic") will repair this product (other than software, which is treated in a different section of this warranty) with new or refurbished parts, from the date of original purchase in the event of a defect in materials or workmanship. This warranty only applies to new Panasonic Toughbooks purchased in the EEA and Switzerland and Turkey.

Panasonic (or its authorised Service Provider) target to repair your equipment within 48 hours from its receipt in our service centre.

Additional charges may apply for shipment to countries outside of the European Union. Panasonic will use all reasonable endeavours to ensure this service.

This warranty only covers failures due to defects in materials or workmanship which occur during normal use for the applicable Service Agreement Period listed below. In the event that any product (or part thereof) is replaced, Panasonic shall transfer ownership of the replacement product (or part) to the customer and the customer shall transfer ownership of the replaced product (or part) to Panasonic.

### Service Agreement Period - from original date of purchase

- Toughbooks (and every accessory included in the original packaging except the battery) - 3 years
- Accessories included in the original package - 3 years
- Additional peripherals manufactured by Panasonic (including media bay devices such as CD-Rom drives) - 1 year
- Batteries - 6 months. Panasonic Warranty covers the battery for six months. A battery is considered good if it maintains 50% of its charge capacity during the warranty period. If a battery is returned under this contract and testing determines that it has charge capacity greater than 50%, the battery will be returned with an invoice for the retail purchase price of a new battery.

This warranty is extended solely to the original purchaser. A purchase receipt or other proof of date of original purchase will be required before warranty performance is rendered.

### Limits and Exclusions:

This warranty does not cover and shall be void for:

- Broken or cracked LCD screen.
- Defective pixel in notebook displays and LCD screens within 0.002%
- Damage that is attributable to fire, theft or acts of God.
- Damage caused by environmental influences (electrical storms, magnetic fields etc.).
- Damage which has not been caused during normal operation
- Repair of damage that is cosmetic only or does not affect product functionality such as wear and tear, scratches and dents.
- Failures caused by products not supplied by Panasonic.
- Failures resulting from alteration, accidental damage, casualty, misuse, abuse or neglect.
- Introduction of liquid or other foreign matter into the unit.
- Improper installation, operation or maintenance.
- Improper connections with peripherals.
- Maladjustment of consumer controls such as function settings.
- Modification or service by anyone other than Panasonic or its approved Service Providers.
- Products used as short term rental or leased equipment.
- Products whose serial number has been removed making the unit warranty condition impossible to clearly determine.

THIS PRODUCT IS NOT INTENDED FOR USE AS, OR AS PART OF, NUCLEAR EQUIPMENT/SYSTEMS, AIR TRAFFIC CONTROL EQUIPMENT/SYSTEMS, OR AIRCRAFT COCKPIT EQUIPMENT/SYSTEMS<sup>\*1</sup>. PANASONIC WILL NOT BE RESPONSIBLE FOR ANY LIABILITY RESULTING FROM THE USE OF THIS PRODUCT ARISING OUT OF THE FOREGOING USES.

<sup>\*1</sup> AIRCRAFT COCKPIT EQUIPMENT/SYSTEMS include Class2 Electrical Flight Bag (EFB) Systems and Class1 EFB Systems when used during critical phases of flight (e.g., during take-off and landing) and/or mounted on to the aircraft. Class1 EFB Systems and 2 EFB Systems are defined by FAA: AC (Advisory Circular) 120-76A or JAA: JAA TGL (Temporary Guidance Leaflets) No.36.

There are no other express warranties except as listed above.

We strongly recommend that customers backup their data before sending back their unit to an Authorised Service Provider.

Panasonic shall not be liable for loss of data or other incidental or consequential damages resulting from the use of this product, or arising out of any breach of this warranty. All express and implied warranties, including the warranties of satisfactory quality and fitness for a particular purpose are limited to the applicable warranty period set forth above. Panasonic shall not be liable for any indirect, special or consequential loss or damage (including without limitation any loss of profits) arising from the use of this product or for any breach of this warranty.

This limited warranty gives you specific legal rights, and you may have other rights that vary from country to country. You must consult the applicable country laws for a full determination of your rights. This limited warranty is in addition to, and does not affect any rights arising out of any contract of sale or by statute.

# PANASONIC COMPUTER PRODUCTS EUROPE

## Data Storage Media

Data Storage Media is the media on which the Operating System, drivers and programs originally installed by Panasonic on the main unit are stored. This media is originally provided with the unit.

Panasonic warrants to you only that the disc(s) or other media on which the Programs are furnished will be free from defects in material and workmanship under normal use for a period of sixty (60) days from the date of delivery thereof to you, as evidenced by your purchase receipt.

This is the only warranty Panasonic makes to you. Panasonic does not warrant that the functions contained in the Programs will meet your requirements or that the operation of the Programs will be uninterrupted or error free.

Panasonic's entire liability and your exclusive remedy under this warranty shall be limited to the replacement of any defective disk or other media which is returned to Panasonic's authorized Service Centre, together with a copy of the purchase receipt, within the aforesaid warranty period.

Panasonic shall have no obligation for any defects in the disk(s) or other media on which the Programs are furnished resulting from your storage thereof, or for defects that have been caused by operation of the disk(s) or other media otherwise than on the Product or in the environment conditions other than those specified by Panasonic by alteration, accident, misuse, abuse, neglect, mishandling, misapplication, installation, maladjustment of consumer controls, improper maintenance, modification or damage that is attributable to acts of God. In addition, Panasonic shall have no obligation for any defects in the disk(s) or other media if you have modified, or attempted to modify any Program.

Duration of implied warranties, if any is limited to sixty (60) days.

## Pre-installed software

Pre-installed software means the software shipped pre-loaded by Panasonic, not that loaded by any third party or selling agent.

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Some countries do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above limitations or exclusions may not apply to you.

This limited warranty gives you specific legal rights and you may also have other rights that vary from country to country. You must consult applicable country laws for a full determination of your rights.

## Contacts

### Address

Panasonic Computer Products Europe  
Service Centre Building B4,  
Wyncliffe Road, Pentwyn Industrial Estate, Cardiff,  
United Kingdom  
CF23 7XB

### Web page

<http://www.toughbook.eu/>

### Helpdesk

English speaking service	+44 (0) 8709 079 079
French speaking service	+33 (0) 1 55 93 66 60
German speaking service	+49 (0) 1805 410 930
Italian speaking service	+39 (0) 848 391 999
Spanish speaking service	+34 (0) 901 101 157
E-mail address	<a href="mailto:toughbooksupport@eu.panasonic.com">toughbooksupport@eu.panasonic.com</a>

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Hungarian speaking service	+36 (0) 6800 163 67
Polish speaking service	+48 (0) 800 4911558
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E-mail address	<a href="mailto:toughbooksupport@csg.de">toughbooksupport@csg.de</a>

Payments	<a href="mailto:toughbookservicepayments.cardiff@eu.panasonic.com">toughbookservicepayments.cardiff@eu.panasonic.com</a>
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As an ENERGY STAR® Partner, Panasonic Corporation has determined that this product meets ENERGY STAR® guidelines for energy efficiency. By enabling available power management settings, Panasonic computers enter a low-power sleep mode after a period of inactivity, saving the user energy.

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22-E-1

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Importer's name & address pursuant to the EU GPSD (General Product Safety Directive) 2001/95/EC Art.5

**Panasonic Computer Products Europe, Panasonic Marketing Europe GmbH**

Hagenauer Straße 43

65203 Wiesbaden

Germany

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