# MSI MP54GS (MS-6818) Wireless 11g MiniPCI Card

## (For OEMs use only) User's Guide

# FCC Caution

1. The 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.
2. FCC RF Radiation Exposure Statement: The equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.
3. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
4. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user authority to operate the equipment.

*NOTE:* *This device is approved for OEM installation with specified antennas. It is the responsibility of the Installer to comply with the separation distance for satisfying RF exposure compliance.*

## *Important Safety Precautions*

Always read and follow these basic safety precautions carefully when handling any piece of electronic component.

1. Keep this User's Manual for future reference.
2. Keep this equipment away from humidity.
3. Lay this equipment on a reliable flat surface before setting it up.
4. The openings on the enclosure are for air convection hence protects the equipment from overheating.
5. All cautions and warnings on the equipment should be noted.
6. Never pour any liquid into the opening that could damage or cause electrical shock.
7. If any of the following situations arises, get the equipment checked by a service personnel:
   - Liquid has penetrated into the equipment
   - The equipment has been exposed to moisture
   - The equipment has not work well or you can not get it work according to User's Manual
   - The equipment has dropped and damaged
   - If the equipment has obvious sign of breakage
8. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT UNCONDI-TIONED, STORAGE TEMPERATURE ABOVE $60^{\circ}$C OR BELOW $-20^{\circ}$C, IT MAY DAMAGE THE EQUIPMENT.

## *Revision History*

| Revision | History | Date |
|---|---|---|
| V 1.0 | First Release | September 2003 |

# ① **Introduction**

## >>> 1.1 MP54GS - Wireless 11g MiniPCI Card

**MSI Wireless 11g MiniPCI Card MP54GS** (hereafter called MP54GS), compliant with IEEE802.11g, is a high-efficiency wireless adapter for wireless networking at home, in office or in public places. The data rate can be up to 54 Mbps and auto-negotiated to 48, 36, 24, 18, 12, 9, 6Mbps (IEEE 802.11g), or 11, 5.5, 2, 1Mbps (IEEE802.11b).

With MP54GS, you can roam between conference room and office without being disconnected the LAN cables; in addition, sharing files and printers can be easy tasks.
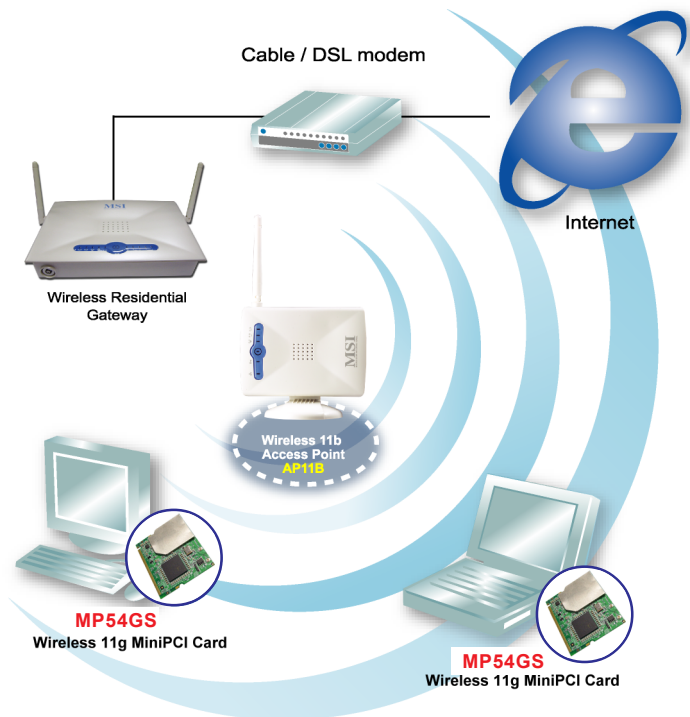
The MP54GS is available to Microsoft Windows operating systems (Windows® XP/2000/ME/98SE) and can be integrated into networking with either **Ad-hoc mode** (computer-to-computer, without an Access Point) or **Infrastructure mode** (computer-to-access point, an Access Point is required).

## >>> 1.2 How MP54GS Works

- **Ad-hoc Mode :** An Ad-hoc network is a local area network or other small network, especially one with wireless or temporary plug-in connections, in which some of the network devices are part of the network only for the duration of a communications session. Users in the network can share files, print to a shared printer, and access the Internet with a shared modem. In this kind of network, new devices can be quickly added; however, users can only communicate with other wireless LAN computers that are in this wireless LAN workgroup, and are within range.



MP54GS
Wireless 11g MiniPCI Card

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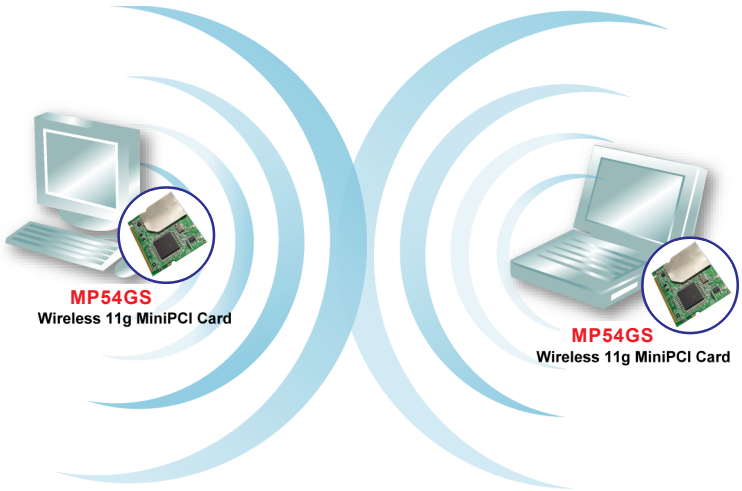
❑ **Infrastructure Mode :** The difference between Infrastructure network and Ad-hoc network is that the former one includes an Access Point. In an Infrastructure network, the Access Point can manage the bandwidth to maximize bandwidth utilization. Additionally, the Access Point enables users on a wireless LAN to access an existing wired network, allowing wireless users to take advantage of the wired networks resources, such as Internet, email, file transfer, and printer sharing. The scale and range of the Infrastructure network are larger and wider than that of the Ad-hoc networking.

Cable / DSL modem

Internet

Wireless Residential
Gateway

Wireless 11b
Access Point
AP11B

MP54GS
Wireless 11g MiniPCI Card

MP54GS
Wireless 11g MiniPCI Card

## >>> 1.3 Specifications

### ❏ Hardware

**Compliant Standards**
- IEEE 802.11g/b

**Bus and Connector Types**
- 32-bit 3.3 Volt Type IIIA
- 124-pin Golden Finger

**Security Mechanism**
- Hardware-Base WEP Privacy
- Hardware-Base AES Privacy (driver update)

**Operational Environment**
- Operational Temperature: 0 ~ 55$^O$C
- Humidity: 10 ~ 90% (non-condensing)

**Weight and Dimension**
- Weight:11.5g
- Dimension: 50.8 x 59.6 x 4.9mm

### ❏ Radio Frequency

**Raw Data Rates and Modulation Types**
- IEEE 802.11b (Auto-Fallback)
    CCK: 11, 5.5Mbps
    DQPSK: 2Mbps
    DBPSK: 1Mbps
- IEEE 802.11 g (Auto-Fallback)
    OFDM: 54, 48, 36, 24, 18, 12, 9, 6Mbps

**Communication Protocol**
- DSSS (Direct Sequence Spread Spectrum) with ACK
- Half-Duplex

**Access Method**
- Infrastructure Mode: Station-To-LAN Architecture
- Ad-Hoc Mode: Station-To-Station Architecture

**Frequency, Bandwidth, and Channels**
- 2.4 ~ 2.4835 GHz Frequency Band
- 14 Channels
- Maximum 3 Non-Overlapped Channels
- 25MHz Bandwidth Per Channel

**Transmitter Output Power**
- Output Power: 13.5dBm

**Wireless Coverage (outdoor)**
- Up to 150m @ 11Mbps
- Up to 50m @ 54Mbps

**Receiving Sensitivity**
- $\leq$ -82 dBm @ 11Mbps (DSSS/CCK)
- $\leq$ -68 dBm @ 54Mbps (OFDM)

## Software

**Security Mechanism**
- 64-/128-bit WEP Key
- AES-CCM Authentication Mode (driver update)
- WPA Support (driver update)
- LEAP/PEAP Support (firmware upgrade)

**Authentication Mechanism**
- Open Authentication (Default)
- Shared-Key Authentication

**Operating System**
- Microsoft® Windows® 98SE/ME/2000/XP

## >>> 1.4 System Requirements

Before installing the MP54GS, your PC should meet the following:

- Desktop/notebook PC with an available MiniPCI slot.

- Windows® 98SE/ME/2000/XP operating system.

- Minimum 5M bytes free disk space for installing the driver and utilities.

- CD-ROM drive, double speed or higher.

## >>> 1.5 Package Contents

Unpack the package and check all the items carefully. If any item contained is damaged or missing, please contact your local dealer as soon as possible. Also, keep the box and packing materials in case you need to ship the unit in the future. The package should contain the following items:

- One Wireless 11g MiniPCI Card - **MP54GS**.

- One Quick Installation Guide.

- One CD title including drivers, utilities, user's manual and quick guide.

## >>> 1.6 Product View

*External Antenna Connectors:*
*Connect to external antennas for*
*enhanced data transmission and*
*reception. The external antennas*
*are well designed on the desktop*
*or notebook computers.*

*Golden Finger*
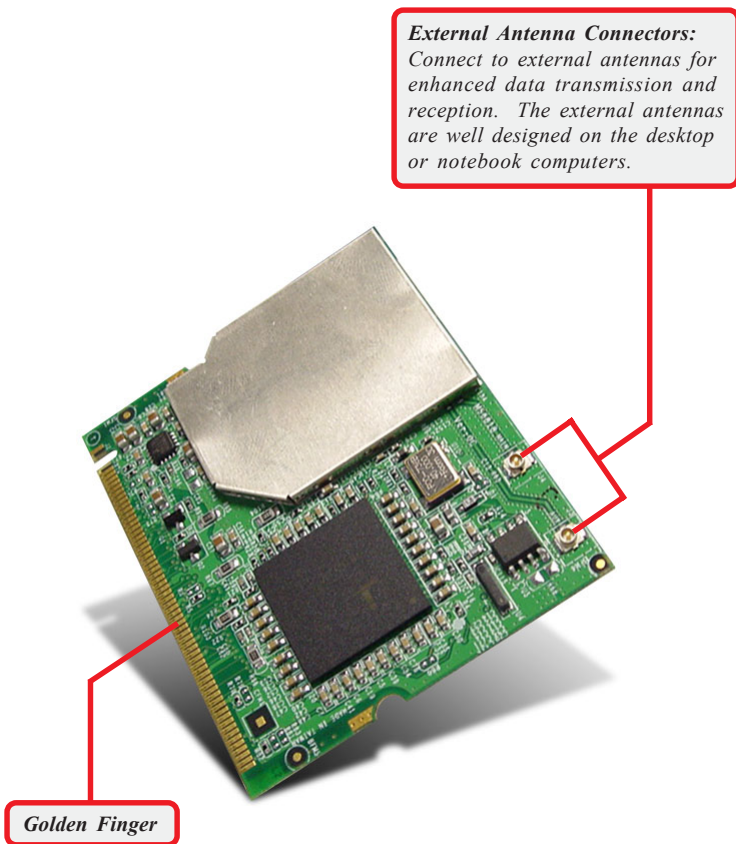
# ② **Hardware Installation**

The following diagrams provide you a basic installation for the MP54GS, including how to install and remove the MiniPCI card. The instruction below is suitable for most computers with the
MiniPCI slot. For more information about the MiniPCI module, please refer to your computer's manual.

## >>> 2.1 Installing the MP54GS

1.    Locate the Mini PCI slot on the mainboard.

2.    Place the MP54GS over the MiniPCI slot (at an angle of 30 degrees). Then, gently insert it into the slot until the golden finger of the card gets fully inserted.

3.    Press down the card, and the retaining clips (on two sides of the slot) will lock onto the notches of the card.

Foolproof
notch

$30^{o}$
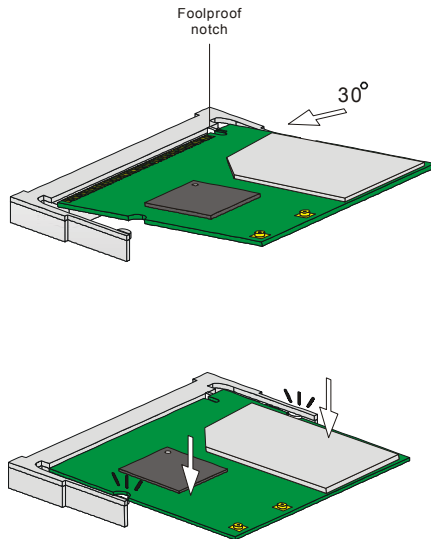
## >>> 2.2  Removing the MP54GS

1.    Locate the MiniPCI slot with MP54GS installed.

2.    Press the retaining clips outwards, and the card should bound upwards slightly after being released from the slot.

3.    Remove the card from the MiniPCI slot carefully.
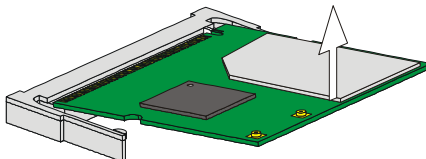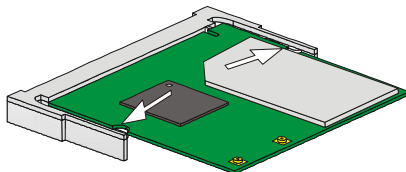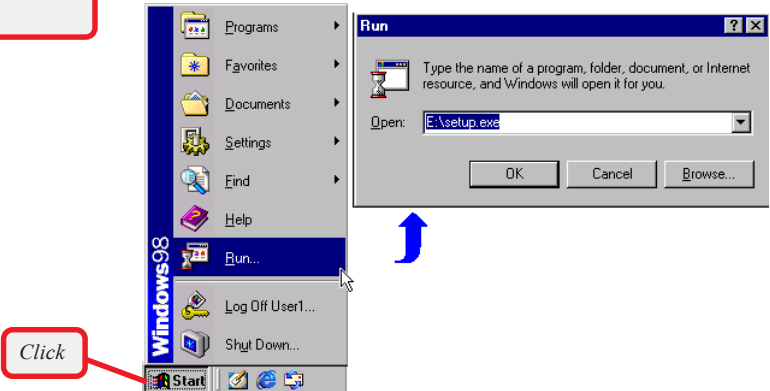
# ③ **Software Installation**

This section describes the procedures of installing the driver and utility. Follow the instruction step by step to finish the installation. If you use Windows® 98SE/ME, please prepare the Windows® Setup CD at hand before installing the driver; because the system will ask you to insert the Setup CD to copy files during the installation.

## >>> 3.1 Installing on Windows® 98SE/ME

**Step 1.** Insert the driver CD into your CD-ROM drive, and the Setup program should launch automatically.

If the Autorun program doesn't launch, click **Start** at the taskbar and select **Run...**; type *E:\setup.exe* in the Open box and click *OK*, where *E* is your CD-drive.

*The card should be installed into your computer before installing the driver and utility.*

*Click*

*Windows 98SE*

*The installation screen of Setup program*

Click the **Install Software** button.

Then, the system will detect a new device and start to configure the new device. Click *Restart* when prompted.

After rebooting, the system will search the new device again, click *Cancel* to continue the installation from the InstallShield Wizard.

**Step 2.** The welcome screen of InstallShield Wizard appears. click *Next*.

Read and accept the License Agreement, then click *Next*.

Enter the user's information (*User Name, Organization*) in the respective fields, then click *Next*.

**Step 3.** Click *Install* and the program will copy the necessary files to the system. The progress indicator shows the in stalling status.

> *NOTE: You may be asked to insert the Windows Setup CD during the installation. Please insert the Setup CD by the on-screen instruction to continue the installation.*

**Step 4.** When the installation is completed, click *Finish*.

The system will restart. Click *Yes* when prompted to reboot the system.

After rebooting, the **MSI Wireless LAN** icon\* appears in the status area.



*MSI Wireless LAN icon*

#### \* The MSI Wireless LAN icon

Not connected to the network.
Connected to the network.
Receiving/transmitting data from/to the network.

## >>> 3.2 Installing on Windows® 2000/XP

**Step 1.** Insert the driver CD into your CD-ROM drive, and the Setup program should launch automatically.

If the Autorun program doesn't launch, click **Start** at the taskbar and select **Run...**; type *E:\setup.exe* in the Open box and click *OK*, where *E* is your CD-drive.

*The card should be installed into your computer before installing the driver and utility.*
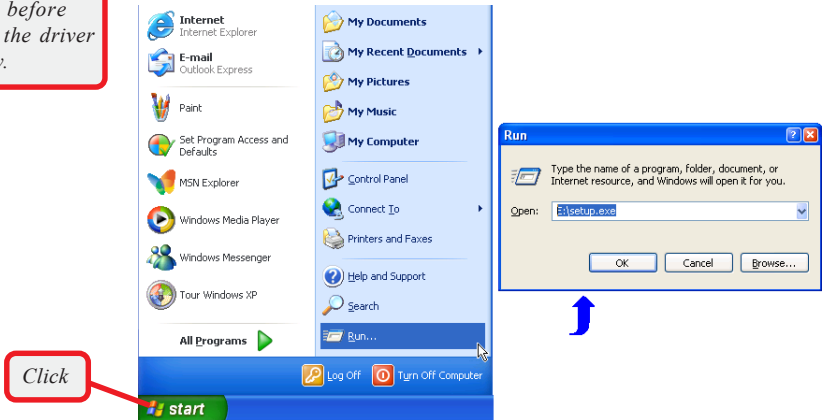


*Windows XP*

Click the **Install Software** button.



*The installation screen of Setup program*

**Step 2.** The welcome screen of InstallShield Wizard appears. Click *Next*.

Read and accept the License Agreement, then click *Next*.

**Step 3.** Enter the user's information (*User Name, Organization*) in the respective fields, then click *Next*.

Click *Install* and the program will copy the necessary files to the system. The progress indicator shows the in stalling status.

**Step 4.** When the installation is completed, click *Finish*.

The **MSI Wireless LAN** icon* appears in the status area.



*MSI Wireless LAN icon*

**\* The MSI Wireless LAN icon**

Not connected to the network.
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