

3.4.2 Charging Battery



WARNING

- Risk of explosion if battery is replaced by incorrect type. Dispose of used batteries according to the instructions



- The battery is not charged any more if its temperature exceeds 60°C.
- In battery charging status, remove the AC adapter only after the battery is fully charged. If the AC adapter is removed on the way, the battery cannot be charged fully.

To charge the battery, first connect the AC adapter to FC-N21S and a power outlet. The battery charge LED on FC-N21S illuminates in orange to indicate that the battery is now being charged. It is recommended to turn off the power of FC-N21S while the battery is charged. After the battery is fully charged, the battery charge LED goes off.

It takes about three hours to charge the battery fully.



- Just after the battery is fully charged, do not take the procedure of removing the AC adapter from FC-N21S and reconnecting it to start charging again. Failure to follow this instruction may cause the battery to be damaged.
- If an error occurs in the battery, the battery charge LED blinks. The temperature may rise extraordinary or the battery may be defected. Move FC-N21S to a place of good ventilation or stop using FC-N21S to lower its temperature.
If the battery charge LED blinks still, remove the AC adapter from FC-N21S and stop using it. Contact your service representative.

3.4.3 Initializing Battery

Initializing the battery is intended to recover its performance decreased temporarily.

The initialization process consists of full charge, full discharge and full recharge of the battery in the order. It takes about 4.5 hours for the initialization.

Initialize the battery in the following cases:

- FC-N21S can be operated by the battery for a shorter period than before.
Repeating battery charging in other than the full discharge state may cause the full-chargeable level of the battery to be reduced, which then may shorten the driving period. This is called battery's memory effect.
- Because the battery is just purchased or has not been used for a long period, its performance is reduced temporarily.
- The indicator of the remaining battery level shows some error.

1. Turn off the power of FC-N21S if operated.
2. If the batter pack is not installed, install the battery pack in FC-N21S.
3. If the AC adapter is not connected to FC-N21S yet, connect the AC adapter to FC-N21S and the power cord to an AC outlet.
4. If the battery charge lamp blinks, remove the battery pack from FC-N21S once and install it again.
5. Charge the battery fully (until the battery charge lamp disappears).
6. Turn on the power of FC-N21S. If the NEC logo screen appears, press **F2** to display the BIOS Setup Menu.
7. Unplug the power cord from the AC outlet and remove the AC adapter from FC-N21S.
8. Select [Battery refresh] in the Power Management menu and press **Enter**.
9. If message "Refresh your battery now?" select [Yes] and press **Enter**.

The following dialog box appears.

Refresh battery program
Press Y to start refresh, N to exit
<ESC> to shutdown system

10. Press **Y** to start battery initialization.

3.4.4 Checking Remaining Battery Level

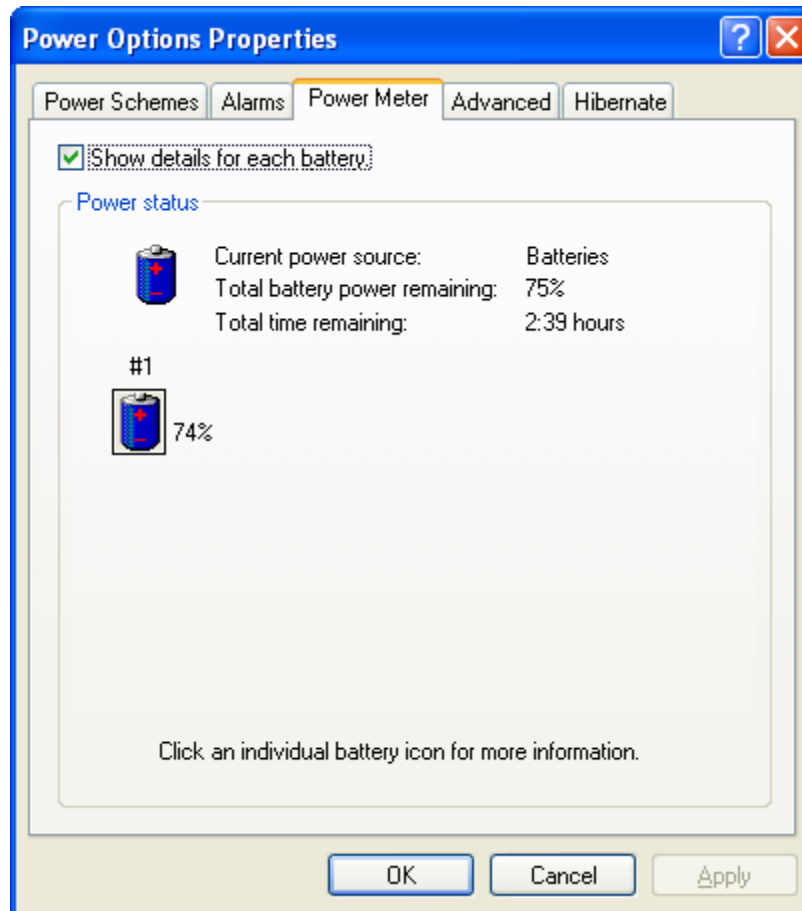


To activate the screen, wait for several minutes before the AC adapter is disconnected from FC-N21S. "Total time remaining" may be different from the actual operation time depending on the operation status of FC-N21S.

For Windows XP

1. Click [Start] → [Control Panel] → [Performance and Maintenance] → [Power Options]. Then the [Power Options Properties] dialog box appears.
2. Select the [Power Meter] tab and check [Show details for each battery].

For Windows XP, the dialog box shown below appears to allow you to check the remaining battery level.



3.4.5 Replacing Battery



- If a battery of an invalid type is substituted for the old one, it may explode. Always use a spare battery of an option. For used batteries, see "3.4.6 Recycling Batteries".
- Do not disassemble batteries.
- Batteries are consumables. Repeating charging and discharging a battery causes its charging ability to decrease.
- If the full discharging time becomes shorter, initialize the battery. If the time cannot be recovered still, replace the battery with a spare.

To replace the battery, follow the procedure below:

1. Leave FC-N21S in the power-off state and unplug the AC adapter.
2. Turn FC-N21S upside down.
3. Remove the screws (4) fixing the battery cover and remove the battery cover.



Battery cover

4. Pull up the battery removal support perpendicularly and lift the battery from the battery storage area.



5. Insert a new battery into the battery storage area from the top perpendicularly to make the connectors contact with each other.



WARNING

- Risk of explosion if battery is replaced by incorrect type. Dispose of used batteries according to the instructions



Install the battery with the battery removal support pulled out.

6. Put the battery cover on the original position and drive the screws (4) to fix the cover.



- Put the cover so that the battery removal support may not be pinched.
- If dust and/or dirt adhere to the silicon rubber on rear of the cover, the water-proof and/or dust-proof performance of the cover may be reduced. Wipe the silicon rubber to remove dust and dirt before installing

3.4.6 Recycling Batteries

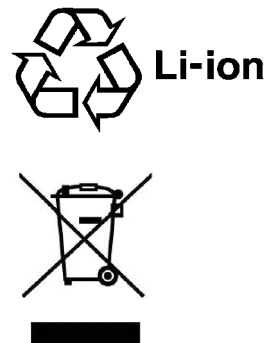
- A lithium ion battery is used for FC-N21S.
- Lithium ion batteries are valuable resources being recyclable.
- To protect valuable resources, do not dispose batteries becoming unnecessary but bring them to any of the following carry-on centers:

* For details of the carry-on centers, see the NEC environmental web page below:

URL:http://www.nec.co.jp/eco/ja/products/3r/index_denchi.html

Notes on handling batteries in recycling

- Insulate connectors with tape.
- Do not peel off coating.
- Do not disassemble batteries.
- To keep batteries, enter them in a rugged case and put the lid on the case.
- Keep batteries so that they may not get wet with rain.
- Do not leave batteries in the sun.



3.4.7 Actions Taken for Low Battery Charge Level

(1) Decreasing in remaining battery level during battery driving

If the battery power remains only a little, the power LED on FC-N21S illuminates in yellow or orange to inform that the battery should be charged

If so, perform either of the following operations depending on situations:

- Possible supply of AC power through AC outlet

Connect the AC adapter to FC-N21S to supply AC power through an AC outlet. Then the battery charge LED illuminates in orange and battery charge is started.

- Impossible supply of AC power through AC outlet

Abort applications being operated and turn off the power.



In the lower battery charge level, do not access to a card such as an SD card if used. Accessing to the card may fail because the time taken for the accessing can be longer than the full discharging time. If the battery is discharged fully before data storage, the data is lost.

(2) Setting operation of FC-N21S at low battery level

The operation and state of FC-N21S in a low or no battery charge level can be defined.

For Windows XP

1. Click [Start] → [Control Panel] → [Performance and Maintenance] → [Power Options]. Then the [Power Options Properties] dialog box appears.
2. Click the [Alarms] tab and change the alarm options.



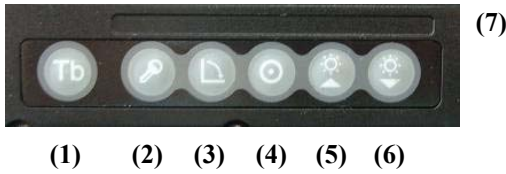
To define operation of FC-N21S in a low battery charge level, logon to it with a user account having the administrator authority.

3.4.8 Notes on Batteries

- Batteries are consumables. Repeating charging and discharging a battery causes its charging ability to decrease.
Batteries are not charged fully at purchase.
- Charge batteries in temperature range 5 to 40°C. Charging the battery at a higher temperature may cause it to be deteriorated or damaged.
- It takes a longer time to charge the battery fully at a low temperature than to charge it fully at a normal temperature.
- The time taken to charge the battery fully may vary depending on conditions under which FC-N21S is used.
- At a lower temperature, FC-N21S can operate only for a shorter period.
- Batteries should be fully charged if possible. Repeating little charge and discharge of the battery at a low battery level may cause the low remaining battery level to be erroneous.
- In use of an external power, leave the battery installed in FC-N21S. This allows the battery to be kept in the full charge state.
- If FC-N21S is not used for a long period (two weeks or longer), remove the battery from FC-N21S.
- To remove the battery, do not make the battery pins contact with conductors including metals and water. Short of the pins may cause the battery to be unavailable.
- Save the battery in a low-temperature and dry place if saved. Do not leave the battery in a place where the temperature exceeds 60°C.
- Do not leave the battery for three months or longer without recharging.
- The battery driving time specified in the brochure and User's Guide of the battery is calculated based on the battery operation time measurement method (Ver. 1.0) defined by the Japan Electronics and Information Technology Industries Association. The actual battery driving time varies depending on the operation environment, the brightness of the LCD display and the system settings.

3.5 TABLET BUTTONS

The following describes the names and features of the tablet buttons.



- (1) [Tb] button
- (2) Tablet button 1
- (3) Tablet button 2
- (4) Tablet button 3
- (5) Tablet button 4
- (6) Tablet button 5
- (7) Label pasting area

(1) Operations at depression of buttons

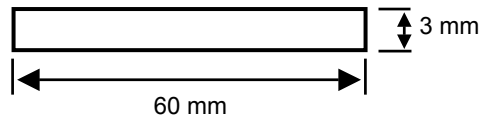
Button	Operation (defined at shipment)
Tablet button 1	Ctrl + Alt + Del
Tablet button 2	Rotates the Windows screen.
Tablet button 3	Enter
Tablet button 4	Increases brightness of the LCD screen.
Tablet button 5	Decreases brightness of the LCD screen.
[Tb] + Tablet button 1	Esc
[Tb] + Tablet button 2	Tab
[Tb] + Tablet button 3	Starts the screen keyboard.
[Tb] + Tablet button 4	Moves the cursor upward.
[Tb] + Tablet button 5	Moves the cursor downward.

(2) Label pasting area

When key assignment is changed, you can paste a label showing the new key assignment on the area.

The possible label size is as follows. Prepare the label if required.

- Size:



(3) Changing key assignment

See "Chapter 4 Setting BIOS" for how to change the key assignment.

3.6 KEYBOARD

3.6.1 English Keyboard

If English OS is selected on the selection menu, the English keyboard is installed.



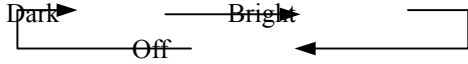
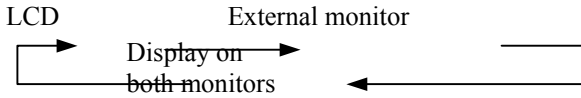



3.6.1.1 Uses of Hot Key [FN]

Combining **Fn** with another key allows various operations on FC-N21S to be done easily.

These are called hot key features.

Some icons indicating the features resulting from combinations of respective keys with **Fn** are printed on the keys with the same color as **Fn**.

The table below lists the hot keys and their features.

Key combination	Feature or description
Fn + F1	Switches the keyboard backlight off/dark/bright status (only for backlight keyboard model). 
Fn + F2	Switches the ON/OFF status of the wireless LAN feature.
Fn + F3	Changes the display mode to any of the following three modes if an external monitor is connected to FC-N21S. 
	Note: In the DOS mode, only two modes, or "LCD" or "Display on both monitors", can be selected.
Fn + F4	Turns off the backlight of the LCD display.
Fn + F5	Switches enlarged display/no enlarged display of the screen in the low resolution mode.
Fn + F6	Switches beep on/off.
Fn + F7	Raises the brightness of the LCD display.
Fn + F8	Lowers the brightness of the LCD display.
Fn + F9	Raises the volume of the speakers.
Fn + F10	Lowers the volume of the speakers.
Fn + 1	FC button
Fn + 2	Allows registered application to be started (see 5.2.3).
Fn + PrtScr (Sys Rq)	System request
Fn + Scr Lk (Num Lk)	Numeric lock If these keys are pressed once, the  lamp goes on and blue numerals and symbols on keys are enabled. If the keys are pressed again, the  lamp goes off and normal characters are enabled.
Fn + Pause (Break)	Break
Fn + ↑ (Page Up)	Page Up
Fn + ↓ (Page Dn)	Page Dn
Fn + ← (Home)	Home
Fn + → (End)	End
Fn + Alt	Right Alt
Fn + 	Right Windows



Some OSs and software may disable a part of hot keys to be used.

3.6.1.2 Typing the Euro Symbol

To type the Euro symbol "€ ", follow these steps to change the key layout of the keyboard.

3. Click [Start] → [Control Panel].
4. Click [Date, Time, Language, and Regional Options] and [Regional and Language Options].
5. Click [Details...] in [Text services and input languages] of the [Language] tab.
Note: If you find the desired keyboard layout in the list of installed services, go to step 8.
Click [Add] in [Installed services].
6. Select [English (United States)] from [Input language:].
7. Select [United States-International] from If [Keyboard layout/IME:].
8. Click [OK].
9. Select [English (United States) – United States-International] from [Default input language].
10. Click [OK].
11. Click [OK].

After restarting Windows, the Euro symbol "€ " can be obtained by pressing **Ctrl + Alt + 5**.

3.7 TOUCH PAD



- Do not make a sharp object such as a ballpoint pen contact with the touch pad. Failure to follow this instruction may cause the surface of the touch panel to be damaged.
- To maintain the optimum performance of the touch pad, keep your fingers and the pad clean and dry. Make a finger contact with the pad lightly without excess force.

The touch pad is a pointing device on which you can control the position of the pointer and select a proper button to communicate with FC-N21S. The touch pad is composed of a rectangle pad and two buttons. Moving a finger on the pad allows the pointer on the screen (also called the cursor) to be moved. If the finger reaches to an end of the pad, let the finger away from the pad and put it at the opposite end. Then you can continue to move the pointer.

The table below describes general terms with which you should be familiar on the touch pad.

Term	Operation
Point	Move a finger on the pad to make the cursor reach to the intended target on the screen.
Click	Press and release the left button, or hit the pad lightly.
Double-click	Press and release the left button twice fast, or hit the pad twice fast.
Drag & drop	With the left button remaining pressed, move the finger until the cursor reaches to the intended point (drag). After dragging to the intended point in the selected range, release the button (drop). The object is dropped at the new point. –Or– Tap the pad twice with a finger lightly and leave the finger contact with the pad at the second tapping. Then move the finger on the pad to drag the selected object to the intended point. Releasing the finger from the pad, the selected object is dropped at the new point.
Scroll	The scroll means that the display area is altered in the longitudinal or transverse direction within the working area on the screen. To alter the display area in the longitudinal direction, put a finger at the right end of the pad and slide it along the end. To alter the display area in the transverse direction, put a finger at the bottom of the pad and slide it along the bottom. The feature can be used only when the touch pad driver attached to FC-N21S is installed. Some applications may disable the feature to be operated.

Note on table above:

If the left and right buttons on the touch pad are interchanged, tapping the touch panel cannot substitute for pressing the left button.

3.7.1 Setting Touch Pad

Settings of the touch pad can be changed depending on user needs. For example, left-handed users can interchange the features of the left and right buttons to use the left and right buttons as the right and left buttons in the normal state, respectively. In addition, the size and speed of the pointer on the screen may be changed.

For Windows XP

1. Click [Start] → [Control Panel] → [Printers and Other Hardware] → [Mouse]. Then the [Mouse Properties] dialog box appears.
2. Selecting the [Buttons], [Pointers] and/or [Pointer Options] tabs, you can set operations of the touch pad appropriately.



The features of the touch pad can be enabled/disabled by changing some BIOS settings.

3.8 TOUCH PANEL



- Use the attached touch pen or a finger to contact with the touch panel so that the panel may not be hurt.
- Do not make a sharp object such as a ballpoint pen or a pencil contact with the touch panel. Failure to follow this instruction may cause the touch panel to be damaged.
- If the surface of the touch panel is dirt, wipe the surface with a dry and soft cloth such as a glass wiping cloth. If manipulating the touch panel with dust adhering on the surface may cause the surface to be hurt.



- Neither put your hands on the surface of the touch panel nor push the surrounding of the touch panel hard.
- The pointer (cursor) may not be operated normally or moved to an end of the screen. While the touch panel is manipulated, do not put your hands on the keyboard. Failure to follow this instruction may cause key entries to occur.

The touch panel is a pressure-sensitive device on which you can control the position of the pointer and select a proper button to communicate with FC-N21S.

The touch pen can be stored on the base of FC-N21S (see "(2) Outside sections" in Chapter 1). To use the touch panel, put the touch pen or your index finger on the touch panel. If you slide the pen or the finger tip on the panel, the pointer (cursor) on the screen is moved in the same direction as the pen or finger.

The table below describes general terms with which you should be familiar on the touch panel.

Term	Operation
Point	Slide the pen or finger on the touch panel until the cursor reaches to the intended target on the screen.
Click	Tap a point on the touch panel lightly.
Double-click	Tap the touch panel twice fast.
Drag & drop	Press the touch panel with the pen or finger lightly and slide the pen or finger to the intended point (drag). After dragging to the intended point in the selected range, release the pen or finger (drop). The object is dropped at the new point.



If the left and right buttons on the touch pad are interchanged, tapping the touch panel cannot substitute for pressing the left button.

3.8.1 Setting Touch Panel

(1) Setting features

You can change the size and speed of the pointer on the screen.

For Windows XP

1. Click [Start] → [Control Panel] → [Printers and Other Hardware] → [Mouse]. Then the [Mouse Properties] dialog box appears.
2. Selecting the [Buttons], [Pointers] and/or [Pointer Options] tabs, you can set operations of the touch pad appropriately.



Settings on the touch pad are also applied to the touch panel. The touch panel cannot be independent of the touch pad.

(2) Compensating position

The position of pointer must be compensated in the following cases:

- Changing the resolution of the screen is changed, or
- The pointer is not moved properly to the point with which you make the touch pen contact.


Compensate the point of the pointer in the following procedure:

1. Click [Start] → [All Programs] → [Gunze TPDD] → [Calibrate].

3.9 DISPLAY FEATURE

The display features of FC-N21S are characterized as follows:

- 12.1-in. TFT (Thin-Film Transistor) color LCD display of resolution 1024×768 XGA (Extended Video Graphics Array)
- Concurrent display of both LCD display and external monitor

 Some OSs may limit display modes.

3.9.1 Display Resolution

The default resolution and the default number of colors are set at shipment of FC-N21S.

For display of a higher resolution, FC-N21S can connect with an external monitor supporting the higher resolution.

The table below shows the display modes available to FC-N21S.

Display mod	LCD display only
Resolution	Number of colors
800×600	16 bits
	32 bits
1024×768	16 bits
	32 bits

* FC-N21S allows external monitors can have resolutions in the range from 640×480 to 1920×1200 and the number of colors of 8, 16 and/or 32 bits. However, the used external monitor limits available resolutions and the available number of colors.


Notes on color:

8 bits = 256 colors

16 bits = High Color or 65,536 (64 K) colors

32 bits = True Color 16,770,000 (16 M) colors

(16.77 million color display is accomplished by the dithering feature of the graphic accelerator.)

 Some OSs may limit display modes.

3.9.2 Adjusting Screen Display


To change the resolution or the number of colors of the screen, follow the procedure below:

1. Perform the following operation.

For Windows XP:

Click [Start] → [Control Panel] → [Appearance and Themes] → [Display]. Then the [Display Properties] dialog box appears.

2. Select the [Settings] tab to set the resolution and/or the number of colors of the screen.

 To enable the virtual screen feature, follow the procedure below:

- On the screen displayed by selecting the [Settings] tab, click the [Advanced] button.
- Click the [Monitor] tab.
- Click [Hide modes that this monitor cannot display] to uncheck it.
- Click [OK].

3.9.3 Connecting External Monitor

To get a wide display screen of a higher resolution, an external monitor can be connected to FC-N21S through an external monitor connector. Follow the procedure below.

1. Confirm that the power of FC-N21S is OFF.
2. Connect a proper monitor cable to the connector on the external monitor.

3.10 COMMUNICATION FEATURE

3.10.1 Modem

(1) Connecting FC-N21S with phone line



- FC-N21S can only connect with a phone line of 2-wire type. Before connecting FC-N21S with a phone line, check the type of the phone line.
- The diameter of the phone line must be a minimum of 26AWG.
- The built-in fax modem is designed to be applicable to the subscriber phone line. Connecting the modem to other than the subscriber phone line may cause the modem to operate improperly or the modem and/or FC-N21S to be damaged.
- If a modular cable is connected to the RJ-11 connector (phone line modular connector) on FC-N21S, neither pull the modular cable nor move FC-N21S. Failure to follow this instruction may cause the RJ-11 connector to be damaged.
- Connecting a modular cable to the LAN connector may cause a fault to occur. Check the connector to be connected securely before the connection.

1. Turn off the power of FC-N21S if operated.
2. Remove a modular cable of a phone from the mating modular jack.
3. Insert one end of the modular cable to the RJ-11 connector (modular connector for phone line) on FC-N21S to the depth securely.
4. Insert the other end of the modular cable to a modular jack on a near wall to the depth securely.

(2) Setting modem

1. Perform the following operation.

For Windows XP:

Click [Start] → [Control Panel] → [Printers and Other Hardware] → [Phone and Modem Options]. Then the [Phone and Modem Options] dialog box appears.

2. Provide setting for [Edit Location] in the [Dialing Rules] tab.
Confirm that "Japan" is selected in field [Country/Region] if FC-S21S is used in Japan.
3. After completing the setting, click [OK]. Then click [OK] again.
4. Close the [Printers and Other Hardware] dialog box.
5. Provide proper setting on the dialup connection depending on used applications (including Internet Explorer and Hyper Terminal).



The built-in modem has the feature of specifying a country other than Japan. Using the built-in modem of another country mode in Japan fringes the Telecommunication Service Law (Technical Standard). Before using the modem **in Japan**, confirm that the country/region mode is set to Japan.

3.10.2 LAN



- While FC-N21S operates, do not remove the LAN cable from the hub. If removed, the network connection will be cut out.
- If the LAN cable is removed during network connection, immediate re-connection may be able to recover the operation. If not, restart OS.
- During network communication through LAN, connect the AC adapter to FC-N21S. Only the battery can operate FC-N21S for a rather short period.
- The suspend (standby) or pause state disables the network feature. During network communication, do not enter FC-N21S into the suspend (standby) or pause state.
- To run an application using network, enter FC-N21S into the suspend (standby) or pause state after asking a system administrator to confirm that the application may be used in suspend (standby) or pause state. Some applications may cause data to be lost when FC-N21S is recovered from the suspend (standby) or pause state.

The built-in 1000BASE-T LAN module allows FC-N21S to connect with network. The module supports the data transfer rate of up to 1000 Mbps.

(1) Connecting FC-N21S to network



To connect FC-N21S to network, a LAN cable sold separately is required.

1. Insert one end of a LAN cable to the RJ-45 connector (LAN connector) on FC-N21S to the depth securely.
2. Insert the other end of the LAN cable to the network connector to the depth securely.

(2) Setting LAN

Perform the following operation.

For Windows XP:

1. Click [Start] → [Control Panel] → [Network and Internet Connection] → [Network Connections].
2. Double-click [Local Area Connection] to display the [Local Area Connection Status] dialog box. Click [Properties].
3. The [Local Area Connection Properties] dialog box appears. Provide settings appropriate for the connected network.



If you do not know necessary components, contact a system or network administrator.

(3) Remote power-on feature



The remote power-on feature of FC-N21S supports the recover of FC-N21S from the suspend (standby), pause or power-off state.

To use the remote power-on feature by the LAN built in FC-N21S, the following settings are required.

(1) Settings associated with BIOS Setup Menu (common to OSs)

1. Power management - Wake On LAN/PME: Enabled
2. Security - Network Boot Setting - Keyboard/mouse Lock: Disabled
 - * Without the setting, keyboard and mouse operations are disabled at remote power-on.

(2) Settings associated with network adaptor

Depending on used OSs, the following settings are required.

1. For the advanced network configuration, click [Control Panel] → [Network and Internet Connections] → [Network Connections], right-click [Local Area Connection], and click [Properties] → [Configure...].
2. For the power management settings, click [Control Panel] → [Network and Internet Connections] → [Network Connections], right-click [Local Area Connection], and click [Properties] → [Configure...].

3.10.3 Wireless LAN (applied to FC-N21S of wireless LAN installation model only)

FC-N21S of wireless LAN installation model allows the wireless LAN feature to be used.

FC-N21S of no wireless LAN installation model cannot be equipped with the wireless LAN feature later.



- The communication speed and distance vary depending on wireless LAN devices and ambient conditions including radio wave environment, obstacles and installation environment.
- Due to the property of radio wave, the communication speed is apt to be slower as the communication distance is longer. To allow you to use wireless LAN more comfortable, it is recommended to use wireless LAN devices within a distance as short as possible.
- To connect FC-N21S to network, wireless LAN access points sold separately and some other devices are required.
- In any areas where medical agencies prohibit wireless LAN from being used, turn off the power of FC-N21S or disable the wireless LAN feature. In addition, in areas where medical agencies approve use of wireless LAN, turn off the power of FC-N21S or disable the wireless LAN feature if medical equipment is used in the vicinity.
- Any users with implantable cardiac pacemakers should make FC-N21S apart from the pacemakers by 30 cm or longer. The pacemakers may be influenced by radio waves radiated from FC-N21S.
- In places where people may be close to one another such as crowded trains, turn off the power of the FC-N21S or disable the wireless LAN feature. This is because FC-N21S may be close to people using medical devices including cardiac pacemakers or rearing aids and have bad influences on the medical devices.
- Airlines now prohibit wireless and electronic devices from being used in airplanes depending on flight conditions. FC-N21S is also of the category. Because FC-N21S may have bad influences on electronic devices to cause accidents, turn off the power of FC-N21S or disables the wireless LAN feature of FC-N21S. For details, contact airlines.
- If FC-N21S induces radio disturbance to other devices during use of some wireless feature, disable the wireless feature or stop using FC-N21S. Failure to follow this instruction may have some influences on other devices to cause accidents by malfunctions.
- Using FC-N21S in a country other than **the specified country** may conflict relevant laws in the country. Accordingly, disable the wireless LAN feature of FC-N21S in other than **the specified country**.
- During network communication, do not enter FC-N21S into the pause or suspend (standby) state.
- During network communication, connect the AC adapter to FC-N21S. Only the battery can operate FC-N21S for a rather short period.

(1) Notes on security in use of wireless LAN products

The wireless LAN is advantageous to allow LAN connection freely within the radio wave range because data is transmitted among wireless access points including PCs through radio waves instead of using LAN cables.

On the other hand, since radio waves reach any locations over obstacles (including walls) within a certain range, the following problems may occur without security.

■ Stealing communication data

Malicious outsiders may intentionally intercept radio waves to steal communication data as follows:

- Personal information including IDs, passwords and credit card numbers
- Mail contents

■ Invading into network illegally

Malicious outsiders may access to personal and corporate networks without notice to take the following actions:

- Acquiring private and confidential information (information leak)
- Make communication as a specific person to spread illegal information (spoofing)
- Rewrites intercepted communication data to be transmitted (falsification)
- Spread computer virus to destroy data and/or systems (destruction)

In nature, wireless LAN cards and wireless access points have proper security features to cope with these problems. Accordingly, wireless LAN products can be used with their security features to reduce occurrences of the problems.



NEC recommends that, after fully familiar with problems occurring without security, customers provide proper settings for security in their own decisions and responsibilities.

(2) Security enabled by FC-N21S

The wireless LAN installed in FC-N21S has the following security features.



To provide the following security, used access points should be applicable to the settings. These settings are only intended to reduce security risks as much as possible but do not assure complete safety to avoid security risks.

1. Preventing interception

Setting an encryption key by using the WEP feature allows wireless LAN data among communication devices using the specific encryption key to be encrypted. However, encryption keys may possibly be known by outsiders or decrypted by decryption technology. Accordingly, it is recommended to change encryption keys periodically.

See "3.10.3 (5) Setting WEP feature" for setting WEP features.

2. Preventing illegal accesses

Setting specific SSIDs (network names) for both access points and communication devices can avoid connections from communication devices without the same SSIDs. However, SSIDs can be known by using devices which have the feature of detecting SSIDs automatically. To avoid this, SSID hiding must be set on access points not to notify them.

Registering MAC addresses of connected devices in each access point disables devices not registered to connect to the access point (MAC address filtering). See "3.10.3 (4) Setting SSID feature" for setting SSIDs.

(3) Setting wireless LAN

Perform the following operations.

For Windows XP:

1. Click [Start] → [All Programs] → [Intel PROSet Wireless] → [Intel PROSet Wireless].
2. Press **Fn + F2** to enable the wireless feature.

If you use wireless LAN for the first time, click [Enable Intel PROSet/Wireless] on the [Intel® PROSet/Wireless] dialog box.

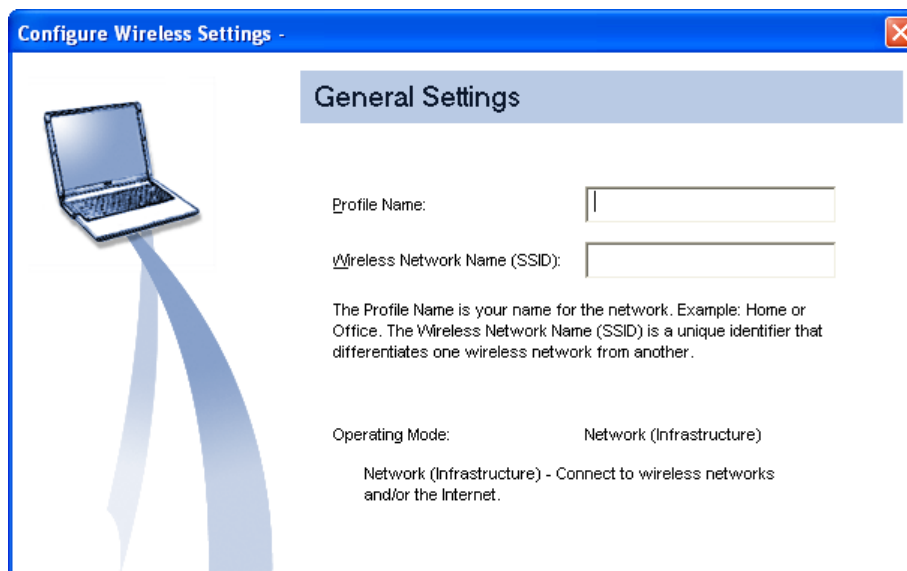
3. Connectable wireless networks appears. Select a desired network and click [Connect]. Provide settings appropriate for the selected network.

(4) Setting SSID feature

Perform the following operations.

For Windows XP:

1. Select a connectable wireless network in the [Intel® PROSet/Wireless] dialog box and click [Connect].
2. Enter proper names in fields [Profile Name] and [Wireless Network Name (SSID)].

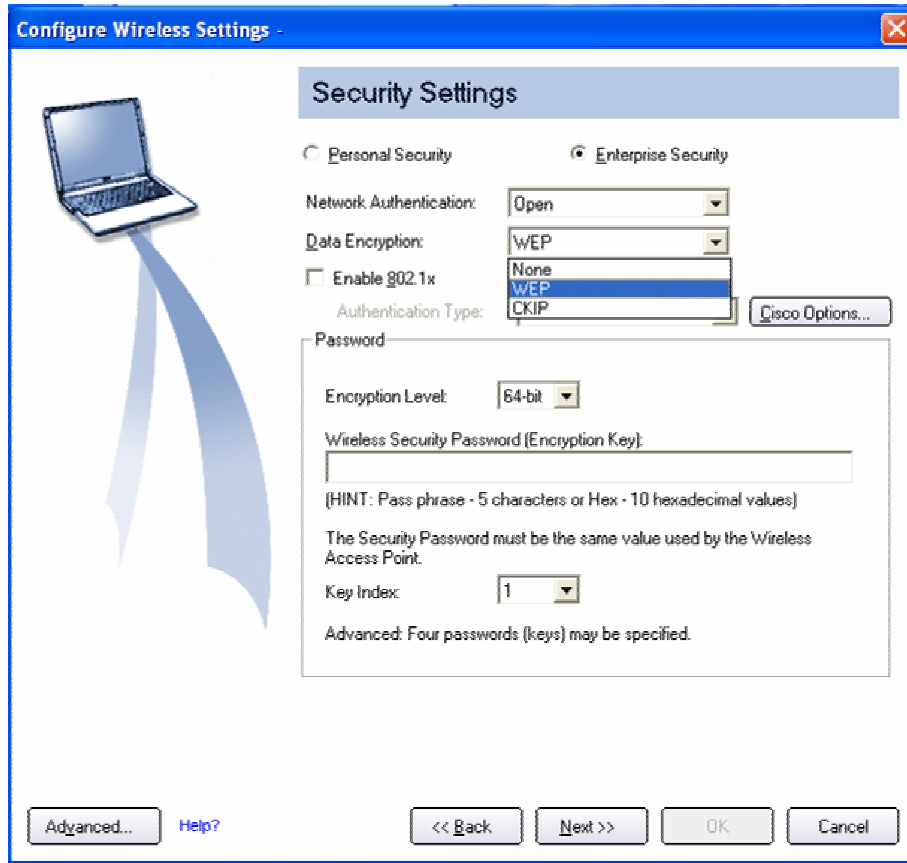


(5) Setting WEP feature

Perform the following operation.

For Windows XP:

1. In the [Configure Wireless Settings] dialog box, select [WEP] in the [Data Encryption] field.



Then provide settings appropriate for the connected network.

3.10.4 Serial Port



While the power of FC-N21S is ON, do not connect or disconnect the serial cable. Failure to follow the instruction may cause FC-N21S to operate improperly.

FC-N21S has a serial port connecting with a serial device including a serial mouse or modem.

To connect a serial device to FC-N21S, follow the procedure below:

1. Confirm that [Enabled] is selected in item "Serial Port A:" in BIOS setting (see "Chapter 4 Setting BIOS" for details).
2. Confirm that the power of FC-N21S is off.
3. Insert the cable of a serial device to the serial port on FC-N21S.



Some OSs may limit serial features.

4. Turn on the power of FC-N21S.



FC-N21S cannot connect with a portable modem getting power through the serial port. Use the built-in battery or a modem using external AC power.

3.10.5 USB (USB 2.0)

USB is the prefix indicating the Universal Serial Bus. The USB has the defined shapes of connectors and allows a PC to connect with up to 127 devices.

In addition, the USB provides the plug & play feature to allow the connector of a device to be connected/disconnected without the power of FC-N21S turned off.

Available USB devices mainly include pointing device, printers, digital cameras, mobile phones and PHSs.



- Some USB devices require driver installations and/or switch settings before or after they are connected to FC-N21S.
- Refer to the User's Guides of USB devices to be connected to FC-N21S before using them.
- After disconnecting a USB device from FC-N21S, wait for three seconds or longer before the device is connected again.
- If the connector of a USB device is connected to a USB connector on FC-N21S quickly or obliquely, FC-N21S may not be able to read signals properly to recognize it as an unknown device. If so, remove the connector from the USB connector once and reconnect it again.
- Do not connect or remove a USB device to/from FC-N21S in the suspend (standby) state, transition to the suspend (standby) state, recovery from the suspend (standby) state, the pause state, transition to the pause state, or recovery from the pause state.
- If FC-N21S connects with one or more USB devices, it may not be able to enter into the suspend (standby) state. Before FC-N21S can be entered into the suspend (standby) state, the USB devices must be removed.
- Some OSs may limit the features of USB devices.

[Specification]

Standard: USB2.0

Voltage: 5 VDC

Current: 0.5 A/port

(1) Connecting USB devices to FC-N21S

FC-N21S has three USB ports intended to connect with USB2.0 devices on the left side.

To connect a USB device to FC-N21S, insert the plug of the USB cable to a USB connector on FC-N21S.



When a USB device is connected to FC-N21S, note the orientation of the plug to be inserted to a USB connector.

(2) Removing USB devices from FC-N21S

Some USB devices may cause the icon for removing or taking out hardware to appear on the task tray at the lower right corner of the screen after the connection.

1. Double-click the icon to display the [Safely Remove Hardware] or [Remove Hardware] dialog box.
2. Select a device to be removed in the dialog box and click [Stop].
3. "Stop a Hardware device" is indicated. Select the device to be removed and click [OK].
4. Click [Close] to close the [Safely Remove Hardware] or [Remove Hardware] dialog box.



Unless a USB device is removed appropriately, FC-N21S may operate improperly. Remove a USB device in the correct procedure.

(3) Connect/disconnect-proof enhanced connector

USB connector (1) is the connect/disconnect-proof enhanced connector enduring 10,000 combinations of connections and disconnections.

3.11 PC CARD

FC-N21S has a single PC card slot to which a card of type I or II can be inserted.

3.11.1 Supporting CardBus

The PC card slot on FC-21S conforms to the CardBus specification.

The CardBus technology is intended for PC cards of 32-bit version.

This can accomplish the data transfer rate of up to 133 Mbps at 33 MHz.

SCSI host bus, graphics video and high-speed network cards are available to CardBus.

3.11.2 Installing PC Card in FC-N21S



- Some PC cards require certain system resources to be added. When such PC cards are used, other system resources may have to be released.
- The front and rear sides of a PC card are defined and thus the card must be inserted to the mating slot in the defined orientation. Inserting a PC card to the mating slot in the wrong orientation forcibly may cause the connector and/or slot to be damaged.
- Some PC cards can be inserted to or removed from FC-N21S without turning off the power. However, any PC card cannot be inserted to or removed from FC-N21S in the suspend (standby) state.
- If FC-N21S is in the suspend (standby) or pause state, do not install or remove a PC card in or from FC-N21S. Changing the device configuration of FC-N21S may cause data to be lost.
- Do not install or remove a PC card in or from FC-N21S while one or more applications operate.
- Leave the eject button stored in other than removal of the PC card. Failure to follow this instruction may cause the card and/or slot to be defected.

1. Find the PC card slot on the right side of FC-N21S.
2. Insert a PC card into the slot until the eject button is popped up.
3. If the new card is inserted, FC-N21S detects the card and installs proper driver. Follow the directions on the screen to complete the procedure.

3.11.3 Removing PC Card from FC-N21S

Some PC cards may cause icon [Removing or Taking Out Hardware] to appear on the task tray at the lower right corner of the screen at the connection.

1. Double-click the icon to display the [Safely Remove Hardware] or [Remove Hardware] dialog box.
2. Select a device to be removed in the dialog box and click [Stop].
3. "Stop a Hardware device" is indicated. Select the device to be removed and click [OK].
4. Click [Close] to close the [Safely Remove Hardware] or [Remove Hardware] dialog box.
5. If you press the eject button, the card is popped up a little.
6. Pull out the PC card from the slot.



Unless the PC card is removed appropriately, FC-N21S may operate improperly. Remove the PC card in the correct procedure.

3.12 SD CARD

FC-N21S has a single SD card slot to which an SD card (with copyright protection feature) can be inserted.

SD cards can be used for file storage, data exchange with a device equipped with an SD card slot (including digital video and digital still cameras), music data writing and substitution for password entry.



- SD cards is applicable to contents delivery services such as Internet (applicable to secure (with copyright protection feature)).
- Always install a mini SD card on an exclusive mini SD card adapter. Insert or remove the adapter to/from the mating slot. Do not leave the adapter on the slot.
- Multi-media cards are not applicable to FC-N21S. Do not connect them to FC-N21S. To use a multi-media card, a PC card adapter sold separately for a multi-media card or a USB reader/writer is required.

3.12.1 Data Transfer Rate

The SD card slot on FC-N21S has the data transfer rate of 8MB/sec. *1

If an SD card for higher data transfer rate is used, the rate is limited to 8MB/sec.*1

*1 The data transfer rate is only the theoretical value to be different from the effective rate.

3.12.2 Notes on Handling and Storage of SD Card

(1) Do not take the following actions for SD card:

- Disassemble or alter SD cards.
- Give hard shocks to, bend, drop, and put water on SD cards.
- Make hands or metals contact with metallic terminals on SD cards.
- Peel off labels on SD cards or put new labels or seals on SD cards.

(2) Do not place SD card in the following places:

- Place of increase in temperature (including closed in-car area and location exposed to direct sunshine)
- Place of high temperature and/or much dust
- Place of generation of corrosive gas

3.12.3 Windows Logon and Resuming from Suspend (Standby) or Pause State

Before the Windows login or desktop screen appears, an SD card should not be inserted or removed.

Do not access to the SD card for about 30 seconds after FC-N21S resumed from the suspend (standby) or pause state.

3.12.4 Protecting Data

Set the write protect switch on the SD card to the "LOCK" position. Move the switch to the "LOCK" position for new recording (checkout), editing or file storage.

NEC recommends you to back up important data to other media.

NEC assumes any responsibility for direct and indirect faults including loss of data saved by customers.

NEC recommends that, if an SD card is disposed, it is destroyed physically by using such a tool as a hammer to prevent personal data from being flown out.

Also see "(2) Removing SD Card from SD Card Slot" in "3.12.5 Installing or Removing SD Card in/from SD Card Slot".

3.12.5 Installing or Removing SD Card in/from SD Card Slot

(1) Inserting SD Card into SD Card Slot



When an SD card is inserted to the SD card slot, note the orientation of the card. Inserting an SD card in invalid orientation may cause a fault to occur.

1. Open the connector cover.
2. Insert an SD card securely into the SD card slot from the side of edge defect with its front surface facing upward.

(2) Removing SD Card from SD Card Slot



- Before the SD card can be removed, the card must always be halted.
- Do not remove the SD card from the SD card slot in any of the following cases. Failure to follow this instruction may cause important data to be damaged or the SD card to be accessed improperly at the next installation.
 - FC-N21S is in the suspend (standby) or pause state,
 - The SD card opens one or more files (first close the files before removing the SD card),
 - The SD card reads or writes data from or to FC-N21S, or
 - Just after the SD card performs operation such as writing (the SD card may access to FC-N21S intermittently).

1. Halt the SD card.
 1. Double-click the [Safely Remove Hardware] icon on the task tray at the lower right corner of the screen
 2. Click [Secure Digital Storage Device] and [Stop].
 3. Click [Secure Digital Storage Device] and [OK].

The procedure is not required if the SD card is removed in the power-off state.

2. Pushing the SD card allows it to be popped up a little. Then pull out the card.

Before the SD card can be stored, it should be saved in a case.

3.13 MICROPHONE INPUT TERMINAL

The microphone input terminal can connect with a commercial microphone to receive audio data. The terminal can accept a 3.5 mmφ plug.

3.14 OUTPUT TERMINAL COMMON TO LINE AND HEAD PHONE

The output terminal can connect with a commercial headphone or audio device to output audio data. The terminal can accept a 3.5 mmφ plug.

An audio device to be connected to the output terminal should be equipped with an amplifier fit to its use.

3.15 BUILT-IN SPEAKER

FC-N21S is equipped with a monaural speaker (of 0.5 W output).

3.16 I/O INTERFACES

(1) PCMCIA interface

Connector: 68-pin card slot

Pin number	Signal name	Pin alignment
1	GND	
2	CADATA<3>	
3	CADATA<4>	
4	CADATA<5>	
5	CADATA<6>	
6	CADATA<7>	
7	CE1#	
8	CADR<10>	
9	OE#	
10	CADR<11>	
11	CADR<9>	
12	CADR<8>	
13	CADR<13>	
14	CADR<14>	
15	WE#	
16	IREQ#	
17	CAVCC	
18	CAVPP	
19	CADR<16>	
20	CADR<15>	
21	CADR<12>	
22	CADR<7>	
23	CADR<6>	
24	CADR<5>	
25	CADR<4>	
26	CADR<3>	
27	CADR<2>	
28	CADR<1>	
29	CADR<0>	
30	CADATA<0>	
31	CADATA<1>	
32	CADATA<2>	
33	IOIS16#	
34	GND	
35	GND	
36	CD1#	
37	CADATA<11>	
38	CADATA<12>	
39	CADATA<13>	
40	CADATA<14>	
41	CADATA<15>	
42	CE2#	
43	VS1	
44	IORD#	
45	IOWR#	
46	CADR<17>	
47	CADR<18>	
48	CADR<19>	
49	CADR<20>	
50	CADR<21>	
51	CAVCC	
52	CAVPP	
53	CADR<22>	
54	CADR<23>	
55	CADR<24>	
56	CADR<25>	
57	VS2	
58	RESET	
59	WAIT#	
60	INPACK#	

(2) Modem

Connector: RJ11

Pin number	Signal r ime	Pin alignment
1	LA TIP1	 2.1
2	LA RING1	

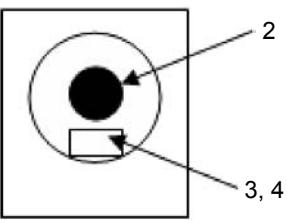
(3) LAN interface (1000BASE-T)

Connector: RJ45

Pin number	Signal r ime	Pin alignment
1	LA TRD0+	 8 ... 1
2	LA TRD0-	
3	LA TRD1+	
4	LA TRD2+	
5	LA TRD2-	
6	LA TRD1-	
7	LA TRD3+	
8	LA TRD3-	

(4) AC adapter jack

Connector: RJ11

Pin number	Signal r ime	Pin alignment
–	–	 2 3, 4
2	ADP-IN	
3	AC-GND	
4	AC-GND	

(5) Headphone output interface

Pin number	Signal r ime	Pin alignment
1	AGND	
2	LEFT	
3	RIGHT	

(6) Microphone input interface

Connector: Mini jack (female)

Pin number	Signal r ime	Pin alignment
1	AGND	
2	LEFT	
3	RIGHT	

(7) Analog RGB interface

Connector: D-sub 15-pin connector (female)

Pin number	Signal name	Pin alignment
1	RED	
2	GREEN	
3	BLUE	
4	NC	
5	GND	
6	GND	
7	GND	
8	GND	
9	VP50	
10	GND	
11	NC	
12	DDCA	
13	HSYNC	
14	VSYNC	
15	DDCL	

(8) Serial interface (COM1)

Connector: D-sub 9-pin connector (male)

Pin number	Signal name	Pin alignment
1	DCD	
2	RXD	
3	TXD	
4	DTR	
5	GND	
6	DSR	
7	RTS	
8	CTS	
9	RI	

(9) USB interface (USB 1/2/3)

Pin number	Signal name	Pin alignment
1	+5V	
2	D-	
3	D+	
4	GND	

(10) SD interface

Connector: SD-slot 12-pin connector (female)

Pin number	Signal name	Pin alignment
1	CD/DATA3	
2	CMD	
3	GND	
4	MEDIA_3V	
5	CLK	
6	GND	

Chapter 4 Setting BIOS

This chapter describes the uses of the BIOS SETUP Utility allowing you to set various environmental conditions on FC-N21S including power management.

4.1 BIOS SETUP UTILITY

FC-N21C has the BIOS SETUP Utility to set the environment in which FC-N21S is used. In initial booting, the BIOS SETUP Utility is shown in English.

The BIOS SETUP Utility is intended to set an environment of FC-N21S without starting OS.

Using the BIOS SETUP Utility, you can provide various settings for security, device, power saving and other features.

4.1.1 Settings on BIOS SETUP Utility

You can perform the following operations on the BIOS SETUP Utility.

- (1) Setting the current date and time
- (2) Selecting language used on the BIOS SETUP Utility
- (3) Checking or changing hardware environment
- (4) Setting security
- (5) Setting power management
- (6) Setting boot of FC-N21S



Any settings changed on the BIOS SETUP Utility will be made effective after rebooting.
If both supervisor and user passwords are set, you cannot make changes on some items on the BIOS SETUP Utility started with the user password.
If some settings are provided improperly on the BIOS SETUP Utility, FC-N21S does not reboot.
If this occurs, restart the BIOS SETUP Utility to return them to the factory defaults.

4.1.2 Running/exiting BIOS SETUP Utility

(1) Starting

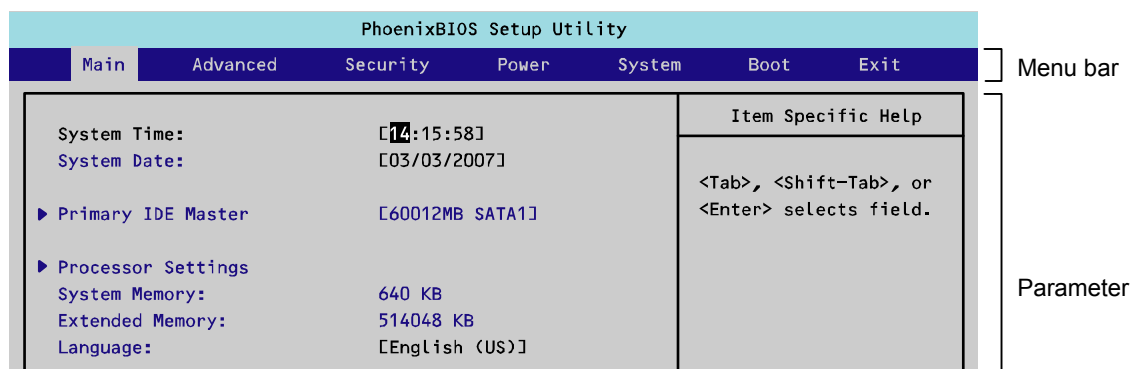
If the following message appears on the BIOS start screen appearing after the power of FC-N21S is turned on, press **F2**.

Press <F2> to SETUP or Press <F12> to Network boot.

or

Press <F2> to Enter BIOS SETUP, <F12> to Boot on Network.

The dialog box shown below appears.



(2) Exiting

1. Press **F10**.
2. The [Setup Confirmation] dialog box appears.
3. Select [Yes] and press **Enter**.

The setting values are saved and the BIOS SETUP Utility is exited.

Selecting [Exit] on the menu bar can exit the BIOS SETUP Utility.

(3) Exit menu

On the Exit Menu, you can exit the BIOS SETUP Utility or read or save system settings.

Option	Description
Exit Saving Changes	Saves the setting data resulting from changes and exit the BIOS SETUP Utility. (Pressing F10 can do the same exit operation.)
Exit Discarding Changes	Exits the BIOS SETUP Utility without saving the setting values (discarding the current setting values).
Load Setup Defaults	Overwrites default values to all setting values. The default values may be different from factory defaults. (See the factory defaults.)
Discard Changes	Returns the setting values to those before changes. (The BIOS SETUP Utility remains appearing.)
Save Changes	Saves the setting values resulting from changes. (The BIOS SETUP Utility remains appearing.)

4.1.3 Loading the BIOS SETUP Defaults

The following describes the way to return the data on the BIOS SETUP Utility to their factory defaults.

1. Turn on the power of FC-N21S.
2. If message "Press <F2> to SETUP or Press <F12> to Network boot." or "Press <F2> to Enter BIOS SETUP, <F12> to Boot on Network." appears on the BIOS Start screen, press **F2**.
3. The BIOS SETUP Utility appears.
4. Press **F9**.
The [Setup Confirmation] dialog box appears.
5. Select [Yes] and press **Enter**.
The system reads factory defaults.
6. Press **F10**.
7. Select [Yes] and press **Enter**.

The system saves the setting values and exits the BIOS SETUP Utility.

Now the job is completed.

4.2 MAIN MENU

4.2.1 Main Menu

(1) System Time

Enter the current time in format "hh:mm:ss" (hh: hour, mm: minute and ss: second)

(2) System Date

Enter the current date in format "yyyy/mm/dd" (yyyy: year, mm: month and dd: date)

(3) Primary Master

Indicates the information on devices connected to the primary master (including capacities and types).

If you move the cursor to this option and press **Enter**, the relevant setting submenu appears on the screen.

For the submenu, see "4.2.2 Primary Master Submenu".

(4) Processor Settings

Indicates the processor information.

If you move the cursor to this option and press **Enter**, the relevant setting submenu appears on the screen.

Option	Parameter	Description	Displayed value
CPU Speed	(View only)	Indicates the speed of the installed CPU (by the number of clocks)	1200MHz
CPU Type	(View only)	Indicates the type of the installed CPU.	Genuine Intel(R) CPU
Cache Ram	(View only)	Indicates the capacity of the second cache of the installed CPU.	2048KB ^{*1}

*1 Installation of 256MB memory

(5) System Memory

Indicates the capacity of the system memory.

(6) Extended Memory

Indicates the capacity of the extended memory.

(7) Language

Specify the language used in BIOS. You can select either Japanese or English.



The factory default of the language is [English (US)].

4.2.2 Primary Master Submenu

Select [Advanced] → [I/O Device Configuration] → [SMART Device Monitoring] to display the setting information.

If you change some settings, the new information resulting from the change is displayed after rebooting.

Option	Parameter	Description
SMART Monitoring	(View only)	[Enabled] or [Disabled] appears if the [SMART Monitoring] is enabled or disabled, respectively. This setting cannot be changed.

4.3 ADVANCED MENU

4.3.1 Advanced Menu Configuration

(1) PCI Configuration

This option allows you to provide settings for PCI devices built in FC-N21S.

If you move the cursor to this option and press **Enter**, the relevant setting submenu appears on the screen.

For the submenu, see "4.3.2 PCI Configuration Submenu".

(2) I/O Device Configuration

This option allows you to provide settings for peripherals built in FC-N21S.

If you move the cursor to this option and press **Enter**, the relevant setting submenu appears on the screen.

For the submenu, see "4.3.3 I/O Device Configuration Submenu".

(3) Summary screen

The option allows you to specify whether the system setting status is displayed on booting.

Option	Parameter	Description
Summary screen	Disabled Enabled	Set to [Enabled] to display the system setting status on booting.

*Shaded value: Factory-set

(4) Silent Boot

This option allows you to select the screen displayed on booting.

Option	Parameter	Description
Silent Boot	POST screen	Set to [POST screen] to display the Power-On Self-Test (POST) screen without displaying the NEC logo.
	Logo screen	Set to [Logo screen] to display the NEC logo and shorten the booting time.
	Non screen	Set to [Non screen] to display neither the POST nor NEC logo screens. (The booting time is not made shorter.)

*Shaded value: Factory-set

(5) QuickBoot Mode

This option allows you to specify whether a part of tests is skipped on booting or not.

Option	Parameter	Description
QuickBoot Mode	Disabled	Set to [Disabled] to execute all tests.
	Enabled	Set to [Enabled] to skip a part of tests. This can shorten the booting time if the extended memory capacity is considerably large.

*Shaded value: Factory-set

(6) Fn/Left Ctrl key replacement

This option allows the features of Fn and Left Ctrl on the keyboard to be replaced with each other.

Option	Parameter	Description
Fn/Left Ctrl key replacement	Disabled	Set to [Disabled] to operate Fn and Left Ctrl as they are.
	Enabled	Set to [Enabled] to replace the features of Fn and Left Ctrl of the keyboard to be replaced each other.

*Shaded value: Factory-set

(7) Tablet Button

(8) DMI Event Logging

This option displays the system event log occurring on booting or allows you to set the system event log.

If you move the cursor to this option and press **Enter**, the relevant setting submenu appears on the screen.

Option	Parameter	Description
Event Log Capacity	(View only)	If "Space Available" appears, the area where DMI event log information is stored has empty space. If "Full" appears, the area where DMI event log information is stored has no empty space.
Event Log Validity	(View only)	"Valid" appears normally (normal state). "Invalid" appears if the event log area becomes illegal due to power shutdown during storage of event log. If "Invalid" appears, run [Clear All DMI Event Logs] to recover the normal state.
View DMI Event Log	(View only)	Press Enter to display the contents in the DMI event log entirely.
Clear All DMI Event Logs	No Yes	Select [Yes] to clear the DMI event log entirely after rebooting.
Event Logging	Disabled Enabled	Set to [Disabled] not to record the DMI event log. Set to [Enabled] to record the DMI event log.
Mark DMI Events As Read	Yes No	Press Enter and select [Yes] to make the currently displayed log read already.

*Shaded value: Factory-set



DMI (Desktop Management Interface) is a standard specification of hardware-to-software interface intended to simplify management of each PC for easy system management.

4.3.2 PCI Configuration Submenu

The PCI Configuration Submenu allows you to set features of PCI devices built in FC-N21S.

Option	Parameter	Description
On Board LAN	Provide settings for on-board LAN devices. If you move the cursor to this option and press Enter , the relevant setting submenu appears on the screen.	
LAN Controller	Disabled Enabled	Enable or disable wired LAN controller.
Wireless LAN Controller	Disabled Enabled	Enable or disable wireless LAN controller.
On Board USB	Provides settings for on-board USB devices. If you move the cursor to this option and press Enter , the relevant setting submenu appears on the screen.	
USB Controller	Disabled Enabled	Enable or disable the USB controller. Set to [Disabled] to disable even the USB2.0 controller. USB connectors become unavailable (I/O lock).
USB 2.0 Controller	Disabled Enabled	Enable or disable the USB2.0 controller. Set to [Disabled] to disable the USB2.0 controller. USB devices operate in the USB1.1 specification.

*Shaded value: Factory-set

4.3.3 I/O Device Configuration Submenu

The I/O Device Configuration Submenu allows you to set features of peripherals built in FC-N21S.

Option	Parameter	Description
Serial port A	Disabled Enabled	Set to [Disabled] to disable serial port A (I/O lock) and release the interrupt. Set to [Enabled] to enable serial port A.
Internal Mouse	Disabled Enabled	Set to [Disabled] to disable the touch pad. Set to [Enabled] to enable the touch pad.
Touch Panel	Disabled Enabled	Set to [Disabled] to disable the touch panel. Set to [Enabled] to enable the touch panel.
Sound	Disabled Enabled	Set to [Disabled] to disable sound (makes the audio controller disabled). Set to [Enabled] to enable sound.
Modem Controller	Disabled Enabled	Set to [Disabled] to disable the built-in modem. Set to [Enabled] to enable the built-in modem.
Card Bus Controller	Disabled Enabled	Set to [Disabled] to disable the card bus controller (PCMCIA). Set to [Enabled] to enable the card bus controller (PCMCIA).
Display Out	CRT LCD LCD + CRT	Specify the monitor(s) on which screen data is displayed. Set to [CRT] to display screen data on the external monitor in booting. (Screen data is not displayed on the built-in LCD monitor.) Set to [LCD] to display screen data on the built-in LCD monitor in booting. Set to [LCD + CRT] to display screen data on both monitors in booting.
LCD Panel View Expansion	Enabled Disabled	Specify the LCD panel view expansion feature. If this option is set to [Disabled], a part of area is not displayed at the top and bottom sides and the left and right sides on a display screen smaller than the maximum display size of the LCD panel. (However, parameter [Disabled] is unavailable if the screen resolution is set to the maximum value in OS setting.) If this option is set to [Enabled], display image smaller than the maximum display size of the LCD panel is expanded to be displayed on the full screen.
LCD Brightness Control	Disabled Enabled	Specify the LCD brightness control method. Set to [Disabled] to have the LCD brightness controlled by OS or driver. (Tablet buttons 4 and 5 and hot keys Fn + F7 , Fn + F8 are disabled to change the LCD brightness.) Set to [Enabled] to have the LCD brightness controlled by BIOS. (Tablet buttons 4 and 5 and hot keys Fn + F7 , Fn + F8 are enabled to change the LCD brightness.)
Audio Volume Control	Disabled Enabled	Enable or disable the internal audio volume control. Set to [Enabled] to control the audio volume from the OS or device driver. Set to [Disabled] to control from the BIOS.
Legacy USB Support	Disabled Enabled	Enable or disable the legacy USB feature. Set to [Disabled] to disable the legacy USB feature. Booting from an external USB device is also disabled. Set to [Enabled] to enable the legacy USB feature.
Parallel ATA	Disabled Enabled	Set to [Disabled] to disable the built-in parallel ATA IDE adapter. Set to [Enabled] to enable the built-in parallel ATA IDE adapter.
Serial ATA	Disabled Enabled	Set to [Disabled] to disable the built-in serial ATA IDE adapter. Set to [Enabled] to enable the built-in serial ATA IDE adapter.
SMART Device Monitoring	Disabled Enabled	Set to [Disabled] not to provide S.M.A.R.T. monitoring for IDE devices. Set to [Enabled] to provide S.M.A.R.T. monitoring for IDE devices.

*Shaded value: Factory-set

4.3.4 Tablet Button Submenu

The Tablet Button Submenu allows you to assign features to tablet buttons.

Option	Parameter	Description
Tablet Button 1	0h	Assign features to tablet buttons.
Tablet Button 2	0h - FFFFh	Enter the key codes to be set.
Tablet Button 3		Key codes shown in the table below are only available
Tablet Button 4		If [0] is set to an option, the serigraphed standard feature is enabled for the option.
Tablet Button 5		If [FFFF] is set to an option, the feature of the option is disabled.
[Tb] + Tablet Button 1		
[Tb] + Tablet Button 2		
[Tb] + Tablet Button 3		
[Tb] + Tablet Button 4		
[Tb] + Tablet Button 5		

*Shaded value: Factory-set

The table below shows the correspondence between actual tablet buttons and options.




No	Option	Usual feature	Feature of [Tb] + [Tablet button]
①	Tablet Button 1	Ctrl + Alt + Del	Esc
②	Tablet Button 2	Screen rotation	Tab
③	Tablet Button 3	Enter	Starting screen keyboard
④	Tablet Button 4	LCD brightness UP	PgUp
⑤	Tablet Button 5	LCD brightness Down	PgDn

The tablet buttons can only have the features listed in the table below. Do not specify any values other than those in the table below.

Feature	Setting value
Ctrl + Alt + Del	0100 h
Screen rotation	* E06D h
Enter	005A h
LCD brightness UP	0107 h
LCD brightness Down	0108 h
Esc	0076 h
Tab	000D h
Starting screen keyboard	* E06A h
PgUp key	0075 h
PgDn key	0072 h
Keyboard backlight OFF	0101 h
Switching wireless LAN enabled/disabled	0102 h
Switching screen output port	0103 h
LCD backlight OFF	0104 h
FC button 1	* E048 h
FC button 2	* E03A h

* [Screen rotation], [Starting screen keyboard], [FC button 1] and [FC button 2] are enabled only in operation of Windows

 [FC Button 1] and [FC Button 2] can run the execution command (or application starts) registered on the [FC Button Setup utility] dialog box.

4.4 SECURITY MENU

4.4.1 Security

(1) Supervisor Password

This option indicates whether a supervisor password is set or not.

Option		Description
Supervisor Password is	(View only)	"Set" appears when a supervisor password is set. "Clear" appears when a supervisor password is not set.



The supervisor password is intended to limit users of the BIOS SETUP Utility. With a supervisor password being set, the BIOS SETUP Utility can be started only after you enter the password.

(2) User Password

This option indicates whether a user password is set or not.

For the option and description on a user password, see "(1) Supervisor Password" above.



The user password is intended to limit users of the BIOS SETUP Utility and also items which can be set on the menu.

(3) Set Supervisor Password

This option allows you to set a supervisor password. If a supervisor password is set, accessing to the BIOS SETUP Utility is limited.

<Supervisor password setting procedure>

1. Select [Set Supervisor Password] and press **Enter**. The setting dialog box appears.
2. Enter a new password in field [Enter New Supervisor Password] and press **Enter**.
3. Enter the same password in field [Confirm New Supervisor Password] for confirmation and press **Enter**.
4. When message "Changes have been saved." appears, press **Enter**.

The value in field [Supervisor Password is] is changed to [Set].



To change a password already set, enter the current password in field [Enter Current Password] for confirmation, press **Enter** and then enter a desired password in the same way as setting a new password.




- A password can only consist of up to eight alphanumeric characters and is not case-sensitive.
- If you press **Enter** without entering anything in the new supervisor password field, both the supervisor and user passwords are cancelled.
- To cancel the user password only, cancel the supervisor password once and then set the supervisor password only.
- Re-setup of FC-N21S cannot cancel the passwords.



Forgetting a password, you cannot cancel the password. Accordingly, if a password is set, manage it carefully.

(4) Set User Password


This option allows you to set a user password. If a user password is set, accessing to the system on booting is limited.

 Without supervisor password, you cannot select an item to set the user password.
First set the supervisor password.


<User password setting procedure>

1. Select [Set User Password] and press **Enter**. The setting screen appears.
2. Enter a new password in field [Enter New Password] and press **Enter**.
3. Enter the same password in field [Confirm New Password] for confirmation and press **Enter**.
4. When message "Changes have been saved." appears, press **Enter**.

The value in field [User Password is] is changed to [Set].

 Entering the BIOS SETUP Utility with the supervisor password, you can check and change all setting items. However, entering into it with the user password, you cannot change the following items (view only).

- Items [System Time], [System Date] and [Language] on the [Main] menu
- Items [Exit Saving Changes], [Exit Discarding Changes] and [Save Changes] on the [Exit] menu

 Forgetting a password, you cannot cancel the password.
Accordingly, if a password is set, manage it carefully.

(5) User Password Protection

This option indicates whether the user password is protected or not.

Option	Parameter	Description
User Password Protection	Disabled Enabled	Set to [Enabled] not to allow you to change the user password if you enter the setup menu with the user password.

*Shaded value: Factory-set

(6) Password on boot

Option	Parameter	Description
Password on boot	Disabled Enabled	Set to [Disabled] not to request you to enter the user passwords on booting. Set to [Enabled] to request you to enter the user password on booting.

* This option becomes selectable after a supervisor password is set.
Shaded value: Factory-set

(7) Network Boot Setting

The option allows you to provide settings on network starting.

If you move the cursor to this option and press **Enter**, the relevant setting submenu appears on the screen.

Option	Parameter	Description
Keyboard/Mouse Lock	Disabled Enabled	Allows you to set the operations of the keyboard and mouse on remote (PME) booting (until OS is started). Set to [Disabled] to allow the keyboard and mouse to be used. Set to [Enabled] to lock the keyboard and mouse to be unavailable.
BIOS LOCK	Disabled Enabled	Allows you to set [Password on boot] on remote (PME) booting. Set to [Disabled] to boot without request of entering the user password. Set to [Enabled] to request you to enter the user password. This option appears when the supervisor password is set and [Password on boot] is set to [Enabled].

*Shaded value: Factory-set

(8) HardDisk Security

This option allows you to set the security of the HDD.

If you move the cursor to this option and press **Enter**, the relevant setting submenu appears on the screen.

On the submenu, you can set security features of the HDD as described below.

Option	Parameter	Description
Fixed disk boot sector	Normal Write Protect	Set to [Write Protect] to prohibit data from being written to the boot sector in the HDD to protect the sector from virus.
Assign HDD Password	(No value)	Allows you to set an HDD password. See Supplement 1: Setting HDD password" for how to set an HDD password.
Primary Master HDD Password	Enabled Disabled	Set to [Enabled] to set the HDD password in the primary master hard disk drive.
Hard Disk Erase	Yes No (No value)	Erases data in the HDD. See "Supplement 2: Erasing HDD data" for how to clear data.

*Shaded value: Factory-set

Supplement 1: Setting HDD password

There are two HDD passwords, or HDD master and HDD user passwords.

<HDD password setting procedure>

1. Select [Assign HDD Password] and press **Enter**.
2. Enter a supervisor password in field [Enter New Master Password.] and press **Enter**.
3. Enter the same password in field [Confirm New Master Password.] for confirmation and press **Enter**.
4. The [Assign HDD User Password] dialog box appears.
5. Enter a supervisor password in field [Enter New User Password] and press **Enter**.
6. Enter the same password in field [Confirm New User Password] for confirmation and press **Enter**.
7. Select [Primary Master HDD Password] and press **F5** or **F6** to set the option to [Enabled].



Setting a HDD user password can prohibit the HDD from being used in another PC illegally.



Forgetting a password, you cannot cancel the password.
Accordingly, if a password is set, manage it carefully.

Supplement 2: Erasing HDD data

The following shows the erase HDD data procedure.

- NSA (Random(1) → Random(2) → 00h)

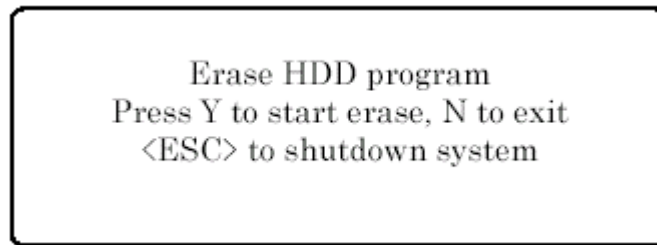
Writes [random data → random data → 00] in the order in the entire HDD area.

The erase HDD procedure conforms to the method recommended by NSA.

It takes 80 to 140 minutes to erase a 60-GB HDD.

<HDD erase procedure>

1. Select [Hard Disk Erase] and press **Enter**. The [Setup Confirmation] dialog box appears.
2. Select [Yes] to exit the BIOS SETUP Utility and transit to the erase HDD dialog box. The following dialog box appears.



3. Press **Y** to start erasing the HDD.

Press **N** to cancel the erase HDD procedure and start system booting.

Press **ESC** to shutdown the system (power-off).



After the HDD data is erased, the data having been stored in the HDD cannot be restored. Before erasing the HDD, make sure that necessary data does not remain in the HDD.



If you enter the BIOS SETUP Utility with the user password, item [Hard Disk Erase] does not appear in the menu.



To boot FC-N21S (to start Windows installed in the primary master hard disk), the HDD master and HDD user passwords being set may not be entered even if [Primary Master HDD Password] is set to [Enabled].

(9) No-Execute Memory Protection

This option allows you to specify whether the DEP (Data Execution Prevention) feature of the HDD is enabled or not.

Option	Parameter	Description
No-Execute Memory Protection	Enabled Disabled	Enable or disable the DEP (Data Execution Prevention) feature. Set to [Enabled] to enable the DEP feature. Set to [Disabled] to disable the DEP feature.

*Shaded value: Factory-set

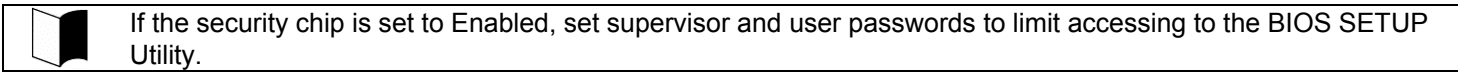


DEP (Data Execution Prevention) is a feature of preventing illegal programs and data from being executed in hardware manner. DEP disables computer virus to write or run program codes illegally.

(10) Security Chip Configuration

This option allows you to provide settings for the security chip.

If you move the cursor to this option and press **Enter**, the relevant setting submenu appears on the screen.



On the submenu, you can set features of the security chip as described below.

Option	Parameter	Description
Security Function	Disabled Enabled	Enable or disable the security chip called TPM (Trusted Platform Module). Set to [Disabled] to disable the security chip (TPM). Set to [Enabled] to enable the security chip (TPM).
Security Chip	Disabled Enabled	Specify whether initialization of the security chip (TPM) is executed or not. Set to [Disabled] not to perform initialization of the security chip (TPM). Set to [Enabled] to perform initialization of the security chip (TPM).
Security Platform	Disabled Enabled	Enable or disable the security chip (TPM) feature. Set to [Disabled] to disable the security chip (TPM) feature. Set to [Enabled] to enable the security chip (TPM) feature. This option appears when [Security Chip] is set to [Enabled].
Clear Security Chip	(No setting)	Clears the user information in the security chip (TPM). Select this option and press Enter to display the [Clear and Disable Security Chip] dialog box. Select [Continue] and press Enter to clear the user information in the security chip (TPM). This option appears when [Security Platform] is set to [Enabled].

*Shaded value: Factory-set

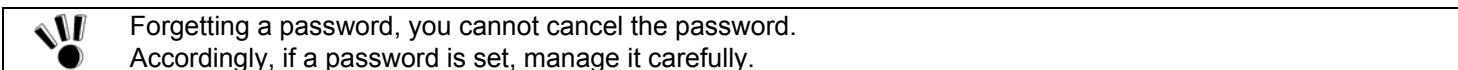
For the security chip and the utility setting procedure, see "5.2.2 Infineon Security Platform".

4.4.2 Clearing BIOS Passwords

FC-N21S can limit users of the BIOS SETUP Utility by supervisor and user passwords and prevent the HDD from being used illegally by other PCs with HDD passwords.

(1) Clearing passwords by BIOS SETUP Utility

To release passwords, start the BIOS SETUP Utility, enter the existing supervisor password in [Set Supervisor Password] in the Security Menu and press **Enter** without entry of new password.



4.5 POWER MANAGEMENT MENU

4.5.1 Power Management Configuration

This menu allows you to set power management features.

Option	Parameter	Description
Power Switch Lock	Disabled Enabled	Specify whether the power inhibit release switch is enabled or disabled. Set to [Enabled] to enable the power switch with the power inhibit release switch being pressed. (Pressing the power switch only cannot turn on/off the power.)
Wake On LAN/PME	Disabled Enabled	Specify whether the power is turned on by the wake on LAN feature of the internal LAN controller or not.
Wake On Ring	Disabled Enabled	Specify whether the power of the device connected to the serial port is turned on or not.
Restore On AC/Power Loss	Stay Off Last State Power On	Specify the state recovered when the power of the AC adapter is interrupted and then on again. Set to [Stay Off] not to turn on the power at AC power-on of the AC adapter. Set to [Last State] to return to the state at AC power-off of the AC adapter. If AC power of the AC adapter is interrupted with the power being on, the power is turned on. If AC power of the AC adapter is interrupted with the power being off, the power is not turned on. Set to [Power On] to turn on the power at AC power-on of the AC adapter.
Intel(R) SpeedStep(TM) technology	Disabled Enabled	Specify whether the Intel SpeedStep technology is enabled or disabled. Set to [Disabled] to operate FC-N21S in the battery optimization performance. Set to [Enabled] to operate FC-N21S in the performance optimized by the Intel SpeedStep technology. (The CPU frequency varies depending on load to CPU.)
CPU Power Level	Minimum Standard Maximum	Specify the CPU power level when the CPU is entered into idling state during OS operation. Set to [Minimum] to transit the CPU to the minimum power consumption state. Set to [Standard] to transit the CPU to the normal power consumption state. Set to [Maximum] to transit the CPU to the maximum power consumption state.
Battery Charge Mode	Normal LongLife Keeping Auto	Specify the battery charging mode. Set to [Normal] to charge the battery fully. Set to [LongLife] to charge the battery at level of 80%. (Select this if you want to make the battery life longer.) Set to [Keeping] to charge the battery at level of 30%. (Select this if the battery is stored.) Set to [Auto] to select [Normal] in the normal state but [LongLife] if the battery temperature becomes higher.
Battery Refresh	(No setting)	Recovers the battery feature. Select [Yes] and press Enter to refresh the battery.

*Shaded value: Factory-set



Enabling or disabling [Wake On Ring]:

If FC-N21S is operated in connection with a modem, provide the OS with proper modem setting also.

Ex.: For Windows XP

Click [Start] → [Control Panel] → [Printers and Other Hardware] → [Phone and Modem Options] → [Modems] and select the installed modem.

- If [Wake on Ring] is set to [Enabled]:

Click [Properties] and check field "Allow this device to bring the computer out of standby" on [Power Management].

- If [Wake on Ring] is set to [Disabled]:

Select [Property] and uncheck field "Allow this device to bring the computer out of standby" on [Power

4.6 SYSTEM MENU

The System Menu allows you to set system features as described in the table below.

Option	Parameter	Description
System Management		Indicates system information. If you move the cursor to this option and press Enter , the relevant setting submenu appears on the screen.
System Part #	(View only)	Indicates the product name of FC-N21S.
System Serial #		Indicates the serial number of FC-N21S (not used now).
BIOS Revision		Indicates the BIOS revision of FC-N21S.
EC FW Revision		Indicates the EC-FW revision of FC-N21S.
Temperature Sensor	Disabled Enabled	Specify the temperature monitoring feature. Set to [Disabled] to disable the temperature monitoring feature at system booting. Set to [Enabled] to enable the temperature monitoring feature at system booting.
Upper Limit	75	Indicates the upper limit of the monitoring temperature. Press F5 key to decrease value, F6 key to increase value. (Do not change the value of the option.)
Lower Limit	5	Indicates the lower limit of the monitoring temperature. Press F5 key to decrease value, F6 key to increase value. (Do not change the value of the option.)
Voltage Sensor	Disabled Enabled	Specify the voltage monitoring feature. Set to [Disabled] to disable the voltage monitoring feature at system booting. Set to [Enabled] to enable the voltage monitoring feature at system booting.
POST Errors	Disabled Enabled	Specify the operation when an error is found during POST. Set to [Disabled] to have the system continue booting if an error is found by the POST. Set to [Enabled] to suspend booting if an error is found by the POST and indicate the error content.
HDD Thermal Sensor	Disabled Enabled	Specify the HDD temperature monitoring feature. Set to [Disabled] to disable the HDD temperature monitoring feature at system booting. Set to [Enabled] to enable the HDD temperature monitoring feature at system booting.
HDD Power Management	Disabled Enabled * Appeared when [HDD Thermal Sensor] is set to [Enabled].	Specify the HDD power management. Set to [Disabled] to turn on the HDD power forcibly at system booting. Set to [Enabled] not to turn on the HDD power if the temperature of the HDD is low. This option appears if [HDD Thermal Sensor] is set to [Enabled].
LCD Brightness Mode	Normal Enhanced	Specify the brightness of the LCD display. Set to [Enhanced] to make the LCD screen brighter in the high brightness mode.

*Shaded value: Factory-set



POST, an abbreviation for Power-On Self-Test, is a self-diagnosis feature done by BIOS when FC-N21S is booted by power-on or reset operation.

4.7 BOOT MENU

4.7.1 Boot Order Configuration

This menu lists boot devices in the preference order. The top device first tries to start the OS. If the device cannot start the OS due to such a reason as no existence of OS, the next device tries to start the OS.

To change the boot device, press **PgUp** or **PgDn** to move the cursor to the device to be used to start the OS.

Press **F5** or **F6** to move the cursor upward or downward in the list, respectively.

Press **x** to move the cursor in [Boot priority order] and [Excluded from boot order].

Up to eight devices can be registered in [Boot priority order].

The factory set priority is defined as follows:

- 1: USB CD-ROM
- 2: USB FDD
- 3: Master HDD
- 4: Onboard LAN device

The actual dialog box appears as follows:

