



Panasonic®

OPERATING INSTRUCTIONS

Personal Computer

Model No. **CF-AX2** series

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Read Me First

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Getting Started

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Troubleshooting

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Appendix

Safety Precautions

To reduce the risk of injury, loss of life, electric shock, fire, malfunction, and damage to equipment or property, always observe the following safety precautions.

Explanation of symbol word panels

The following symbol word panels are used to classify and describe the level of hazard, injury, and property damage caused when the denotation is disregarded and improper use is performed.

DANGER

Denotes a potential hazard that will result in serious injury or death.

WARNING

Denotes a potential hazard that could result in serious injury or death.






CAUTION

Denotes a hazard that could result in minor injury.

NOTICE










Denotes a hazard that could result in property damage.

The following symbols are used to classify and describe the type of instructions to be observed.

	These symbols are used to alert users to a specific operating procedure that must not be performed.
	
	
	
	This symbol is used to alert users to a specific operating procedure that must be followed in order to operate the unit safely.

DANGER

Precautions on the battery pack

	Do Not Throw the Battery Pack into a Fire or Expose It to Excessive Heat Generation of heat, ignition or rupture may result.
	Do Not Insert Sharp Objects Into the Battery Pack, Disassemble, or Modify It Electrolyte leakage, generation of heat, ignition or rupture may result.
	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.
	Avoid Extreme Heat (Near the Fire, in Direct Sunlight, for Example) Electrolyte leakage, generation of heat, ignition or rupture may result.
	Do Not Apply Shocks to the Product by Dropping It, Applying Strong Pressure to It, etc. Electrolyte leakage, generation of heat, ignition or rupture of the battery may result. • If this product is subjected to a strong impact, stop using it immediately.
	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.
	When the Battery Pack Has Deteriorated, Replace It With a New One Continued use of a damaged battery pack may result in heat generation, ignition or battery rupture.
	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 Use This Product with a Battery Pack Other Than the One Specified Use only the specified battery pack (→ page 14) 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).



DANGER

Precautions on the built-in battery (for disposal)

Handling This Computer



Do Not Disassemble the Computer Except When Disposing of It

Generation of heat, ignition or rupture of the built-in bridge battery may result.

Handling the Built-in Battery



Do Not Charge

Generation of heat, ignition or rupture may result.



Do Not Use With Any Other Product

Generation of heat, ignition or rupture may result.



Do Not Throw the Battery 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)

Generation of heat, ignition or rupture may result.



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

Generation of heat, ignition or rupture may result.



Do Not Insert Sharp Objects Into the Battery, Disassemble, or Modify It

Generation of heat, ignition or rupture may result.



Do Not Apply Shocks to the Computer by Dropping It, Applying Strong Pressure to It, etc.

Generation of heat, ignition or rupture may result.



WARNING

Precautions on the built-in battery



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 of the battery may result.



Do Not Throw the Product Into a Fire or Expose It to Excessive Heat

Generation of heat, ignition or rupture of the battery may result.



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

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



Do Not Insert Sharp Objects Into the Battery or Shocks, Disassemble, or Modify It

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



Do Not Apply Shocks to the Product by Dropping It, Applying Strong Pressure to It, etc

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

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



When the Battery Has Deteriorated, Contact Your Technical Support Office to Replace the Battery

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



WARNING



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 turn the power off and unplug the AC plug, and then remove the battery pack. Then contact your technical support office for repair.



Do Not Touch This Product in a Thunderstorm If Connected with the AC Cable or Any Other Cables

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 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.

Safety Precautions



WARNING



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.



Do Not Place Containers of Liquid or Metal Objects on Top of This Product

If water or other liquid spills, or if paper clips, coins, or foreign matter get inside this product, fire or electric shock may result.

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



Do Not Disassemble This Product

You may receive 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 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 Use This Product in Close Contact With Your Body for a Long Period of Time

- Depending on the direction of the computer or the way you hold the computer, your hands and body will be more exposed to the hot wind.
- 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.



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 Expose Yourself or Other Persons to the Hot Wind from the Ventilation Hole (Exhaust) For a Long Period of Time

Low-temperature burns may result. Covering the ventilation hole (exhaust) with your hand or other object can cause heat to build up inside, possibly resulting in burns.



CAUTION



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 Keep This Product Wherever There is a Lot of Water, Moisture, Steam, Dust, Oily Vapors, etc.

Otherwise, possibly resulting in fire or electric shock.



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 (Exhaust)

Using this product wrapped in cloth or on top of bedding or a blanket can block the ventilation hole and cause heat to 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.



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.



CAUTION



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 below, 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.)


NOTICE

- 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.
- This computer is not intended for the display of images for use in medical diagnosis.
- This computer is not intended for a use with connection of medical equipment for the purpose of medical diagnosis.
- Panasonic shall not be liable for loss of data or other incidental or consequential damages resulting from the use of this product.
- 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.

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 require-

ment 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.

THIS PRODUCT IS NOT INTENDED FOR USE AS, OR AS PART OF, NUCLEAR EQUIPMENT/SYSTEMS, AIR TRAFFIC CONTROL EQUIPMENT/SYSTEMS, AIRCRAFT COCKPIT EQUIPMENT/SYSTEMS, MEDICAL DEVICES OR ACCESSORIES^{*1}, 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.

^{*1} 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 that exceed the specifications of our COTS (Commercial-Off-The-Shelf) products.

Regulatory Information

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

Regulations for Wireless LAN / Bluetooth

Country / Region	802.11a	802.11b/g Bluetooth
Austria, Belgium, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Latvia, Lithuania, Luxembourg, Macedonia, Malta, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom	Restricted to indoor use.	
Italy	Restricted to indoor use. General authorization required if used outside.	General authorization required if used outside of own premises.
Turkey	Restricted to indoor use. Prohibited within an 1 km radius from the centre of the runway of the airports.	
Norway	Restricted to indoor use.	Prohibited within a 20 km radius from the centre of Ny-Ålesund.

- The latest version of "ERC RECOMMENDATION 70-03" by European Radiocommunications Committee and the regulation in Turkey.
- Use only the antenna specified by Panasonic.
- Confirm the latest information to the radio regulation authorities.

40-E-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

Information for Users on Collection and Disposal of Old Equipment and used Batteries



These symbols on the products, packaging, and/or accompanying documents mean that used electrical and electronic products and batteries should not be mixed with general household waste. For proper treatment, recovery and recycling of old products and used batteries, please take them to applicable collection points, in accordance with your national legislation and the Directives 2002/96/EC and 2006/66/EC. By disposing of these products and batteries correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling. For more information about collection and recycling of old products and batteries, please contact your local municipality, your waste disposal service or the point of sale where you purchased the items. Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.



For business users in the European Union

If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

[Information on Disposal in other Countries outside the European Union]

These symbols are only valid in the European Union. If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.



Note for the battery symbol (bottom two symbol examples):

This symbol might be used in combination with a chemical symbol. In this case it complies with the requirement set by the Directive for the chemical involved.

53-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.



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.

Regulatory Information



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.



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.

CAUTION:

Risk of Explosion if Battery is replaced by an Incorrect Type.
Dispose of Used Batteries According to the Instructions.

58-E-1

Interface Cable

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

11-E-1

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

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-0

This equipment requires minimum 20 cm spacing from all person's body (excluding extremities of hands, wrist and feet) in directions of the back and both sides of the LCD display during wireless modes of operation. If you use this equipment in tablet mode when utilizing the wireless functionality, it requires a minimum 10 mm spacing from the body (excluding extremities such as hands, wrist and feet) around the left and right hand sides of the LCD display.

60-E-1

For UK

For your safety, please read the following text carefully.

This appliance is supplied with a molded three pin mains plug for your safety and convenience.

A 3 ampere fuse is fitted in this plug.

Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 3 ampere and that it is approved by ASTA or BSI to BS1362.

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 dealer.

If the fitted molded 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.

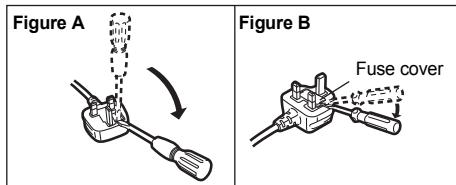
There is a danger of severe electrical shock if the cut off plug is inserted into any 13-ampere socket.

How to replace the fuse

The location of the fuse differs according to the type of AC mains plug (figures A and B).

Confirm the AC mains plug fitted and follow the instructions below. Illustrations may differ from actual AC mains plug.

Open the fuse cover with a screwdriver and replace the fuse and close or attach the fuse cover.



8-E-1

For India



For the purpose of recycling to facilitate effective utilization of resources, please return this product to a nearby authorized collection center, registered dismantler or recycler, or Panasonic service center when disposing of this product.

Please see the Panasonic website for further information on collection centers, etc.

<http://www.panasonic.co.in/wps/portal/home>

68-M-1

Introduction







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

In these instructions, the names are referred as follows.

Windows 8 indicates Windows® 8 Operating System.

Windows 7 indicates Windows® 7 Operating System.

■ Terms and illustrations in these instructions

CAUTION :	Conditions that may result in minor or moderate injury.
NOTE :	Useful and helpful information.
Enter :	Press [Enter] key.
Fn + F5 :	Press and hold [Fn] key, and then press [F5] key.
Windows 8	
[Charm] -  :	This illustration means to click  (Settings) in the Charm menu that appears when you align the cursor to the top right (or bottom right) corner of the screen.
Windows 7	
 (Start) - [All Programs] :	Click  (Start), and then click [All Programs].
 :	Page in these Operating Instructions or in the Reference Manual.
 :	Reference to the on-screen manuals.

- 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.
 - “Windows® 8 Pro 64-bit” as “Windows” or “Windows 8”
 - “Windows® 7 Professional 32-bit Service Pack 1” and “Windows® 7 Professional 64-bit Service Pack 1” as “Windows” or “Windows 7”
 - DVD MULTI drive as “CD/DVD drive”
- For models with the flash memory drive, read the terms “hard disk” and “hard disk drive” as “flash memory drive”.
- **Windows 8**
Screen messages are explained in [English (United States)].
(Depending on the language preference, some screen messages in these instructions are different from the actual screen messages.)

■ Disclaimer

Computer specifications and manuals are subject to change without notice. Panasonic Corporation assumes no liability for damage incurred directly or indirectly from errors, omissions or discrepancies between the computer and the manuals.

■ Trademarks

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SDXC Logo is a trademark of SD-3C, LLC.



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Bluetooth® is a registered trademark owned by Bluetooth SIG, Inc., U.S.A. and licensed to Panasonic Corporation.

HDMI, the HDMI Logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC in the United States and other countries.

Names of products, brands, etc., appearing in this manual are trademarks or registered trademarks of their respective own companies.

■ On-screen Manual

For further information about the computer, you can refer to the on-screen manual.

- **Reference Manual**

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

- **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 on-screen manuals, follow the steps below.

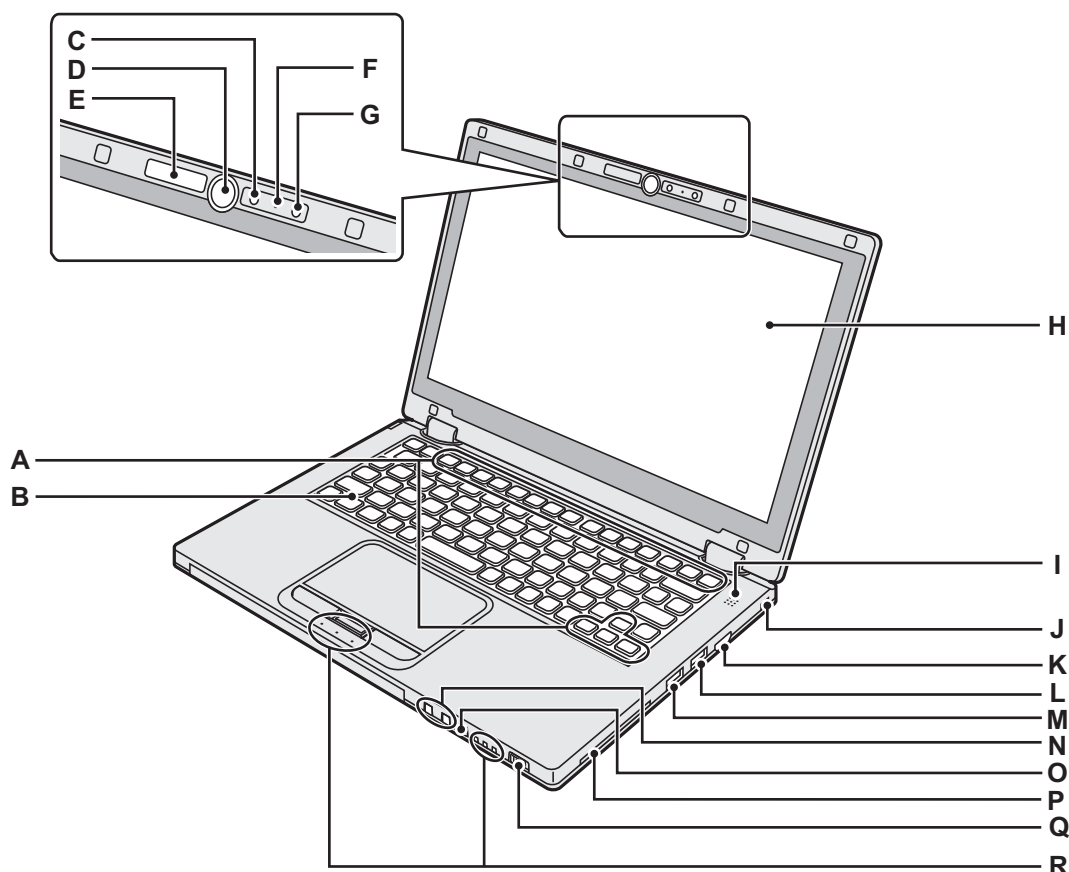
Windows 8

On the Start screen, click the [Manual Selector] tile, and select the on-screen manual.

Windows 7

Double-click [Manual Selector] on the desktop screen, and select the on-screen manual.

Description of Parts



A : Function key

→ Reference Manual "Key Combinations"

B : Keyboard

C : Camera

→ Reference Manual "Camera"

D : Windows button

Press this button to return to the Start screen, either in the Laptop mode or Tablet mode.

E : Camera indicator

Lights when the built-in camera is operating.

F : Microphone

Inputs audio.

G : Ambient light sensor

The ambient light sensor is equipped with an automatic brightness adjustment function that adjusts the display screen. (→ page 21)

H : LCD

I : Speaker

→ Reference Manual "Key Combinations"

J : Security lock

A Kensington cable can be connected.
For further information, read the manual that comes with the cable.
The security lock and cable is a theft prevention device. Panasonic Corporation will bear no responsibility in the event of theft.

K : HDMI port

→ Reference Manual "External Display"

L : USB 3.0 port

→ Reference Manual "USB Devices"

M : USB 3.0 port (with continuous charging function)

→ Reference Manual "USB Devices"

N : Volume adjustment buttons

– : Decreases volume

+ : Increases volume

O : Rotation lock button

Locks the screen display. (Only in the Tablet mode)

→ Reference Manual "Display Rotation"

P : Smart Card Slot

<Only for model with Smart Card Slot>

Q : Power switch

Power status indicator

- Off: Power off/Hibernation

- Green: Power on

- Blinking green: Sleep

R : LED indicator

Caps Lock

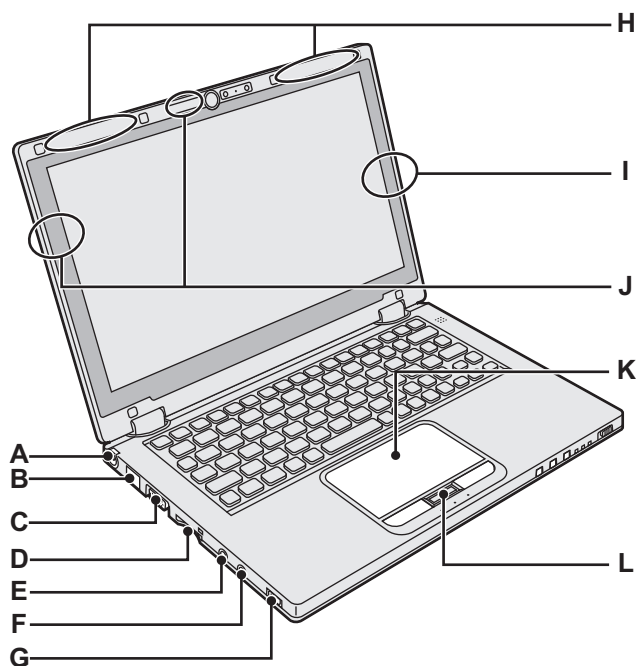
HOLD: HOLD mode

Numeric key (NumLk)

1 2: Battery status

→ Reference Manual "Battery Power"

Drive status



A : DC-IN jack

B : LAN port

→ Reference Manual "LAN"

C : VGA port

→ Reference Manual "External Display"

D : SD Memory Card slot

: SD Memory Card status
(Blinking: During access)

→ Reference Manual "SD Memory Card"

E : Microphone jack

A condenser microphone can be used. If other types of microphones are used, audio input may not possible, or malfunctions may occur as a result.

F : Headphone jack

You can connect headphones or amplified speakers. When they are connected, audio from the internal speaker is not heard.

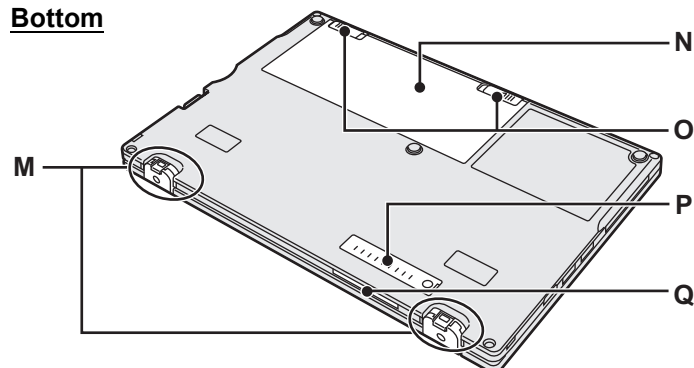
G : Wireless switch

→ Reference Manual "Disabling/Enabling Wireless Communication"

→ Reference Manual "Wireless LAN"

→ Reference Manual "Bluetooth"

Bottom



H : Wireless WAN antenna

<Only for model with wireless WAN>

→ Reference Manual "Wireless WAN"

I : Bluetooth antenna

→ Reference Manual "Bluetooth"

J : Wireless LAN antenna

→ Reference Manual "Wireless LAN"

K : Touch pad

L : HOLD button

On: HOLD mode activated

Off: HOLD mode deactivated

M : Rubber feet

Raise or lower the rubbers in accordance with the usage conditions.

Do not raise them in the Tablet mode. Otherwise the rubbers may break when changing to the Laptop mode.

N : Battery pack

→ page 14

O : Battery latch

Automatically locked when the battery pack is correctly secured. To unlock, slide the latches to the unlocked position .

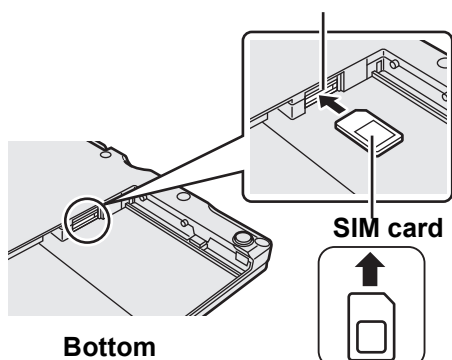
P : Dust cover

→ "To clean the inside of the dust cover" (page 23)

Q : Ventilation hole (Exhaust)

<Only for model with wireless WAN>

SIM card slot



SIM card slot is located in the battery compartment on the bottom of the computer. Remove the battery pack to insert the SIM card.

Insert the SIM card into the SIM card slot with the contact side facing upward and with the cut corner oriented as shown in the illustration.

Do not insert the SIM card upside down.

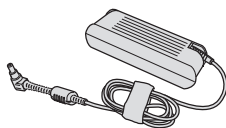
First-time Operation

■ Preparation

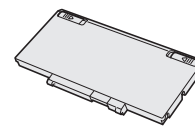
① Check and identify the supplied accessories.

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

• **AC Adaptor** 1 • **AC Cord** 1 • **Battery Pack** 1

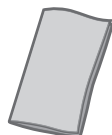


Model No: CF-AA6503A



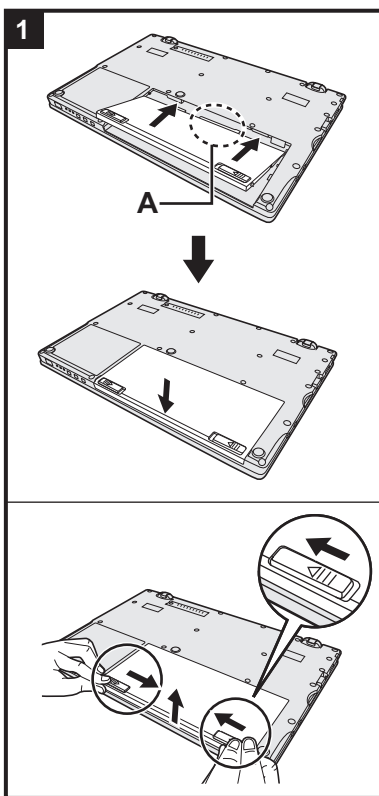
Model No: CF-VZSU81EA

• **Soft Cloth** 1



• **OPERATING INSTRUCTIONS (This book)** 1


② Read the LIMITED USE LICENSE AGREEMENT before breaking the seal on the computer's packaging (→ page 34).



1 Insert the battery pack.

- ① Turn the computer over.
- ② Slide the battery pack in parallel with the arrow direction.
- ③ Insert the connector (A) into the receptacle on the computer, and push the battery pack until it clicks into the secured position.

■ To remove the battery pack

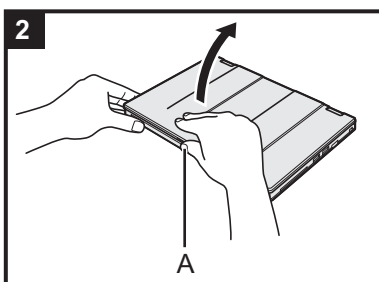
While sliding the left and right latches to the unlocked position , lift up the battery pack, and pull it out.

CAUTION

- Make sure the battery pack is securely locked. If not, 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. For the period of time the fully charged battery will fully discharge, refer to "Battery duration" (→ page 17).
- When the DC plug is not connected to the computer, disconnect the AC cord from your AC wall outlet. Power is consumed simply by having the AC adaptor plugged into an electrical outlet.

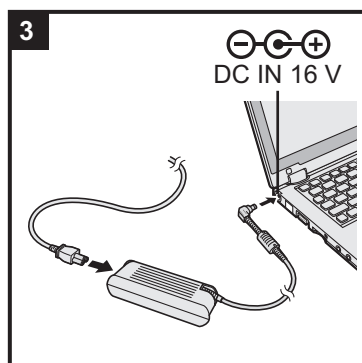


2 Open the display.

Hold the side of the computer with either of your hands and then hold and lift the (A) part to open the display.

CAUTION

- Do not apply excessive pressure to the LCD. Do not open or close the display holding the edge of the LCD segment.
- If the computer lifts when you are opening the display, hold the computer down at its side, for example.




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 (including wired LAN cable) 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.

Open the display, and slide and hold the power switch  (→ page 12) until the power status indicator (→ page 12) lights.

NOTE

- If the remaining charge of the built-in battery is less than 50%, performance of the computer is degraded. We recommend you to charge the built-in battery for 20 minutes or more before starting setup of Windows.

5 <For MUI OS model>

Windows 8 Select language.

Windows 7 Select language and OS (32-bit or 64-bit).

CAUTION

Windows 7

- Carefully choose your language because you cannot change it later. If you set a wrong language, you need to reinstall Windows.

Windows 8


- ① Select language on "Your display language" and click [Next].
Follow the on-screen instructions.

Windows 7

- ① Select language and OS (32bit or 64bit) on "Select OS" screen and click [OK].
The language setting will start by clicking [OK] on the confirmation screen.
You can return to the "Select OS" screen by clicking [Cancel].
The language and OS setting will be completed in about 15 minutes.
- ② When termination screen is displayed, click [OK] to turn off the computer.
- ③ Turn on the computer.

6 Setup Windows.


Follow the on-screen instructions.

- The computer restarts several times. Do not touch the keyboard or touch pad, and wait until the drive indicator  has turned off.
- After the computer is turned on, the screen remains black or unchanged for a while, but this is not a malfunction. Wait for a moment until the Windows setup screen appears.
- During setup of Windows, use the touch pad and clicking to move the cursor and to click an item.
- Setup of Windows will take approximately **Windows 8** 5 / **Windows 7** 20 minutes.
Go to the next step, confirming each message on the display.
- **Windows 7** Follow the steps below.
 - ① When "Enable sensors" is displayed, click [Enable this sensor].
 - ② When the [User Account Control] screen is displayed, click [Yes].

- ③ At the [Display Rotation Tool] confirmation screen, click [Yes].
The computer restarts automatically, and the setting is enabled.

- **Windows 7** “Join a wireless network” screen may not appear.
You can set the Wireless Network after the setup of Windows is complete.

CAUTION

- Wait until the drive indicator  has turned off.
- 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.
- Do not use the following words and characters for user name: CON, PRN, AUX, CLOCK\$, NUL, COM1 to COM9, LPT1 to LPT9, @, &, space. 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 **Windows 8** sign in / **Windows 7** log on to Windows (→ page 31).
- Use standard characters as a computer name: numbers 0 through 9, uppercase and lowercase letters from A to Z, and the hyphen (-) character. If the error message “The computer name is not valid” appears, check if characters other than the above are not entered. If the error message still remains on the display, set the key entry mode to English (“EN”) and enter characters.

7


Windows 8

Set the time zone, and then set the date and time.

- ① Open the Control Panel.
 1. Right-click any empty location on the Start screen.
 2. Click [All apps] on the toolbar.
 3. Click [Control Panel] under “Windows System”.
- ② Click [Clock, Language, and Region] - [Date and Time].
- ③ Click [Change time zone...].
- ④ Select the time zone, then click [OK].
- ⑤ Click [Change date and time...], then set the date and time.

8

Create the recovery disc.

If the recovery partition of the flash memory drive is damaged, for example, you can use a recovery disc to reinstall the OS and restore its factory default condition. We recommend creating a recovery disc before you begin using the computer.
Refer to →  *Reference Manual* “Recovery Disc Creation Utility” about creating the disc.

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”)


● **Windows 8** <For MUI OS model>

In the default settings, a shortcut icon for Korean language is on the Desktop screen. You may delete the icon if not necessary.

■ Before using wireless function

- ① Slide the wireless switch to ON.

Windows 8

- ② Click [Charm] -  - [Change PC Settings] - [Wireless].
Set [Airplane mode] to [Off], and then;
set [Wi-Fi] in “Wireless device” to [On] (for wireless LAN).
set [Mobile broadband] in “Wireless device” to [On] (for wireless WAN).
set [Bluetooth] in “Wireless device” to [On] (for Bluetooth).

■ 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 Windows 8

Open "Computer". Right-click [Computer], then click [Manage].

To open "Computer", proceed as follows on the Start screen.

1. Right-click any empty location on the Start screen.
2. Click [All apps] on the toolbar.
3. Click [Computer] under "Windows System".

Windows 7

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 System and OS partitions.] in installing OS (→ page 26), **Windows 8** <For localized OS model> 60 GB / <For MUI OS model> 70 GB **Windows 7** 60 GB 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.

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.

■ Battery duration

	<For model without Smart Card Slot>	<For model with Smart Card Slot>
In sleep	Approx. 3.5 days (Approx. 2.5 days with Wake Up from wired LAN function activated)	Approx. 3 days (Approx. 2 days with Wake Up from wired LAN function activated)
In hibernation	Approx. 20 days (Approx. 5 days with Wake Up from wired LAN function activated)	Approx. 15 days (Approx. 4 days with Wake Up from wired LAN function activated)
When power is off	Approx. 20 days (Approx. 5 days with Power On by LAN function activated)	Approx. 15 days (Approx. 4 days with Power On by LAN function activated)

The above table shows the battery duration while the USB port continuous charging function is not used.

The battery duration will slightly be longer if a LAN cable is not connected to the computer, even when Wake Up from wired LAN function is activated.

■ Windows 8 <For MUI OS model> To select language

To select a language other than the one you have selected during the first-time operation, follow the steps below.

① Open the Control Panel.

1. Right-click any empty location on the Start screen.
2. Click [All apps] on the toolbar.
3. Click [Control Panel] under "Windows System".

② Click [Clock, Language, and Region] - [Language] - [Add a language].

③ Select a language, and then click [Add]. Depending on the region, two or more languages are selectable. Click [Open] and select the desired language, and then click [Add].

④ Click [Option] for the language you want to use.

⑤ Click [Make this the primary language].

⑥ Click [Log off now].


⑦ Sign in to the Windows.

Turning On / Turning Off

Turning On

Slide and hold the power switch (→ page 12) until the power status indicator (→ page 12) lights.

NOTE

- Do not slide the power switch repeatedly.
- The computer will forcibly be turned off if you slide and hold the power switch for four seconds or longer.
- Once you turn off the computer, wait for ten 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, tablet buttons or external mouse
 - Closing the display
 - Turn on/off the wireless switch


Turning Off

- ① Shut down the computer.

Windows 8


1. Click [Charm] - [Settings].
2. Click [Power] - [Shut down].

Windows 7

Click  (Start) - [Shutdown].

- ② Close the display after the power indicator goes off completely.

NOTE

- **Windows 8**
To turn off the computer, proceed as follows.
 - ① Click [Charm] -  - [Change PC settings] - [General].
 - ② Click [Restart now] under “Advanced startup”.
 - ③ Click [Turn off your PC].


When Starting Up/Shutting Down

Do not do the following

- Connecting or disconnecting the AC adaptor
- Sliding the power switch
- Touching the keyboard, 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 :
 - 10 minutes (when AC adaptor is connected) of inactivity
 - 5 minutes (when operating on battery power) of inactivity
 - The computer automatically enters sleep*¹ after :
 - Windows 8** 30 minutes / **Windows 7** 20 minutes (when AC adaptor is connected) of inactivity
 - 15 minutes (when operating on battery power) of inactivity

*¹ Refer to  *Reference Manual* “Sleep and Hibernation Functions” about resuming from sleep.

Switching the Display Mode

Laptop Mode and Tablet Mode

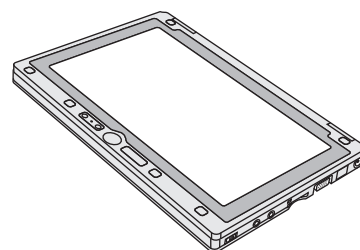
■ Laptop mode

- Operate the computer as a standard notebook PC using the keyboard, touchpad, and touchscreen.
- You can press the HOLD button to disable the keyboard and touchpad or only the touchpad. (→  *Reference Manual* “Using the Touch Pad”)




■ Tablet mode

- Operate the computer using the touchscreen.
- The keyboard and touchpad are disabled automatically.
- When the automatic rotation is enabled, the screen will rotate automatically based on the angle in which you hold the computer.



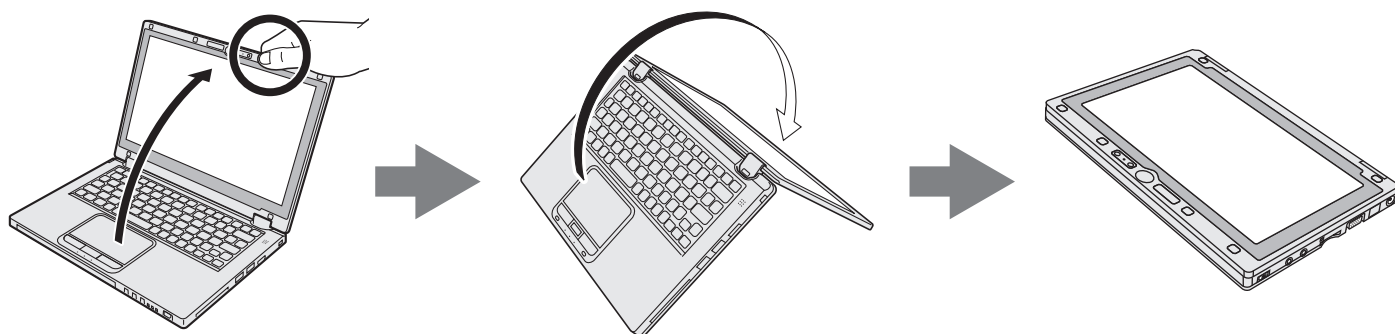
Precautions during Switching

CAUTION

- Be careful when changing the display mode to prevent tangling the cables.
- If peripheral devices that may get in the way are connected, disconnect them before changing the display mode.
- When changing the display mode, unintentional operation of the keyboard and touchpad may occur. You can prevent such unintentional operations using the HOLD button. (→  *Reference Manual* “Using the Touch Pad”)

Switching from Laptop Mode to Tablet Mode

Hold the display in the area circled in the illustration below, and fold it backward.



The computer will operate in laptop mode until the display mode finishes switching over to tablet mode.

Handling and Maintenance

Operation Environment

- Place the computer on a flat stable surface not subject to shock, vibration, and danger of dropping. 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 {41 °F to 95 °F}
 - Storage : -20 °C to 60 °C {- 4 °F to 140 °F}
- Humidity:
 - Operation : 30% to 80% RH (No condensation)
 - Storage : 30% to 90% RH (No condensation)

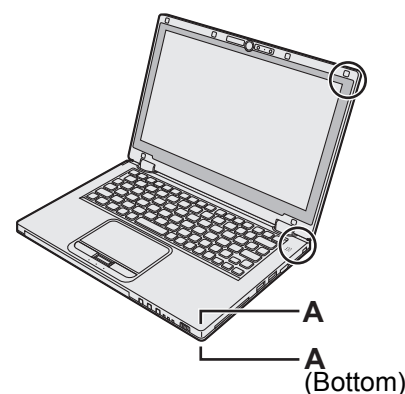
Even within the above temperature/humidity ranges, operation for a long time in extreme environments, smoking nearby, or operation in places where oil is used or where there is a lot of dust will result in the product deterioration and will shorten the product life.

- Be sure to use the computer in an environment with sufficient heat ventilation.
 - Avoid using the computer on a highly heat retentive surfaces (e.g., rubber pads and blankets). If possible, use the computer on surfaces that can dissipate heat, such as a steel desk.
 - Do not cover the computer with towels, keyboard covers, etc., as this prevents heat dissipation.
 - When using the computer, always keep the display open. (Note, however, that closing the display while the computer is in use does not cause generation of heat, ignition, or other malfunctions.)
 - When using the computer in the Laptop mode, the areas around the ventilation holes become especially hot. Do not hold the computer by these areas in the Laptop mode.
Do not use the computer on your lap for an extended periods of time.
- 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 flash memory 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, and other protruding objects.
 - Do not drop or hit the computer against solid objects.
 - Do not leave the display open.
 - Do not pick up or hold the computer by the display part.
 - Do not put anything (e.g., a piece of paper) between the display and keyboard.
- When flying on an airplane:
 - Carry the computer with you, and never put it in checked baggage.
 - Obey the airline's instructions when using the computer on the airplane.
- When carrying a spare battery, put it in a plastic bag to protect its terminals.
- This computer contains a magnet and magnetic products at the locations circled in the illustration at the right. Avoid leaving metallic object or magnetic media in contact with these areas.
- Do not place an object containing magnetic power to the (A) portions. Doing so may cause the computer to detect mistakenly that the display is closed, and as a result, the display may go out and the computer may enter sleep.
- 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.
- If the computer is being carried in a soft bag with the battery pack removed, avoid undue pressure on the body of the computer in a crowded place, etc., as this may result in damage to the LCD.





■ When the battery indicator does not light on

The battery indicator may not light on even if the AC adaptor and the battery pack are correctly connected to the computer, due to the following reasons.

- The AC adaptor's protection function may be working. In this case, pull out the AC cord and wait for more than 1 minute before reconnecting the AC cord.
- When the battery is fully charged and the computer is not operating (i.e., it is turned off or in sleep mode), the power supply from the AC adaptor stops and power consumption is inhibited (except when the Wake Up from LAN or the Power On by LAN function is enabled). In this case, the indicator will light green upon connecting the AC adaptor, but only for a moment.

■ If the computer becomes warm during usage

- When the screen is displayed on the External Display using Intel® Wireless Display Software, click  on the notification area, click , and click [Panasonic Power management (Better Heat Dispersion)].
 - When changing to [Panasonic Power management (Better Heat Dispersion)], the following settings will change.
 - Change to [High Speed] from [Standard] in [Fan control mode].
Rotation of the cooling fan will become faster and the computer can be cooled down. Note that the battery operating time will be shorter.
 - Switch the screen saver to [Prohibited].
 - Other setting changes such as the lowering of the internal LCD brightness.
 - When you do not frequently use CPU or the rotation noise of the fan bothers you, set [Standard] or [Low Speed] in [Fan control mode].
- If you are not using a wireless LAN, turn the wireless LAN off.
- Clean the inside of the dust cover once a month. (→ page 23)

■ 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

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

■ Battery Recalibration

- The battery recalibration may take a long time due to the large battery capacity. This is not a malfunction.
<When performing "Battery Recalibration" after shutting down Windows>
 - Full charge: Approximately 4 hours (max.) (Approximately 3.5 hours (max.) for models with Smart Card slot) (with CF-VZSU81EA)
 - Complete discharge: Approximately 3 hours (max.) (Approximately 2.5 hours (max.) for models with Smart Card slot) (with CF-VZSU81EA)
 When performing "Battery Recalibration" without shutting down Windows, it may take more time to charge / discharge.

■ Sensors

This computer is equipped with four sensors (acceleration sensor, gyro sensor, magnetic sensor, ambient light sensor), and you can use these sensors with any software that is compatible.

As the accuracy of each sensor output is dependent on the operating environment and other conditions, the results should only be used as a reference.

The acceleration sensor, gyro sensor, and magnetic sensor are located under the keyboard. The detection results of each sensor may vary depending on the display mode, how you are holding the computer, the application software you are using, and other factors.

● Display rotation

When the computer is in the Tablet mode, and the automatic rotation is on, the built-in acceleration sensor detects the computer's inclination, and the screen display rotates automatically.

When an external display is connected, the display does not rotate.


Handling and Maintenance

Note also that some application programs may not support the primary and secondary Portrait angle display. For such programs, use the computer in primary or secondary Landscape angle.


● Automatic brightness adjustment

The computer is equipped with an automatic brightness adjustment function that adjusts the display screen based on the ambient light sensor. You can configure the automatic adjustment function as follows.

Windows 8

① Click [Charm] -  - [Change PC Settings] - [General] - [Screen] - [Adjust my screen brightness automatically].

Windows 7

① Click  (Start) - [Control Panel] - [Hardware and Sound] - [Power Option].

② Click [Change plan settings] for the power plan currently used.

③ Click [Change advanced power settings] and double-click [Display].

④ Double-click [Enable adaptive brightness], make necessary settings, and click [OK].

Set each item to ON, and the brightness of the screen display will adjust automatically.

The ambient light sensor is located at the top of LCD.

The ambient light cannot be detected properly if this area is obstructed or dirty.

● Magnetic sensor

The magnetic sensor on the computer operates by detecting geomagnetism. Therefore, the magnetic sensor may not function properly and its readings may be inaccurate, especially in the following environments.

- Inside or near steel structures such as buildings or bridges
- Inside or near automobiles, or near train power lines
- Near metallic furniture or appliances
- When the AC adaptor or other peripheral devices are brought closer to the computer
- Near magnets, speakers, or other objects with strong magnetic fields

The magnetic directions indicated by the magnetic sensor may not be accurate immediately after purchase or in environments with poor magnetic fields.

In such cases, turn on the computer and move it as follows.

① Hold the computer so that its keyboard side is facing the ground and level.

② While keeping the computer level, rotate it 90 degrees or more clockwise.

③ Tilt the computer 90 degrees or more so that the side of the computer tilts down.


CAUTION

- Hold the computer firmly when moving it. Strong shocks from dropping the computer may result in damage.

Maintenance

If drops of water or other stains get on the surface of the LCD panel, wipe them off immediately. Failure to do so may result in staining.

To clean the LCD panel

Use the soft cloth included with the computer. (For further information, refer to “Suggestions About Cleaning the LCD Surface” →  *Reference Manual* “Screen Input Operation”.)

To clean the touch pad

Wipe lightly with a gauze or other dry, soft cloth.

To clean areas other than the LCD panel and touch pad

Wet a soft cloth with water or a diluted kitchen cleanser (neutral), wring the cloth out thoroughly, and wipe the dirty area gently. Using a detergent other than a neutral kitchen cleanser (e.g., a weak alkali cleanser) may adversely affect painted surfaces.

CAUTION

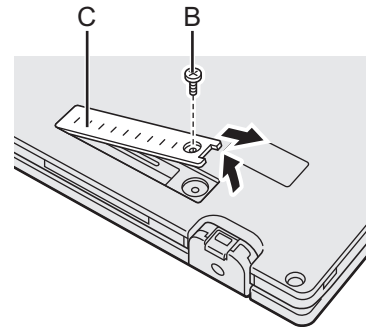
- Do not use benzene, thinner, or rubbing alcohol since it may adversely affect the surface causing discoloration, etc. Do not use commercially-available household cleaners and cosmetics, as they may contain components harmful to the surface.

- Do not apply water or detergent directly to the computer, since liquid may enter inside of the computer and cause malfunction or damage.

To clean the inside of the dust cover

Clean the inside of the dust cover once a month.

- ① Turn off the computer, and disconnect the AC adaptor.
- ② Close the display, and turn the computer over.
- ③ Remove the battery pack.
- ④ Remove the screw (B), and remove the dust cover (C) in the direction of the arrow.
- ⑤ Clean the inside of the dust cover.
- ⑥ After cleaning, reset the dust cover (C), and secure the screw (B).




CAUTION

- If dust is piled up inside the dust cover and hard to remove, use an electric cleaner. Be careful not to inhale dust.
- Make sure no water or other liquid spills inside the dust cover, and pay attention not to drop the screw inside the dust cover.

Dispose of Computer

■ Preparation

- Remove all peripherals (SD memory card etc.).
- Erase the stored data. (→  *Reference Manual* "Hard Disk Data Erase Utility")

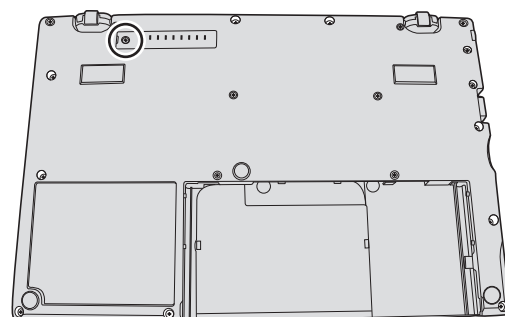
CAUTION

- Never disassemble the computer except before disposal.
- Refer to page 3 for precautions when disposing of the computer.

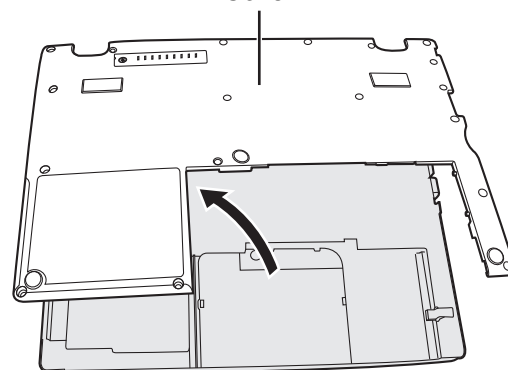
1. Turn off the computer.
 - Do not use sleep/hibernation.
2. While connecting the battery pack, disconnect the AC adaptor.
3. While pressing the HOLD button, slide the power switch for more than five seconds. The built-in battery's power output stops.
4. Turn over the computer, and remove the battery pack.

Handling and Maintenance

5. Remove the screws (19), except the one circled in the illustration, and remove the cover.

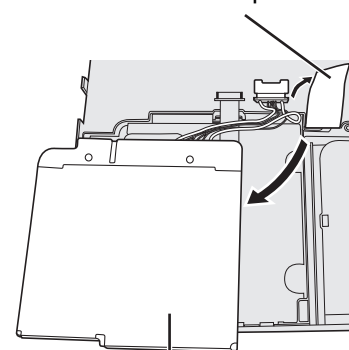


Cover



6. Remove the tape that secures the cords, and move the built-in battery as shown in the illustration. (Illustration: models without Smart Card slot)

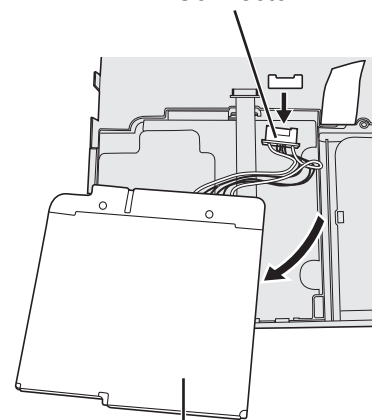
Tape



Built-in battery

7. Disconnect the connector, and remove the built-in battery. (Illustration: models without Smart Card slot)

Connector



Built-in battery

Installing Software

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

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

CAUTION

- Do not delete the Recovery Partition on the hard disk. The disk space in the partition is not available to store data. To check the Recovery Partition, perform the following methods.


① Windows 8

Open "Computer". Right-click [Computer], then click [Manage].

To open "Computer", proceed as follows on the Start screen.

1. Right-click any empty location on the Start screen.
2. Click [All apps] on the toolbar.
3. Click [Computer] under "Windows System".

Windows 7

Click  (Start) and right-click [Computer], then click [Manage].

- A standard user needs to enter an administrator password.

② Click [Disk Management].

■ Hard Disk Recovery


You can reinstall the OS that was pre-installed at the time of purchase (Windows 8 or Windows 7).

Preparation

- Change to the laptop mode.
- Remove all peripherals.
- Connect the AC adaptor and do not remove it until installation is complete.

Windows 8

1 Start the Setup Utility.

- ① Click [Charm] -  - [Change PC settings] - [General].
- ② Click [Restart now] under "Advanced startup".
- ③ Click [Troubleshoot] - [Advanced options] - [UEFI Firmware Settings] - [Restart].


2 Write down all of the contents of the Setup Utility and press **F9**.

At the confirmation message, select [Yes] and press **Enter**.

3 Press **F10**.

At the confirmation message, select [Yes] and press **Enter**.
The computer will restart.

4 Perform "Remove everything and reinstall Windows".

- ① Click [Charm] -  - [Change PC settings] - [General].
 - ② Click [Get Started] under "Remove everything and reinstall Windows".
- Installation starts according to the instructions on the screen. (It will take approximately 20 minutes.)
- Do not interrupt installation, for example by turning off the computer or pressing **Ctrl + Alt + Del**.
Otherwise installation may become unavailable as Windows may not start up or the data may be corrupted.

5 When termination screen is displayed, click [OK] to turn off the computer.

6 Turn on the computer.

- If the password is requested, enter the Supervisor Password.

7 Perform the "First-time Operation" (→ page 15).

NOTE

- The date and time, and the time zone may not be correct. Be sure to set them correctly.

8 Start the Setup Utility and change the settings as necessary.

9 Perform Windows Update.

10 <Only for model with TPM> Clear TPM.

- ① Right-click any empty location on the Start screen, and click [All apps] on the toolbar.
- ② Click [Run] under "Windows System", input [tpm.msc] and click [OK].
- ③ Click "TPM Clear ..." under "Actions" on the right of the "TPM Manager on Local Computer" screen.

Installing Software

- ④ Click [Restart] of the “Manage the TPM security hardware” screen.
The computer will restart.
- ⑤ When “TPM configuration change was requested to ...” is displayed, press **F12**.
The desktop screen appears.
- ⑥ When “TPM is ready” appears, click [Close].

Windows 7

- 1 Turn on the computer, and press **F2** or **Del** while [Panasonic] boot screen is displayed.**
The Setup Utility starts up.
 - If the [Panasonic] boot screen is not displayed, turn on the computer while holding down **F2** or **Del**.
 - If the password is requested, enter the Supervisor Password.
- 2 Write down all of the contents of the Setup Utility and press **F9**.**
At the confirmation message, select [Yes] and press **Enter**.
- 3 Press **F10**.**
At the confirmation message, select [Yes] and press **Enter**.
The computer will restart.
- 4 Press **F2** or **Del** while [Panasonic] boot screen is displayed.**
The Setup Utility starts up.
 - If the password is requested, enter the Supervisor Password.
- 5 Select the [Exit] menu, then select [Recovery Partition] and press **Enter**.**
- 6 Click [Reinstall Windows] and click [Next].**
The License Agreement screen appears.
- 7 Click [YES].**
The License Agreement screen appears.
- 8 Click [Yes, I agree to the provisions above and wish to continue!] and click [Next].**
- 9 Select the setting and click [Next].**
 - [Reinstall Windows to the whole Hard Disk to factory default.]
Select this option when you want to install Windows to the factory default. After installation, you can create a new partition. For how to create a new partition, refer to “To change the partition structure” (→ page 17).
 - [Reinstall to the System and OS partitions.]*¹
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 17).
You can keep the partition structure.

^{*1} This does not appear if Windows cannot be installed to the recovery partition and the area usable by Windows.
- 10 At the confirmation message, click [YES].**
- 11 <For MUI OS model>**
Select language and OS (32bit or 64bit), then click [OK].
<For localized OS model>
Select OS (32bit or 64bit) and click [OK].
- 12 At the confirmation message, click [YES].**
Installation starts according to the instructions on the screen. (It will take approximately 20 minutes.)
 - Do not interrupt installation, for example by turning off the computer or pressing **Ctrl** + **Alt** + **Del**.
Otherwise installation may become unavailable as Windows may not start up or the data may be corrupted.
- 13 When Ending process screen is displayed, 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 15).**
- 16 Start the Setup Utility and change the settings as necessary.**
- 17 Perform Windows Update.**

■ Using Recovery Disc


Use the Recovery Disc in the following conditions.

- You have forgotten the administrator password.
- Installation is not complete. The recovery partition in the hard disk may be broken.
- **Windows 7** To change OS from Windows 7 to Windows 8, or vice versa.

NOTE

- **Windows 7** To change OS from 32 bit to 64 bit, or vice versa, install OS using the recovery partition in the hard disk.


Preparation

- Change to the laptop mode.
- Prepare the following items:
 - Recovery Disc (→  *Reference Manual* “Recovery Disc Creation Utility”)
 - USB DVD drive (optional) (refer to recent catalogs and other sources for information about the products available)
- Remove all peripherals (except for the USB DVD drive).
- Connect the AC adaptor and do not remove it until installation is complete.

1 Connect the DVD drive to the USB port.

2 Start the Setup Utility.

Windows 8

- ① Click [Charm] -  - [Change PC settings] - [General].
- ② Click [Restart now] under “Advanced startup”.
- ③ Click [Troubleshoot] - [Advanced options] - [UEFI Firmware Settings] - [Restart].

Windows 7

Turn on the computer, and press **F2** or **Del** while [Panasonic] boot screen is displayed.

- If the [Panasonic] boot screen is not displayed, turn on the computer while holding down **F2** or **Del**.
- 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 Check the [UEFI Boot] setting of the Setup Utility.

[UEFI Boot] should be set to as follows.

When the recovery disc for Windows 8 is used: [Enabled]

When the recovery disc for Windows 7 is used: [Disabled]

5 Set the Recovery Disc into the CD/DVD drive.

6 Press **F10**.

At the confirmation message, select [Yes] and press **Enter**.

The computer will restart.

7 Press **F2** or **Del** while [Panasonic] boot screen is displayed.

The Setup Utility starts up.

- If the password is requested, enter the Supervisor Password.

8 Select the [Exit] menu, then select your DVD drive in [Boot Override].

9 Press **Enter**

The computer will restart.

10 Click [Reinstall Windows] and click [Next].

11 **Windows 8** At the confirmation message, click [YES].

12 At the License Agreement screen, click [Yes, I agree to the provisions above and wish to continue!] and click [Next].

13 When the recovery disc for Windows 8 is used, click [Next].

When the recovery disc for Windows 7 is used, select the setting and click [Next].

- [Reinstall Windows to the whole Hard Disk to factory default.]
Select this option when you want to install Windows to the factory default. After installation, you can create a new partition. For how to create a new partition, refer to “To change the partition structure” (→ page 17)
- [Reinstall to the System and OS partitions.]*²
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 17).
You can keep the partition structure.

*² This does not appear if Windows cannot be installed to the recovery partition and the area usable by Windows.

Installing Software

14 At the confirmation message, click [YES].

Installation starts according to the instructions on the screen. (It will take approximately 30 - 45 minutes.)

- Do not interrupt installation, for example by turning off the computer or pressing **Ctrl** + **Alt** + **Del**.
Otherwise installation may become unavailable as Windows may not start up or the data may be corrupted.

15 When Ending process screen is displayed, remove the Recovery Disc and DVD drive.

Windows 7 Click [OK] to turn off the computer.

Windows 8 Click [OK].

The computer will restart.

16 Turn on the computer.

- If the password is requested, enter the Supervisor Password.

17 Perform the “First-time Operation” (→ page 15).

NOTE


- **Windows 8** The date and time, and the time zone may not be correct. Be sure to set them correctly.
-

18 Start the Setup Utility and change the settings as necessary.

19 Perform Windows Update.

20 **Windows 8** <Only for model with TPM> Clear TPM (→ page 25).

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* "Checking the Computer's Usage Status").

■ Starting Up


The computer does not power on / The power status indicator or battery indicator is not lit.	<ul style="list-style-type: none"> ● Connect the AC adaptor. ● Insert a fully charged battery. ● Remove the battery pack and the AC adaptor, then connect them again. ● 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 your technical support office. ● Pull out the AC cord and wait for more than 1 minute to reconnect the AC cord.
Windows does not start up.	<ul style="list-style-type: none"> ● Remove all peripheral devices (e.g. USB memory). ● If the power status indicator is lit, slide the power switch for four seconds or longer to turn off, then turn on again. ● Windows 7 Using the following procedure, start up in Safe Mode, and check the error details. <ol style="list-style-type: none"> ① Turn on the computer, and when the [Panasonic] boot screen disappears (after entering the password^{*1} if one is set) hold down F8. ② Release your finger when [Windows Advanced Options Menu] is displayed, and with ↑ or ↓, select [Safe Mode], then press Enter. Follow the on-screen instructions. <p>^{*1} Supervisor Password or User Password set with the Setup Utility</p> <ul style="list-style-type: none"> ● Press F9 in the Setup Utility to return the Setup Utility settings (excluding the passwords) to the default values. Start the Setup Utility and make the settings again. ● Check the [UEFI Boot] setting of the Setup Utility. [UEFI Boot] should be set to Windows 8 [Enabled] / Windows 7 [Disabled].
You have forgotten the password.	<ul style="list-style-type: none"> ● Supervisor Password or User Password: Contact Panasonic Technical Support. ● Administrator password: <ul style="list-style-type: none"> • If you have another account with Administrator authority, log-on with it, then delete the password for the problem account. • If you have a password reset disk, click [Reset password] displayed after the password input error, then follow the on-screen instructions and set a new password. <p>If you cannot do either of the above, you will need to reinstall (➔ page 25) and setup Windows.</p>
"Remove disks or other media. Press any key to restart" or a similar message appears.	<ul style="list-style-type: none"> ● A floppy disk in the drive or USB memory is connected, and it does not contain system startup information. Remove the floppy disk and USB memory, then press any key. ● If a device is connected to the USB port, disconnect the device, or set [USB Port] or [Legacy USB Support] to [Disabled] in the [Advanced] menu of the Setup Utility. ● If the problem persists after removing the disk, it may be a flash memory drive failure. Perform the installation and return the flash memory drive to its condition at the time of purchase. (➔ page 25) If the problem persists even after the reinstallation, contact Panasonic Technical Support.

Troubleshooting (Basic)



■ Starting Up

The date and time are incorrect.	<ul style="list-style-type: none"> ● Make the correct settings. <ol style="list-style-type: none"> ① Open the Control Panel. <div>Windows 8</div> <ol style="list-style-type: none"> 1. Right-click any empty location on the Start screen. 2. Click [All apps] on the toolbar. 3. Click [Control Panel] under "Windows System". <div>Windows 7</div> <p>Click  (Start) - [Control Panel].</p> <ol style="list-style-type: none"> ② Click [Clock, Language, and Region] - [Date and Time]. ③ Click [Change time zone...]. ④ Select the time zone, then click [OK]. ⑤ Click [Change date and time...], then set the date and time. ● If the problem persists, the internal clock battery may need to be replaced. Contact Panasonic Technical Support. ● When the computer is connected to LAN, check the date and time of the server. ● The 2100 A.D. or later year will not be correctly recognized on this computer.
[Executing Battery Recalibration] screen appears.	<ul style="list-style-type: none"> ● 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.
[Enter Password] does not appear when resuming from sleep / hibernation.	<ul style="list-style-type: none"> ● Select [Enabled] in [Password On Resume] in the [Security] menu of the Setup Utility (→  <i>Reference Manual</i> "Setup Utility"). ● The Windows password can be used instead of the password set in the Setup Utility. <ol style="list-style-type: none"> ① Open the Control Panel. <div>Windows 8</div> <ol style="list-style-type: none"> 1. Right-click any empty location on the Start screen. 2. Click [All apps] on the toolbar. 3. Click [Control Panel] under "Windows System". <div>Windows 7</div> <p>Click  (Start) - [Control Panel].</p> <ol style="list-style-type: none"> ② Click [User Accounts and Family Safety] - [Add or remove user accounts]. ③ Click [System and Security] - [Power Option] - [Require a password when the computer wakes] and add a check mark for [Require a password].
The computer will not automatically enter sleep or hibernation.	<ul style="list-style-type: none"> ● If you connect to a network using wireless LAN function, perform access point settings. (→  <i>Reference Manual</i> "Wireless LAN") ● If you do not use wireless LAN function, turn off wireless LAN function. (→  <i>Reference Manual</i> "Disabling/Enabling Wireless Communication") ● Make sure that you are not using any software that regularly accesses the hard disk.
When logging on (e.g., resuming the computer), audio is distorted.	<ul style="list-style-type: none"> ● Perform the following steps to change the audio settings to prevent audio output. <div>Windows 8</div> <ol style="list-style-type: none"> ① Click the [Desktop] tile on the Start screen. ② Right-click the desktop and click [Personalize] - [Sound]. ③ Remove the check mark from [Play Windows Startup sound], and click [OK]. <div>Windows 7</div> <ol style="list-style-type: none"> ① Right-click the desktop and click [Personalize] - [Sounds]. ② Remove the check mark from [Play Windows Startup sound], and click [OK].
Cannot resume.	<ul style="list-style-type: none"> ● One of the following operations may have been carried out. Slide the power switch to turn on the computer. Data not saved will be lost. <ul style="list-style-type: none"> • In sleep mode, the AC adaptor or battery pack was disconnected, or a peripheral was connected or disconnected. • The power switch was slid for four seconds or longer to forcibly turn off the computer.

■ Starting Up

Other startup problems.	<ul style="list-style-type: none"> ● Check to see if there was a disk error. <ol style="list-style-type: none"> ① Remove all peripheral devices including an external display. ② Open "Computer". <ul style="list-style-type: none"> Windows 8 <ol style="list-style-type: none"> 1. Right-click any empty location on the Start screen. 2. Click [All apps] on the toolbar. 3. Click [Computer] under "Windows System". Windows 7 <ul style="list-style-type: none"> Click  (Start) - [Computer]. ③ Right-click [Local Disk (C:)], and click [Properties]. ④ Click [Tools] - [Check Now...]. <ul style="list-style-type: none"> • A standard user needs to enter an administrator password. ⑤ Select the option in [Check disk options] and click [Start]. ⑥ Click [Schedule disk check] and restart the computer. ● Windows 7 <ul style="list-style-type: none"> Start the computer in Safe Mode and check the error details. (→ page 29 "Windows does not start up".)
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■ Entering Password

Even after entering the password, password input screen is displayed again.	<ul style="list-style-type: none"> ● The computer may be in ten-key mode. <ul style="list-style-type: none"> If the NumLk indicator  lights, press NumLk to disable the ten-key mode, and then input. ● The computer may be in Caps Lock mode. <ul style="list-style-type: none"> If the Caps Lock indicator  lights, press Caps Lock to disable the Caps Lock mode, and then input.
Cannot log on to Windows. ("The user name or password is incorrect" is displayed.)	<ul style="list-style-type: none"> ● The user name (account name) includes an "@" mark. <ul style="list-style-type: none"> If another user account exists: <ul style="list-style-type: none"> Log on to Windows using another user account, and delete the account that includes "@". Then create a new account. If no other account exists: <ul style="list-style-type: none"> You need to reinstall Windows (→ page 25).

■ Shutting down

Windows does not shut down.	<ul style="list-style-type: none"> ● Remove all peripheral devices. ● Wait one or two minutes. It is not a malfunction.
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■ Display






When the screen becomes black for a moment.	<ul style="list-style-type: none"> ● When you set [Display power saving function] of Power Plan Extension Utility to [Enabled], if you do the following operations, the screen becomes black for a moment, but this is not a malfunction. You can use it. <ul style="list-style-type: none"> • Adjust the brightness of the screen with Fn + F1 / Fn + F2. • Remove and insert the AC adaptor. While you are using motion video playback software, benchmark software for graphic, if error screen is displayed or application software does not function normally, set [Display power saving function] to [Disabled].
No display.	<ul style="list-style-type: none"> ● The external display is selected. Press Fn + F3 (or  + P) to switch the display. Wait until the display has been switched completely before pressing Fn + F3 (or  + P) again. ● 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 Ctrl. ● The computer entered sleep or hibernation by the power-saving function. To resume, slide the power switch. ● The screen may become darker. Press Fn + F2 to make the screen brighter.

Troubleshooting (Basic)

■ Display

The screen is disordered.	<ul style="list-style-type: none"> Changing the number of display colors and resolution may affect the screen. Restart the computer. The refresh rate of the internal LCD may be 40 Hz. Change the refresh rate of the internal LCD. <ol style="list-style-type: none"> Windows 8 <ol style="list-style-type: none"> Click the [Desktop] tile on the Start screen. Right-click on the desktop, and click [Graphics Properties]. Windows 7 <ol style="list-style-type: none"> Right-click on the desktop, and click [Graphics Properties]. Click [OK]. If [Refresh Rate] for the Notebook is [40 Hz], change to [60 Hz] and click [OK].
The external display does not work normally.	<ul style="list-style-type: none"> 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.
The image on the display does not rotate.	<ul style="list-style-type: none"> The application program currently running may not support the image rotation. Quit the program, and then try to rotate the image. This can ameliorate the status. Under the factory default settings, the image display will not rotate automatically in Laptop mode. The image will not rotate in Tablet mode either if the auto rotation is disabled.


■ Battery

The battery indicator  lights red.	<ul style="list-style-type: none"> The battery level is very low (the charge is approx. 9% or less). Connect the AC adaptor. You can use the computer when the indicator light is orange. If you do not have an AC adaptor, save your data and power off your computer. After replacing the battery pack with a fully charged one, turn your computer on again.
The battery indicator   lights red.	<ul style="list-style-type: none"> Quickly save your data and power off your computer. Connect the AC adaptor and wait until the battery indicator   lights orange.
The battery indicator is blinking.	<ul style="list-style-type: none"> If blinking red: <ul style="list-style-type: none"> Quickly save your data and power off your computer. Remove the battery pack and disconnect the AC adaptor, then connect them again. If the problem persists, contact Panasonic Technical Support. The battery pack or charging circuit may be defective. If blinking orange: <ul style="list-style-type: none"> Battery cannot be recharged temporarily because the internal temperature of the battery pack is outside the acceptable temperature range for recharging. Your computer can be used normally in this state. Once the range requirement is satisfied, charging begins automatically. Software applications and peripheral devices (USB devices, etc.) are consuming too much power. Exit the software applications currently running, and remove all peripherals. Once the range requirement is satisfied, charging begins automatically.
The battery indicator is flashing.	<ul style="list-style-type: none"> The battery is recharging. <ul style="list-style-type: none"> If [Battery Charging Indicator] in [Main] menu of the Setup Utility is set to [Flashing], the indicator will alternately become lighter and darker.


■ Touch Pad

The cursor does not work.	<ul style="list-style-type: none"> When using the external mouse, connect it correctly. Restart the computer using the keyboard. If the computer does not respond to keyboard commands, read "No response" (→ page 33). You cannot use the Touch Pad in the Tablet mode. If the Touch Pad cannot be used in the Laptop mode, the computer may be in the HOLD mode. Press the HOLD button to deactivate the HOLD mode.
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■ On-screen Document

<p>Windows 7 The document of PDF format is not displayed.</p>	<ul style="list-style-type: none"> ● Install Adobe Reader. <ol style="list-style-type: none"> ① Log on to Windows as an administrator. ② Click  (Start) and input "c:\util\reader\Pinstall.bat" in [Search Programs and files] then press Enter. 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...].
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■ Others

<p>No response.</p>	<ul style="list-style-type: none"> ● Press Ctrl+Shift+Esc to open Task Manager and close the software application that is not responding. ● An input screen (e.g., password input screen at startup) may be hidden behind another window. Press Alt+Tab to check. ● Press the power switch for four seconds or longer to shut down the computer, and then press the power switch to turn it on. If the application program does not work normally, uninstall and reinstall the program. To uninstall, <ol style="list-style-type: none"> ① Open the Control Panel. <p>Windows 8</p> <ol style="list-style-type: none"> 1. Right-click any empty location on the Start screen. 2. Click [All apps] on the toolbar. 3. Click [Control Panel] under "Windows System". <p>Windows 7</p> <p>Click  (Start) - [Control Panel].</p> ② Click [Program] - [Uninstall a program].
<p>The battery status indicator lights green and then turns off immediately.</p>	<ul style="list-style-type: none"> ● When the battery is fully charged and the computer is not operating (i.e., it is turned off or in sleep mode), the power supply from the AC adaptor stops and power consumption is inhibited. In such cases, the indicator will light green upon connecting the AC adaptor, but only for a moment.
<p>The recovery disc for Windows 8 in not functioning.</p>	<ul style="list-style-type: none"> ● Perform recovery using the recovery disc for Windows 7 first, and then perform recovery using the recovery disc for Windows 8.

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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 flash memory drive (SSD) 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-AX2LDC series	CF-AX2LDW series
CPU/Secondary cache memory		Intel® Core™ vPro™ i5-3427U Processor (3 MB* ¹ cache, up to 2.80 GHz) with Intel® Turbo Boost Technology	
Chip Set		Mobile Intel® QM77 Express Chipset	
Video controller		Built-in Chip Set	
Main Memory* ²		4 GB* ¹ , DDR3L SDRAM	
Video Memory* ^{1*3}		Windows 8 UMA 1664 MB Max. Windows 7 UMA <32-bit> 1544 MB Max. <64-bit> 1696 MB Max.	
Flash Memory Drive (SSD)* ⁴		128 GB Windows 8 Approx. <For localized OS model> 10 GB / <For MUI OS model> 12 GB (SSD Recovery partition) and approx. 1 GB (Recovery partition) are used as recovery partitions. (Users cannot use these partitions.) Windows 7 <Only for Windows 7 downgrade model> Approx. <For localized OS model> 30 GB / <For MUI OS model> 50 GB is used as a partition with HDD recovery tools. (Users cannot use this partition.) Approx. 300 MB is used as a partition with system tools. (Users cannot use this partition.)	
Display Method		11.6 type (TFT) (1366 x 768 dots)	
Internal LCD		65,536/16,777,216 colors (1366 x 768 dots)* ⁵	
External Display* ⁶		65,536/16,777,216 colors (1024 x 768 dots/1280 x 768 dots/1280 x 1024 dots/1360 x 768 dots/1366 x 768 dots/1400 x 1050 dots/1600 x 900 dots/1600 x 1200 dots/1680 x 1050 dots/1920 x 1080 dots/1920 x 1200 dots)	
Simultaneous Display on LCD + External Display* ⁶		65,536/16,777,216 colors (1024 x 768 dots/1280 x 768 dots/1360 x 768 dots/ 1366 x 768 dots)	
Wireless LAN		Intel® Centrino® Advanced-N 6205 (→ page 37)	
Bluetooth		→ page 37	
Wireless WAN* ⁷		Equipped for some models (→ page 37)	
LAN		IEEE 802.3 10Base-T / IEEE 802.3u 100BASE-TX / IEEE 802.3ab 1000BASE-T	
Sound		WAVE and MIDI playback, Intel® High Definition Audio subsystem support	
Security Chip		TPM (TCG V1.2 compliant)* ⁸	
Card Slots	SD Memory Card Slot* ⁹	x 1	
	SIM Card Slot* ⁷	x 1	
	Smart Card Slot	—	x 1* ¹⁰
Interface		USB 3.0 Ports x 2 (right side)* ¹¹ / LAN Port (RJ-45) x 1 / External Display Port (VGA) (Mini Dsub 15-pin female) / HDMI Port (Type A)* ¹² / Microphone Jack (Miniature jack, 3.5 DIA) / Headphone Jack (Miniature jack, 3.5 DIA)	
Keyboard / Pointing Device		84 or 85 keys / Touch Pad	

Specifications

■ Main Specifications

Model No.			CF-AX2LDC series	CF-AX2LDW series
Camera		Resolution	High Definition 720P	
		Effective number of pixels	Max. 1280 x 720	
		Microphone	Built-in (monaural)	
Sensor		Ambient light sensor	Equipped	
		Magnetic sensor		
		Gyro sensor		
		Acceleration sensor		
Power Supply			AC adaptor or Battery pack	
AC Adaptor ^{*13}			Input: 100 V - 240 V AC, 50 Hz/60 Hz, Output: 16 V DC, 5.0 A	
Battery Pack			Li-ion 7.2 V, Typical 4400 mAh / Minimum 4100 mAh	
Built-in Battery (not replaceable)			Li-ion 7.2 V, Typical 2200 mAh / Minimum 2050 mAh	Li-ion 7.2 V, Typical 1090 mAh / Minimum 1030 mAh
Operating Time ^{*14}			Approx. 8 hours (Economy Mode (ECO) - Disable)	Approx. 6.5 hours (Economy Mode (ECO) - Disable)
Charging Time ^{*15}			Approx. 4 hours • When the built-in battery is fully charged Approx. 2 hours	Approx. 3.5 hours • When the built-in battery is fully charged Approx. 2 hours
Power Consumption ^{*16}			Approx. 20 W ^{*17} / Approx. 45 W (maximum when recharging in the ON state)	
Physical Dimensions (W × D × H)			288 mm × 194 mm × 18 mm	
Weight ^{*18}			Approx. 1.15 kg (for models without wireless WAN) Approx. 1.155 kg (for models with wireless WAN)	Approx. 1.125 kg (for models without wireless WAN) Approx. 1.13 kg (for models with wireless WAN)
Environment	Operating	Temperature	5 °C to 35 °C	
		Humidity	30% to 80% RH (No condensation)	
	Storage	Temperature	-20 °C to 60 °C	
		Humidity	30% to 90% RH (No condensation)	

■ Software

Base OS		Windows® 8 Pro 64-bit
Installed OS ^{*19}		Windows 8 Windows® 8 Pro 64-bit Windows 7 <Only for Windows 7 downgrade model> Windows® 7 Professional 32-bit Service Pack 1 (downgraded to Windows® 7) / Windows® 7 Professional 64-bit Service Pack 1 (downgraded to Windows® 7)
Pre-installed Software ^{*19}		Adobe Reader, PC Information Viewer, Intel® PROSet/Wireless Software, Bluetooth Stack for Windows® by TOSHIBA, Hotkey Settings, Battery Recalibration Utility, Infineon TPM Professional Package ^{*8 *20} , Aptio Setup Utility, PC-Diagnostic Utility, Hard Disk Data Erase Utility ^{*21} , Recovery Disc Creation Utility, Dashboard for Panasonic PC, Power Plan Extension Utility, Camera Utility, USB Charge Setting Utility, PC Information Popup, HOLD Mode Settings Utility, Manual Selector Windows 8 Camera for Panasonic PC, Wireless Toolbox Windows 7 Quick Boot Manager, Wireless Switch Utility, Wireless Connection Disable Utility ^{*22}

■ Wireless LAN

Data Transfer Rates	IEEE802.11a : 54/48/36/24/18/12/9/6 Mbps (automatically switched)* ²³ IEEE802.11b : 11/5.5/2/1 Mbps (automatically switched)* ²³ IEEE802.11g : 54/48/36/24/18/12/9/6 Mbps (automatically switched)* ²³ IEEE802.11n* ²⁴ : (HT20)GI* ²⁵ = 400ns: 150/130/115/86/72/65/57/43/28/21/14/7 Mbps (automatically switched)* ²³ GI* ²⁵ = 800ns: 130/117/104/78/65/58/52/39/26/19/13/6 Mbps (automatically switched)* ²³ (HT40)GI* ²⁵ = 400ns: 300/270/240/180/150/135/120/90/60/45/30/15 Mbps (automatically switched)* ²³ GI* ²⁵ = 800ns: 270/243/216/162/135/121/108/81/54/40/27/13 Mbps (automatically switched)* ²³
Standards Supported	IEEE802.11a / IEEE802.11b / IEEE802.11g / IEEE802.11n
Transmission Method	OFDM system, DS-SS system
Wireless Channels Used	IEEE802.11a : Channels 36/40/44/48/52/56/60/64/100/104/108/112/116/120/124/128/132/136/140 IEEE802.11b/IEEE802.11g : Channels 1 to 13 IEEE802.11n : Channels 1-13/36/40/44/48/52/56/60/64/100/104/108/112/116/120/124/128/132/136/140
RF Frequency Band	IEEE802.11a : 5.18 GHz - 5.32 GHz, 5.5 GHz - 5.7 GHz IEEE802.11b/IEEE802.11g : 2.412 GHz - 2.462 GHz IEEE802.11n : 2.412 GHz - 2.462 GHz, 5.18 GHz - 5.32 GHz, 5.5 GHz - 5.7 GHz

■ Bluetooth

Bluetooth Version	4.0
	Classic mode / Low Energy mode
Transmission Method	FHSS system
Wireless Channels Used	Channel 1 to 79 / Channel 0 to 39
RF Frequency Band	2.402 GHz - 2.480 GHz

- **Wireless WAN^{*7}**

Data Communication	HSUPA	Category 6, 5.7 Mbps
	HSUPA (HSPA+)	Category 10, 14.4 Mbps
	UMTS	3GPP Release 6
	EDGE/ GPRS	MultiSlot Class 10 Circuit Switched Data
Other Features	SMS	Mobile Originated SMS (MO-SMS) Mobile Terminated SMS (MT-SMS)
	FAX	No Support
	Voice	No Support
SIM		1.8/3V SIM Support

Specifications

- *1 1 MB = 1,048,576 bytes /
1 GB = 1,073,741,824 bytes
- *2 For 32-bit OS, the usable memory available will be less depending on the specifications (3.4 GB to 3.5 GB).
- *3 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.
- *4 1 MB = 1,000,000 bytes / 1 GB = 1,000,000,000 bytes. Your operating system or some application software will report as fewer GB.
- *5 A 16,777,216 color display is achieved by using the dithering function.
- *6 Display may be impossible using some connected external displays.
- *7 Only for model with wireless WAN. The specification may differ depending on models.
- *8 Only for model with TPM.
For information on TPM, **Windows 8** on the Start screen, click the [Manual Selector] tile, and select "Installation Manual for Trusted Platform Module (TPM)" / **Windows 7** Double-click [Manual Selector] on the desktop, and select "Installation Manual for Trusted Platform Module (TPM)".
- *9 This slot is compatible with High-Speed Mode. Operation has been tested and confirmed using Panasonic SD/SDHC/SDXC Memory Cards with a capacity of up to 64 GB. Operation on other SD equipment is not guaranteed.
- *10 Only for model with Smart Card Slot.
- *11 Compatible with USB 1.1/2.0/3.0. Does not guarantee operation of all USB-compatible peripherals.
- *12 Does not guarantee operation of all HDMI-compatible peripherals.
- *13 <Only for North America>
The AC adaptor is compatible with power sources up to 240 V AC adaptor.
The unit for North America (identified by the suffix 'M' on the model number) is supplied with a 125 V AC compatible AC cord. 20-M-2-1
- *14 Measured with LCD brightness : 60 cd/m² Varies depending on the usage conditions, or when an optional device is attached.
- *15 Varies depending on the usage conditions, CPU speed, etc.
- *16 Approx. 0.5 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. 0.4 W) simply by having the AC adaptor plugged into an AC outlet.
- *17 Rated power consumption. 23-E-1
- *18 Average value. May differ depending on models.
- *19 Operations of this computer are not guaranteed except for the pre-installed OS and the OS which is installed by using the hard disk recovery and the recovery disc.
- *20 Must be installed before use.

- *21 **Windows 7**
Perform on the recovery partition. (If this software can not be performed on the recovery partition, perform from the recovery disc)
- Windows 8**
Perform from the recovery disc.
- *22 Must be installed before use.
- *23 These are speeds specified in IEEE802.11a+b+g+n standards. Actual speeds may differ.
- *24 Available when set to "WPA-PSK", "WPA2-PSK" or "none".
- *25 Only available when HT40 enabled by the computer.

Standard Limited Warranty

Panasonic System Communications Company Europe

Panasonic System Communications Company 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
- Toughpads (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. PANASONIC WILL NOT BE RESPONSIBLE FOR ANY LIABILITY RESULTING FROM THE USE OF THIS PRODUCT ARISING OUT OF THE FOREGOING USES.

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.

Standard Limited Warranty

Panasonic System Communications Company 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.

Panasonic and its suppliers makes no warranty, either express, implied or statutory, with respect to software provided with the Product and licensed to Purchaser, its quality, performance, merchantability, or fitness for a particular purpose. Panasonic does not warrant that the functions contained in the software will be uninterrupted or error free. Panasonic assumes no risk of and shall not in any case be liable for any damages, including, without limitation, any special, incidental, consequential, or punitive damages arising from breach of warranty or contract, negligence or any other legal theory, including, without limitation loss of goodwill, profits or revenue, loss of use of the Programs or Products or any associated equipment, cost of capital, cost of any substitute equipment, facilities, or services, downtime costs, or claims of any party dealing with such damages.

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.

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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.

Outline of the International ENERGY STAR® Office Equipment Program

The international ENERGY STAR® Office Equipment Program is an international program that promotes energy saving through the use of computers and other office equipment. The program backs the development and dissemination of products with functions that effectively reduce energy consumption. It is an open system in which business proprietors can participate voluntarily. The targeted products are office equipment such as computers, displays, printers, facsimiles, and copiers. Their standards and logos are uniform among participating nations.

22-E-1

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