WLAN6060SD Card
User Manual

02/12/2003
preliminary

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WLAN6060SD Card User Manual Version Control

Version	Date	Author	Engineering Approval	Marketing Approval	Operation Approval	Mark
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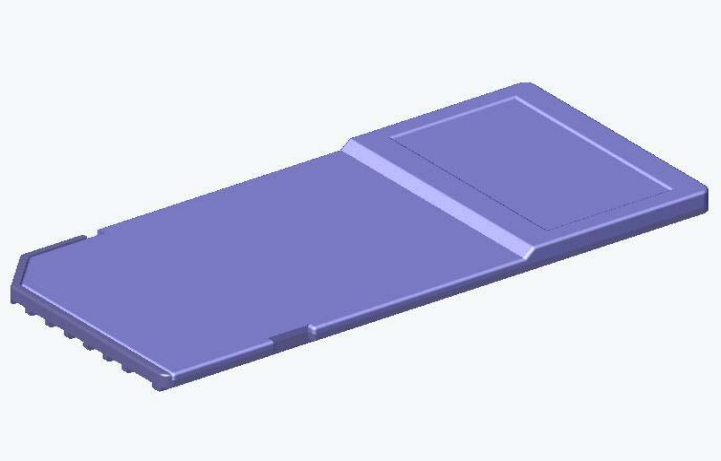
1 Introduction Information

1.1 Introduction



SyChip WLAN6060SD Network Interface Card

WLAN6060SD Card from SyChip Inc is a Secure Digital Card form factor Wireless LAN NIC(Network Interface Card) incorporating the popular wireless Ethernet standard 802.11b. It uses Direct Sequence Spread Spectrum (DSSS) Wireless LAN technology to provide bandwidths of up to 11Mbps at ranges of up to 400 feet. This card enables next generation Pocket PC/PDAs, Cellular Phones, and Ultra-thin notebook computers to access the internet, email, corporate networks and transfer streaming video or audio, images or large files from a WLAN-enabled environment. It allows an extension of the corporate resources by enabling the mobile workforce and telecommuters. The card is idea for vertical markets such as manufacturing floors, car rentals, retail spaces, hospitals etc. In the consumer market, this WLAN card is ideal for users of next generation Palms, Pocket PCs, Smartphones, printers and scanners. Additionally, the card gives users the ability to work whilst away from the office by connecting to the rapidly expanding public hotspot infrastructure. Such venues as coffee shops, airports, shopping malls, hotels, etc are offering this capability based on the IEEE802.11b standard. For mobile applications, battery life is extended through the use of enhanced power saving features, which reduce the current drain whilst in standby mode (the card is in this state for the majority of the time as it awaits data destined for it).

Not only does the WLAN6060SD Card roam seamlessly among multiple 802.11b wireless network access point, it also operates in peer to peer mode (without an access point) to download data from wirelessly equipped laptops without a cradle or network connection, and can share data directly with wireless PDAs.

This is a complete WLAN solution incorporating the Baseband Processor, Mac, Memory, VCO, Transceiver, Antenna, antenna switch and power amplifier and to realize a complete design. The card will be fully WiFi certified.

Key Features:

- Wi-Fi Certified – interoperable with other Wi-Fi certified WLAN products
- Very small footprint: card measured 54.0x24.0x2.1mm3.
- Complete IEEE802.11b functionality integrated BB/MAC, RF, VCO, PA and SD interface
- Reduced power consumption in standby mode
- User definable transmit power settings in Ad Hoc Mode
- Will support Win2000/NT/XP, WinCE (v3.0 or greater), Palm OS
- Support infrastructure or Peer to Peer connectivity

Warnings:

THIS EQUIPMENT COMPLIES WITH PART 15 OF THE FCC RULES. ANY CHANGE OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE MANUFACTURER COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

THIS WAS DEVICE WAS EVALUATED FOR BODY SAR IN A PDA WITH A SEPARATION DISTANCE OF 0.0 CM. FAILURE TO INSTALL THIS DEVICE AS DESCRIBED WILLWILL RESULT IN A FAILURE TO COMPLY WITH FCC RULES FOR RF EXPOSURE AND IS DISCOURAGED. ONLY ANTENNAS APPROVED WITH THE DEVICE MAY BE USED. NO EXTERNAL ANTENNAS MAY BE USED. THIS DEVICE MAY NOT BE CO-LOCATED WITH OTHER TRANSMITTERS WITHOUT FURTHER APPROVAL BY THE FCC.

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

1.2 About this User Manual:

This User Manual contains:

- Information of safety and handling of WLAN6060SD Card
- WLAN6060SD Card installation procedures for Pocket PC/PDA
- Basic configuration and settings of WLAN6060SD Card for Pocket PC/PDA
- Troubleshooting of WLAN6060SD Card
- Update and support information
- Legal Information

Please be sure to read this User Manual before using the WLAN6060SD Card to ensure its proper handling.

- Please be sure to read "Safety Precautions" in the document since these describe important safety issues

- After reading this document, keep it in a convenient place for future reference.

Concerning the display of device certification:

This product has been certified as conforming to technological standards for a wireless device as a small electrical data transmission system under electrical transmission law. Therefore, you do not need a license from a government agency to operate this system.

However, the following actions are punishable by law:

- Disassembly or modification of this product
- Removal of identification labels on the back of this product

1.3 Safety Precautions

1.4 Limitation of Liability

1.5 Usage Conditions

1.6 Warning

1.7 Caution

1.8 Handling Instructions

1.9 Notes

2 WLAN6060SD Package Contents

WLAN6060SD Card package from SyChip includes:

- 1 WLAN6060SD Card
- 1 WLAN6060SD software and document CD

3 WLAN6060SD Specifications

Supported Operating System:	Win CE3.0 (Pocket PC2002)
Certification:	Wi-Fi (802.11b)
Size (LxWxH mm3):	54.0x24.00x1.6 (2.1mm high for extended antenna section)
Weight(g):	4.3

Transmit Power(dBm):	13.0
Power ratings:	
DC (V)	3.3 (2.7~3.6)
Current Consumption(mA):	297 (max)
	35 (average)
	15 (sleep)
Security Standards:	WEP 64/128

4 Installation and Configuration

4.1 Preparation

Before operating the WLAN6060SD Card, refer to *Applying the Regulatory Country Stamp.* Once the regulatory stamp is affixed, register the WLAN6060SD Card at www.sychip.com/products/reg.

Before beginning the installation, verify the hardware package contains:

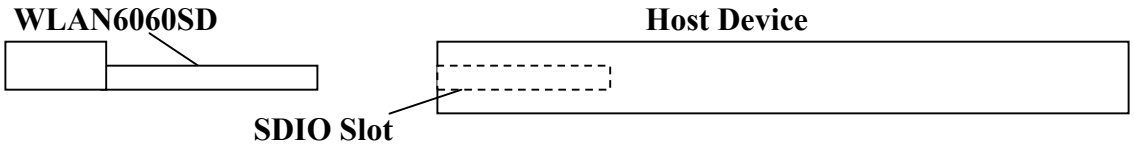
- A WLAN6060SD Card
- A WLAN6060SD Card software and documentation CD

4.2 Supported Devices

The WLAN6060SD card can be used in any platform that has the proper SDIO interface and Software drivers.

Refer to the documentation on the enclosed CDROM for installation and usage instructions.

4.3 Installing WLAN6060SD Card and Software



The WLAN6060SD Card driver and utility installation requires a connection through Microsoft ActiveSync between the desktop or notebook PC and the host device. The installation installer on the CDROM downloads the necessary files to the host device through the desktop or notebook PC.

1. Establish an ActiveSync connection between the desktop or notebook PC and the host device.
2. Insert the WLAN6060SD Card Software and Documentation CDROM into the CDROM drive on the desktop or notebook PC.
   An HTML (Web) page automatically displays
3. Click **Software Installation**
   A **File Download** window display
4. Check the **Run this program from its current location** option and click **OK**.
5. Follow the instruction displayed by the installer.
6. Finish of the installation of WLAN6060SD software to the host device.

4.4 Configuring WLAN6060SD Card

After installed the driver into host device, you can now plug in the WLAN6060SD card into SDIO slot in your host device. You will see an icon appearing on the low right corner bar.

4.4.1 Pegasus Card Configuration

You need to configure the Pegasus card before you can be connected to the network. Double click the Pegasus icon, a "Pegasus Wireless Settings" windows will pop up.

4.4.2 Status Tab

The status tab screen shows some important parameters that card is working with:

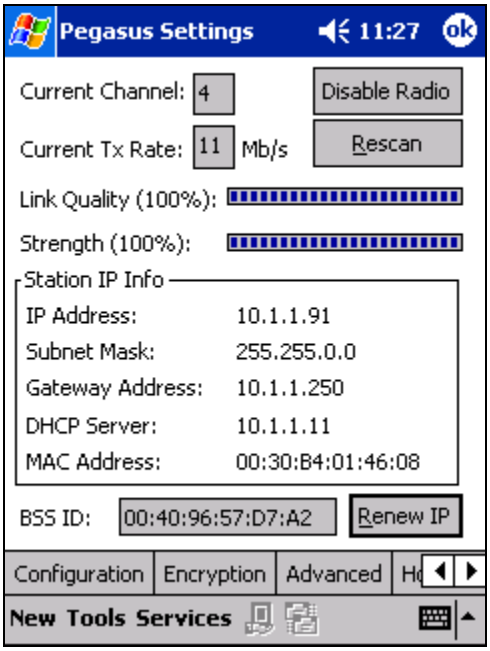


Figure 1 Status window

Information Field

- **Current Channel**

It shows the RF channel number currently used by the card.

- **Current TX Rate**

It shows the current transmit speed that can be 1Mb/s, 2Mb/s, 5.5Mb/s, and 11 Mb/s depending on the link quality.

- **Link Quality**

It gives both percentage and graphic display for signal to noise ratio.

- **Signal Strength**

It gives both percentage and graphic display for signal strength in Receiver.

- **Station IP Info**

This block gives the card IP information that include:

  - **IP Address**
  - **Subnet Mask**
  - **Gateway Address**
  - **DHCP Server**
  - **MAC Address**

Check with your network administrator for IP configuration information.

- **BSS ID**

It shows the MAC address of the Access Point the card associating with.

Operation Button

- **Disable Radio**

This button is used to disable the radio link from the card.

- **Rescan**

Press this button to start a rescan in current radio channel.

- **Renew IP**

Renew IP button allows one to reapply IP address from DHCP server.

4.4.3 Configuration Tab

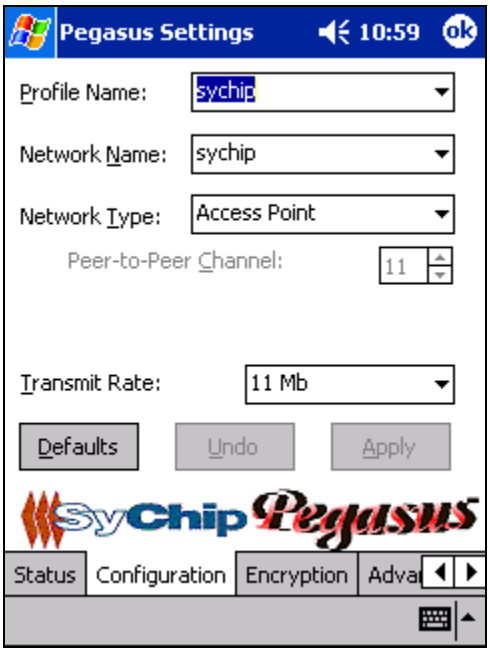


Figure 2 Configuration window

Information Field

- **Profile Name**

Profile file contains all configuration parameters for card setting. You can use a default profile to configure the card, or use a specified profile for card setting.

- **Network Name**

Network name (SSID) is the network ID your card associates with, which can be a domain name. ***Check with your network administrator for Network Name (SSID)***.

- **Network Type**

Network type is the working mode your card is working on. Pegasus card can work in two modes. One is the "Access Point" mode, it is also called "Infrastructure" mode, which is used by default. The other one is "Peer to Peer" mode that is used to communicate between two radio cards without an access point.

- **Peer-to-Peer Channel**

If you use "Peer to Peer " mode, you have to select your radio channel same as the channel your other party is using.

- **Transmit Rate**

You can manually select the transmit rate between 1Mb/s, 2Mb/s, 5.5Mb/s, and 11Mbit/s. It is "Fully Automatic" by default.

Operation Button

- **Defaults**

Defaults button is used for factory reset.

- **Undo**

Undo the change in configuration setting.

- **Apply**

Apply change in configuration setting immediately.

4.4.4 Encryption Tab

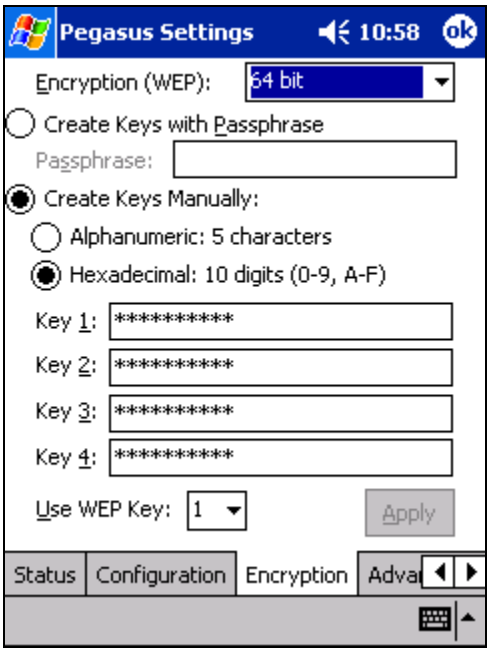


Figure 3 Encryption window

Information Field

- **Encryption (WEP Key)**

It provides the security for your wireless communication. By default, it is disabled for easy set up. It can be set to 64 bits or 128 bits long.

- **Create Keys with Passphrase**

This option can be used to generate an encryption code based on the phrase you entered in the window.

- **Create Keys Manually**
  - ❖ **Alphanumeric**

    This option let one choose 5 or 13 characters (depending on the encryption length) for encryption.
  - ❖ **Hexadecimal**

    This option lets one to enter 10 or 26 digits (0-9, A-F, depending on the encryption length) for each WEP Key window, and then specify a WEP Key to be used from right scroll down menu window.

Check with your network administrator for security WEP Key you need to use.

Operation Button

- **Apply**

Apply change to encryption setting.

4.4.5 Advanced Setting Tab

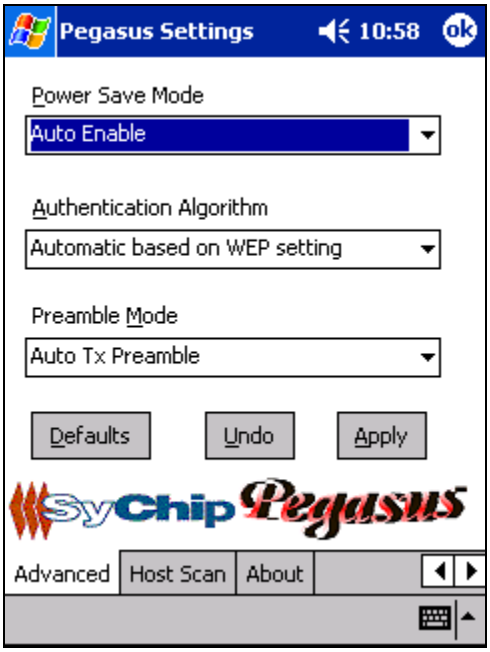


Figure 4 Advanced setting window

Information Field

- **Power Save Mode**
  One can select to set power save mode to be:
  - **Disable**
  - **Always Enable**
  - **Auto Enable**

  It is Always Enable by default.
- **Authentication Algorithm**
  Authentication algorithm has three options:
  - **WECA Compliant**
  - **Must use Shared with WEP**
  - **Automatic based on WEP setting**

  It has been selected to Automatic based on WEP setting by default.
  Note: WEP Key must be enabled and supported by the Access Point for this feature.
- **Preamble Mode**
  One can select to set preamble to be:
  - **Long TX Preamble**
  - **Short TX Preamble**
  - **Auto TX Preamble**

  It's been set to Auto TX Preamble by default.

Operation Button

- **Default**

Default button reset the setting.

- **Undo**

Undo button undo the change for setting.

- **Apply**

Apply button applying the change to card setting.

4.4.6 Host Scan Tab

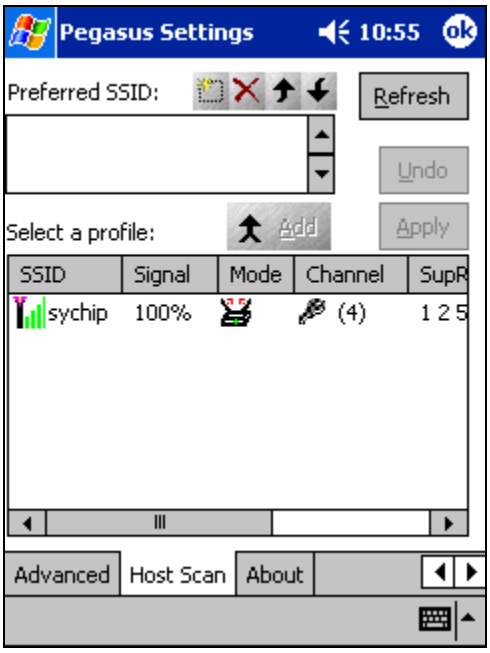


Figure 5 Host scan window

This function tab provides a tool to find a new Access Point with better service quality. It works in the procedure define below:

- **Refresh**

Press this button to initial a new search for all available Access Point around. One should be able to see all Access Points with SSID, Signal, Mode, Channel, Support Rate, and BSSID on the bottom half of the screen.

- **Select a Profile**

By highlighting one Access Point, one selects it as a profile to work on.

- ❖ Press **Apply** button to use this Access Point for card association immediately.
- ❖ Press **Add** button to pop up the setting window for entering WEP Key, click OK to add it to your **Preferred SSID** table showing on the upper screen.

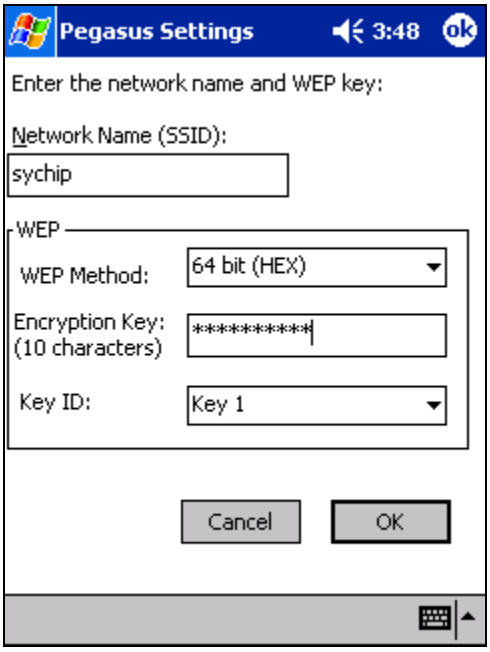


Figure 6 Profile setting window

- **Preferred SSID Table**

  For each profile in the table, one can make the following change by using icon tools on right side:
  - **Modify** the setting will let one to change the card configuration setting
  - **Delete** from table will delete the highlighted profile
  - Change order **higher** will move profile upper
  - Change order **lower** will move profile lower

4.4.7 About Tab

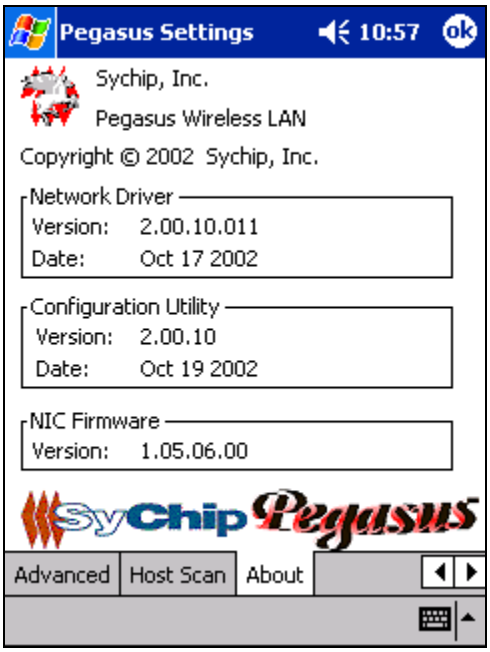


Figure 7 About window

This window provides Version Number and time to be built for Network Driver, Configuration Utility, and NIC Firmware currently used in this card. One can check SyChip website for latest version, and download to the card.

4.5 Removing the radio card

You should always stop the radio card before removing it from the Host Device slot. To stop the radio, right click the icon on the task bar and select the option **Wireless Radio Off.**

Refer to the *WLAN6060SD Card User Manual* on the CDROM for detailed information on configuration settings.

5 Troubleshooting

The following scenarios could be encountered when using the WLAN6060SD Card in a Windows CE environment:

The Pocket PC does not Recognize WLAN6060SD Card

The Pocket PC displays an Unrecognized Card dialog box when the WLAN6060SD Card is inserted.

This means the WLAN6060SD Card driver was not loaded or was loaded incorrectly. If this is the case the driver files require reinstallation. Refer to the *WLAN6060SD Card installation* section of this document.

An IP Address is Not Recognized by the Pocket PC

Remove and reinsert the wlan6060SD Card or turn off and on the Pocket PC for changes to the IP address to take effect.

6 Documentation Updates

All latest documentation, software version and drivers will be updated on SyChip's Web site at *www.sychip.com/download* . Please feel free to visit and download for your applications.

7 Contact Information

Customer Support

SyChip Inc provides its customers with prompt and accurate customer support. If the SyChip Customer Support specialists cannot solve a problem, access to all technical disciplines within SyChip becomes available for further assistance and support. SyChip Customer Support responds to calls by email, telephone of fax within the time limits set forth in individual contractual agreements. When contacting SyChip Customer Support, please provide the following information:

- Serial number of the unit
- Model number or product name
- Software type and version number.
- Order number

SyChip Inc. worldwide Customer Support contact information:

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2805 Dallas parkway, Suite 400
Plano, TX 75093
Telephone: (972)836-0010
Fax: (972)633-0327
Email: support@sychip.com

8 Legal Information

8.1 Applying the Regulatory Country Stamp

A regulatory Label is applied on the back of the WLAN6060SD Card.

The regulatory label signifies that the WLAN6060SD Card is approved for use in the following countries:

- United States
- Canada
- Australia
- Japan
- Europe Union (except Belgium and France)

For approved countries other than those listed above, a sheet of adhesive country stamps may be enclosed within the WLAN6060SD Card package.

To apply the country stamp:

1. Peel the stamp appropriate to the country where the WLAN6060SD Card is used.
2. Apply the country stamp on the bottom right-hand corner of the regulatory label located on the back of the WLAN6060SD Card.

For countries that have not received regulatory approval, an adhesive country stamp is not enclosed. Refer to www.sychip.com for the latest list of approved countries.

! Operation of the device without a regulatory label or the correct country stamp is illegal.

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