SIERRA WIRELESS

HEART OF THE WIRELESS MACHINE™

Sierra Wireless MC87xx and Development Kit User Guide

1 Introduction

This documents explains how to set up, configure and use the Sierra Wireless' MC87XX MiniCards with the embedded modem Development Kit.

2 Table of Content

3 Required Equipment

Below is a list of equipment required to operate the MC87XX MiniCards.

3.1 Hardware

1. MC87XX MiniCard

2. Antenna Equipment

3. MC87XX Daughter Board

Top

Bottom

4. Power Supply
5. USB cable
6. USIM Card

Items 1 to 5 are provided by Sierra Wireless Inc. If you are missing some of these components please contact your Sierra Wireless representative.

4   Hardware Assembling

4.1   Inserting a USIM Card

You will require an UMTS account and a USIM (Universal Subscriber Identity Module) card to use the MiniCard.

To install your USIM card into the Daughter Board, follow these steps:

1. Turn the Daughter Board so the bottom side is faced up. The slot for the USIM is on the back.
2. The USIM slot is located away from the antenna.
3. To open the USIM casing, lift up the casing where it states "LIFT" on it. You may need to push it to one side before lifting.
4. Orient the USIM card so that the circuitry is faced down and the notch is facing away from your body. The USIM card can only be placed in 1 orientation while the circuitry is faced down.

5. Close the casing for the USIM slot. Make sure the casing is fastened tightly. You may need to push it away from your body and down.

4.2   Connecting the MiniCard to the Daughter Board

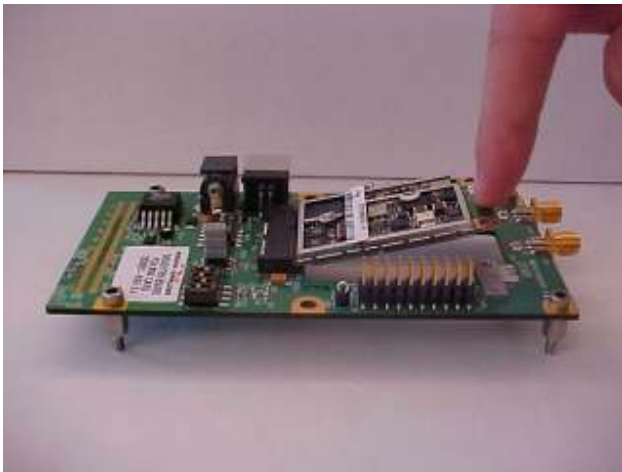To install your MiniCard to the Daughter Board, follow these steps:

1. Turn the Daughter Board so the top side is faced up.
2. The MiniCard slot is located beside the USB connector.
3. Orient the MiniCard so that the screw holes are near the antenna and the end with less copper prongs are nearest to the USB connector. The MiniCard can only be placed in 1 orientation into the MiniCard slot. You may need to tilt the MiniCard

at a 45 degree angle vertically and pushed down, when placing it into the MiniCard slot.

4. Screw in the 2 screws in its appropriate places so that the MiniCard is fastened tightly to the Daughter Board.

4.3 Swapping MiniCards

To change your MiniCard, follow these steps:

1. Turn the Daughter Board so the top side is faced up.
2. Unscrew the screws that was used to fastened the MiniCard to the Daughter Board.
3. Lift the modem up so that it is at a 45% angle.
4. Remove the MiniCard from the MiniCard slot.
5. Follow Section 4.2 Connecting the MiniCard to the Daughter Board to put another modem in.

4.4 Connecting the Antenna Components

The equipment required for this is shown in number 2 of section 3.2 Hardware. To install the antenna components, follow these steps:

1. Turn the Daughter Board so the top side is faced up.
2. Connect the antenna of the MiniCard to that of the Daughter Board. You would use the grey wire provided and press down tightly to the little buttons as shown below.
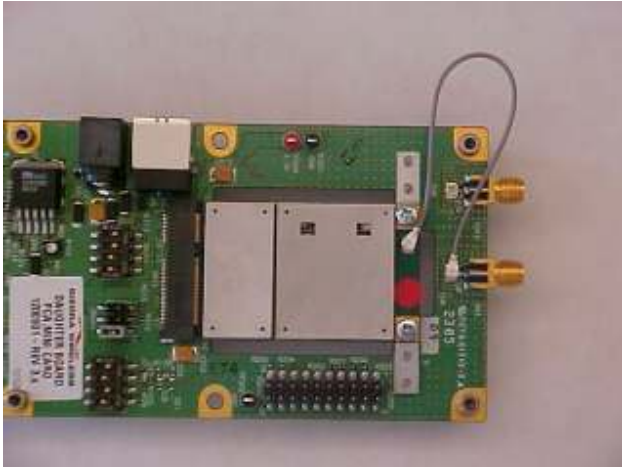
3. Connect the silver adapter (looks like a bolt) to the antenna connector from step 1.
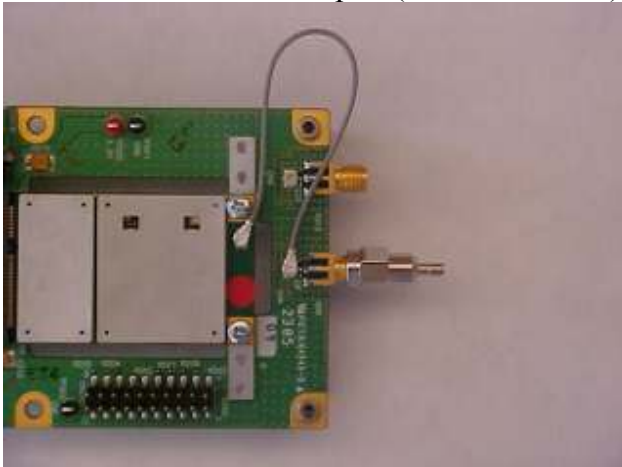
4. Attach the antenna to the end of the silver adapter.

4.5   Connecting the Power Supply and USB cable

To install the power supply and USB cable, follow these steps:

1. Turn the Daughter Board so the top side is faced up.
2. The silver USB connector is located beside the MiniCard slot. Insert the USB cable to the silver USB connector. The other end of the USB cable will go to your PC.
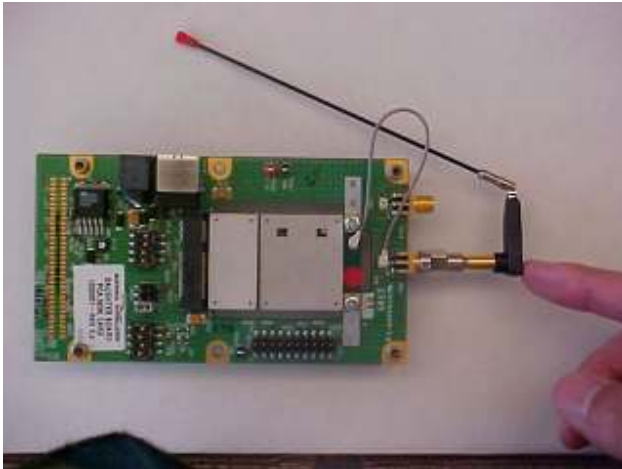3. The black power supply connector is located beside the USB connector. Insert the power supply cable to the black power supply connector. You can insert the other end of the power supply to an outlet. Please be aware of the input voltage for the power supply.

4.6   Finished Product

Below is a picture of the top end of an assembled MiniCard onto a Daughter Board.
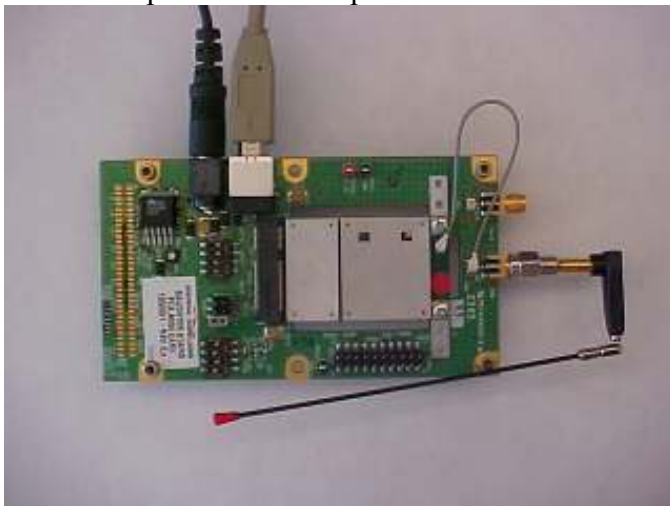
Below is a picture of the bottom end of an assembled MiniCard onto a Daughter Board.
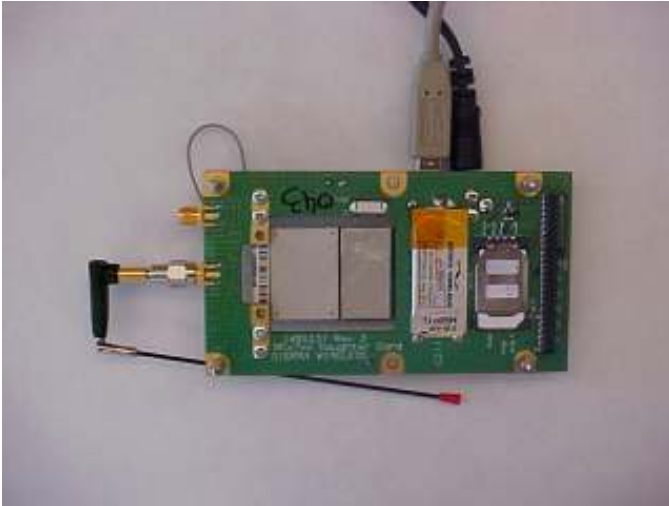
5   Driver Installation

The MiniCard drivers are distributed in a .zip file. You may have acquired this from a CD or from a website.

Before you use the MiniCard, you must install the drivers. At the moment, only Windows XP Professional (SP2) is supported.

5.1   Driver Installation

If you are installing the MiniCard drivers for the first time, follow the instructions below for your operating system.

5.1.1   Windows XP Professional

Note: If you have a previous installed version of the drivers on your PC, you are now upgrading to new drivers. Once you have unzipped the file, follow the instructions in section 5.1.1.3 "*Upgrading Drivers*."

5.1.1.1   Installing the drivers

1. Ensure the MC87XX device is **not** powered on or plugged in.
2. Power on the laptop and log on to windows
3. Run DriverInstaller by either double clicking on the executable or by running it through command line. When running DriverInstaller through command line, the user has the option of enabling logging. To do this simply type "DriverInstaller – l" at the command line. Enabling this option will generate an install_log.txt file that details what happened during installation.
4. Since the drivers are signed, they will install silently on to your operating system. Wait about 15 seconds before proceeding with the next step.
5. Plug the MC87XX module into the USB port when using the development board or power on module when embedded in the platform. The laptop should detect that a new device has been installed and proceed to load the drivers for it automatically. Once they are installed, you should see an indication at the lower right hand side of your desktop that says your new device is ready for use.
6. Verify that all devices installed correctly.

5.1.1.2   Verifying that the drivers are properly installed

1. Open the Control Panel (**Start->Control Panel**).
2. Double-click the **System** icon.
3. Click the **Hardware** tab.

4. Click the **Device Manager** button to open the Device Manager window.
5. Expand **Network adapters**, **Ports (COM & LPT)**, and **Universal Serial Bus controllers** listings. The MiniCard and AirCard should be listed in each of these as shown below:
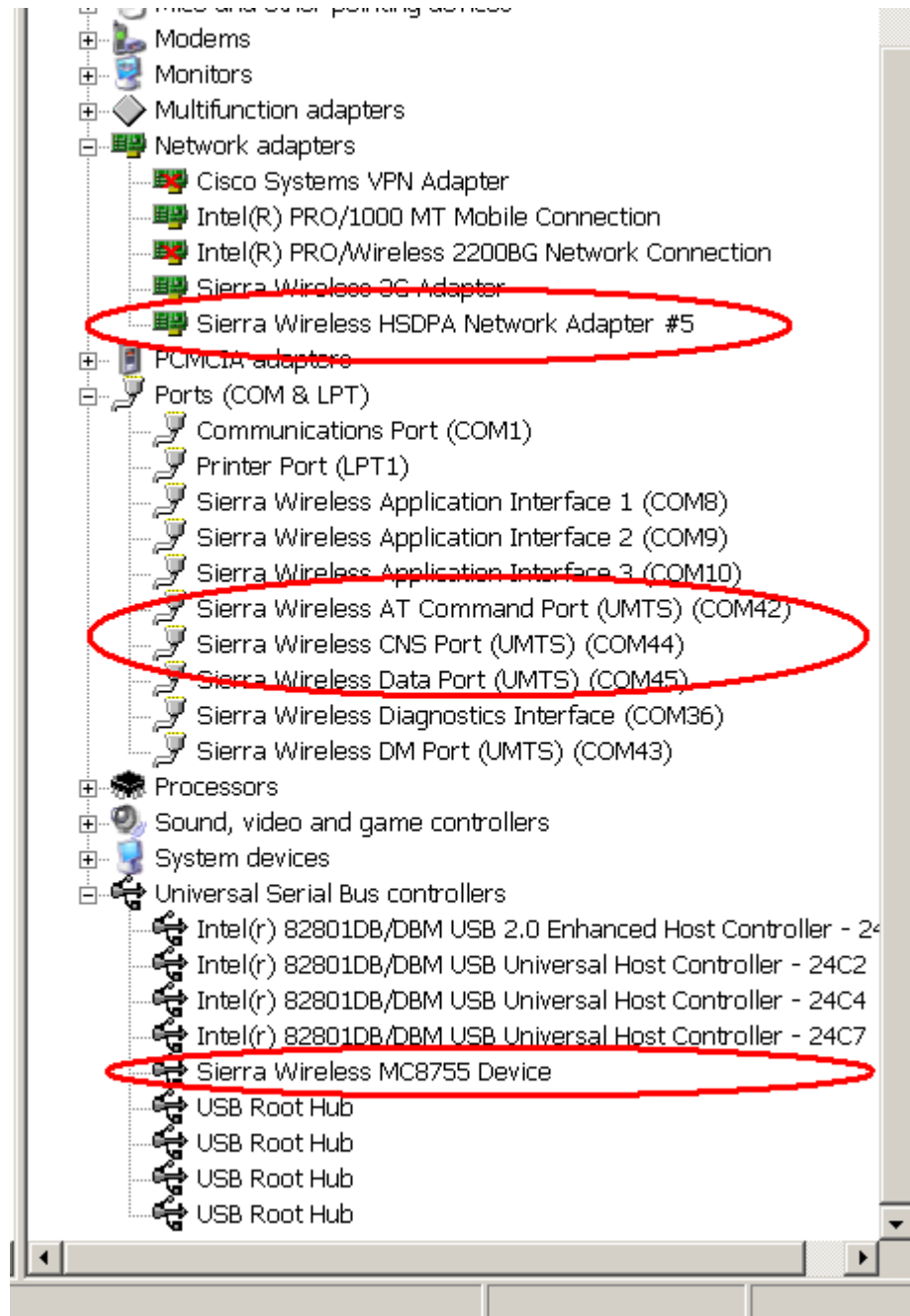
Under Network Adapters you should see,
   Sierra Wireless HSDPA Network Adapter.

Under Ports (COM & LPT) you should see,

Sierra Wireless AT Command Port (UMTS),
Sierra Wireless CNS Port (UMTS),
Sierra Wireless Data Port (UMTS),
Sierra Wireless DM Port (UMTS).

Under Universal Serial Bus controllers you should see,
Sierra Wireless <Device name> Device.

5.1.1.3 Upgrading Drivers

1. Connect the MiniCard or AirCard to you PC
2. Open the Control Panel (**Start->Control Panel**).
3. Double-click the **System** icon.
4. Click the **Hardware** tab.
5. Click the **Device Manager** button to open the Device Manager window.
6. Expand **Universal Serial Bus controllers**.
7. Right-click on **Sierra Wireless <Device Name> Device** and choose **uninstall**.
8. After the uninstall process is complete, unplug the MiniCard or the AirCar and re-insert.
9. Go through section 5**.1.1.1 "*Installing the Drivers*"** starting at step 3 of this user guide.

5.1.1.4 Uninstalling Drivers

1. Connect the MiniCard or AirCard to you PC
2. Open the Control Panel (**Start->Control Panel**).
3. Double-click the **System** icon.
4. Click the **Hardware** tab.
5. Click the **Device Manager** button to open the Device Manager window.
6. Expand **Universal Serial Bus controllers**.
7. Right-click on **Sierra Wireless <Device Name> Device** and choose **uninstall**.

6 Using Dialup Network

6.1 Setting Up Dialup Connection

Before you begin, assemble and connect the development kit as shown in section 4 "*Hardware Assembling*." Attach the other end of the USB cable to you PC.

6.1.1 Windows XP Professional

1. Go to **Start->Control Panel**.
2. Select **Network Connections**.
3. Select **Create a New Connection** and click the **Next** button.
4. Select **Connect to the Internet** and click the **Next** button.
5. Select **Set up my connection manually** and click the **Next** button.
6. Select **Connect using a dial-up modem** and click the **Next** button.
7. Type a connection name (eg. our internet service provider's name) and click the **Next** button.
8. Type *99# in the **Phone number** field and click the **Next** button.
9. Select either **Anyone's use** or **My use only** and click the **Next** button.
10. Type in the **User name**, **Password,** and **Confirm password** used to connect to the internet (this would be provided by your internet service provider) and click the **Next** button.
11. Click the **Finish** button.

6.2 Configuring MC87XX USB Modem

6.2.1 Windows XP Professional

1. Go to **Start->Control Panel**
2. Select **Phone and Modem Options**
3. Select the **Modems** tab.
4. In the modems list, highlight the **Sierra Wireless AT Command Port (UMTS)** modem with the lowest COM port number assigned to it and press the Properties button.
5. Select the **Advanced** tab.
6. In the **Extra initialization commands** field, enter the string: AT+CGDCONT=1,"IP","<*APN*>" where APN is the service provider you are using. (eg. AT+CGDCONT=1,"IP","internet.fido.ca")
7. Click on the **OK** button, and click on the **OK** button again in the next screen.

6.3   Connecting using Dialup Network

6.3.1 Windows XP Professional

1. Go to **Start->Connect to**
2. Choose the dial up connection created in step 8 of section 6.1 ”*Setting Up Dialup Connection*.”
3. Click on the **Dial** button to connect.

6.4   Disconnecting using Dialup Network

6.4.1 Windows XP Professional

1. Go to **Start->Connect to**
2. Choose the dial up connection created in step 8 of section 6.1 “*Setting Up Dialup Connection*.”
3. Click on the **Disconnect** button to disconnect.