

EX9486-L Quick Installation Guide

Overview

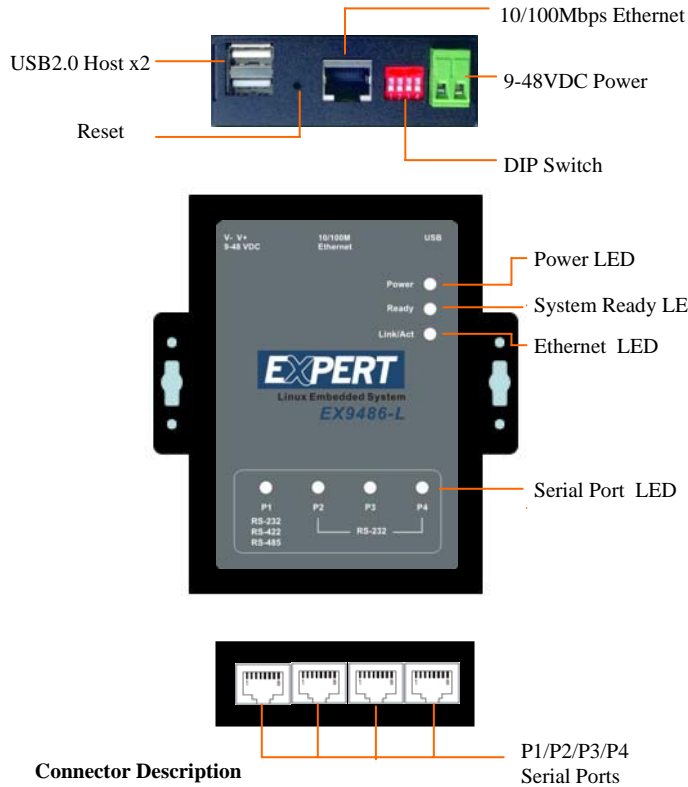
EX9486-L features four serial ports, 10/100 Mbps Ethernet, USB port and SD socket for flash disk expansion. The pre-install Linux OS and GNU tool chain make EX9486-L ready for your application development.

Packing List

EX9486-L is shipped with following items

1. EX9486-L
2. TopSCCC CD includes Tool Chain, Installation guide and example programs

EX9486-L Panel Layout



Connector Description

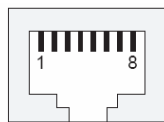
Power Connector

Connect the 9 to 48VDC power line to EX9486-L. If the power is properly supply, the power LED will show a solid green color.

Ethernet Port

The Ethernet Port use RJ45 connector

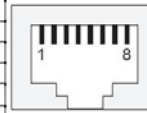
| Pin | Signal |
|-----|--------|
| 1 | ETx+ |
| 2 | ETx- |
| 3 | ERx+ |
| 6 | ERx- |



Serial Port

The four serial ports use RJ45 connector and the pin assignment are shown as following table.

| Pin | RS-232 | RS-422 | RS-485 |
|-----|--------|--------|--------|
| 1 | DSR | --- | --- |
| 2 | RTS | TXD+ | Data+ |
| 3 | GND | GND | GND |
| 4 | TXD | TXD- | Data- |
| 5 | RXD | RXD+ | --- |
| 6 | DCD | RXD- | --- |
| 7 | CTS | --- | --- |
| 8 | DTR | --- | --- |



USB Port

The USB 2.0 Host port now supports following devices

1. USB Storage Device
2. USB to Wireless LAN Adaptor (Ralink RT2570)
3. USB to Ethernet Adaptor (Realtek RTL8150)
4. USB to Serial Adaptor (Prolific 2303)

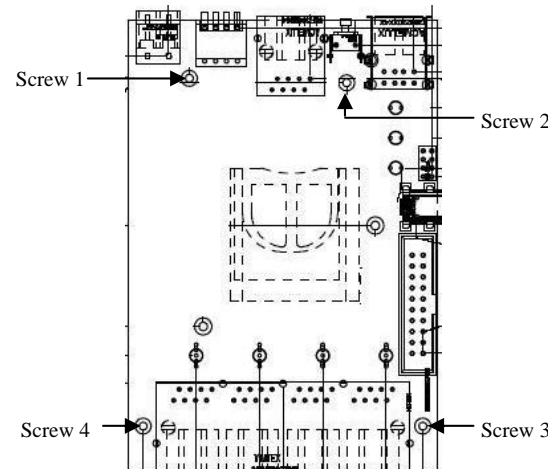
Use command `modprobe rt2570` and `modprobe rtl8150` load the device driver. USB to Serial Adaptor (ttyUSB0 and ttyUSB1) are built-in Kernel.

SD Socket

The SD socket is compatible with SD memory card specification version 1.0. The SD Socket is located in the back panel of the PCB. To install the SD memory card, please use the screw driver to open the metal case of EX9486-L and unscrew Screw 1 to 4 as following

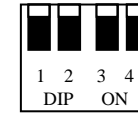


SD Socket



DIP Switch

Switch is a four keys DIP switch and Key 1 and 2 are used to configure the hardware interface mode of serial port P1 and Key3 and Key 4 are reserved for your application.



| | 1 | 2 | 3 | 4 |
|--------|-----|-----|----|----|
| RS-232 | ON | ON | -- | -- |
| RS-422 | OFF | ON | -- | -- |
| RS-485 | OFF | OFF | -- | -- |

Reset Button

Press the "Reset" button to activate the hardware reset. You should only use this function if the software does not function properly.

Power LED

The Power LED will show solid green if power is properly applied

Ready LED

The Ready LED will show solid green if EX9486-L complete system boot up. If Ready LED is off during system boot up, please check if power input is correct. Turn off the power and restart EX9486-L again. If Ready LED is still off, please contact the manufacture for technical support.

Link/Act

When Ethernet port are connected to the network, Link/Act will show solid green and if there is traffic is the Ethernet, this LED will flash

Serial Port LED

These four dual color LEDs indicate the data traffic at the serial ports. When RXD line is high then Green light is ON and when TXD line is high, Yellow light is ON.

Default Setting

Default IP Address: 192.168.2.127

Netmask: 255.255.255.0

Login: root

Password: root

Terminal type: VT100

Network Configuration

To configure the IP address, Netmask and Gateway setting, please modify

`/disk/etc/rc` as following:

`#Static IP`

```
ifconfig eth0 192.168.2.127 netmask 255.255.255.0
```

For DHCP setting:

`#DHCP`

```
dhcpd eth0 &
```

Wireless LAN Configuration

EX9486-L supports wireless LAN by using USB WLAN adaptor which uses Ralink RT2570 controller. Please refer to the website <http://ralink.rapla.net> for the supporting list of the USB WLAN adaptor. To configure the wireless LAN setting, please use command:

```
modprobe rt2570
```

```
ifconfig wlan0 up
```

```
iwconfig wlan0 essid XXXX key YYYYYYYY mode MMMM
```

For infrastructure mode XXXX is the access point name and YYYYYYYY is the encryption key and MMMM should be *managed*

For Ad-Hoc mode mode XXXX is the EX9486-L device name and YYYYYYYY is the encryption key MMMM should be *ad-hoc*. To configure the IP address use command

```
dhcpd wlan0 & or ifconfig wlan0 192.168.2.127 netmask 255.255.255.0
```

USB to Ethernet Configuration

To enable the USB to Ethernet Adaptor device driver, use command

```
modprobe rtl8150
```

```
ifconfig eth1 192.168.2.128 netmask 255.255.255.0
```

Install GNU Tool Chain

Find a PC with Linux 2.6.X Kernel installed and login as a **root** user then copy the `arm-linux-3.3.2.tar.gz` to root directory \ of PC. Under \ directory type following command to install the EX9486-L Tool Chain

```
#tar zxvf arm-linux-3.3.2.tar.gz
```

I/O Devices Control

EX9486-L uses standard I/O device control to access following devices:

1. Ethernet: eth0
2. Serial Ports: ttyS1, ttyS2, ttyS3, ttyS4
3. Serial Console Port: ttyS0
4. Real time clock: rtc
5. USB Flash Disk: sda, sda1, sdb, sdb1
6. SD memory Card: mmc0
7. USB WLAN dongle: wlan0
8. USB Serial Cable: ttyUSB0, ttyUSB1

Remark: Remember to include the "ex9486.h" header file in your program. Please refer to the example program included in the EX9486-L SDK CD to demo the RS-232/422/485 mode configuration of serial port 1 configuration.

File System

EX9486-L uses jffs2 file system for the built-in flash memory disk. The directory are:

`/disk`

`/home`

`/etc`

Write data to these directories are saved to flash memory and will not be erased after power off.

Mount External Disk

To mount the USB Flash Disk and SD memory card, use following commands after the disk are installed properly. To mount USB disk

```
mount /mnt/sda or mount /mnt/sda1 or mount /mnt/sdb or mount /mnt/sdb1
```

To find out the device name of the USB disk, you can use

```
dmesg | grep sd
```

And to mount SD memory card

```
mount /mnt/mmc
```

Web Page Directory

The web pages are placed at `/home/httpd` and the `boa.conf` contains the `boa` web server settings. The home page name should be `index.html`

Welcome Message

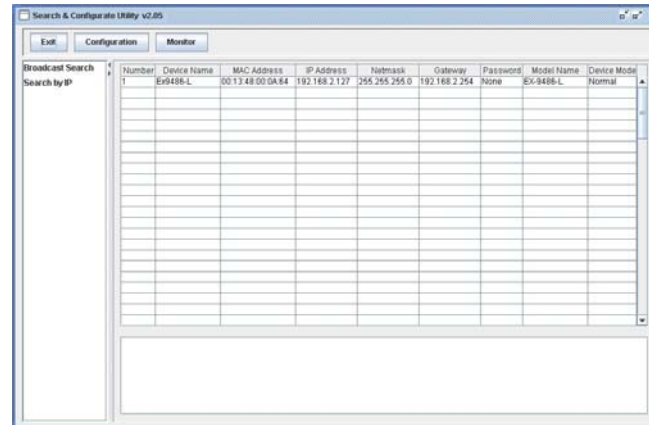
The welcome message "TopSCCC" can be modified by editing the `/etc/motd` file.

Manager Utility Software

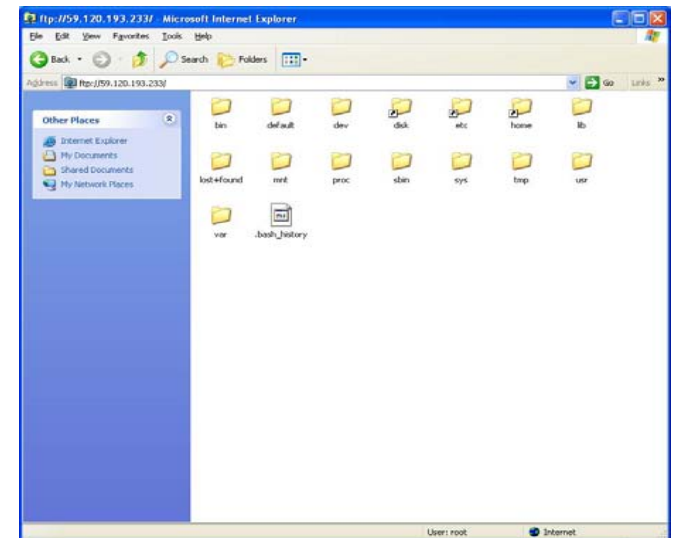
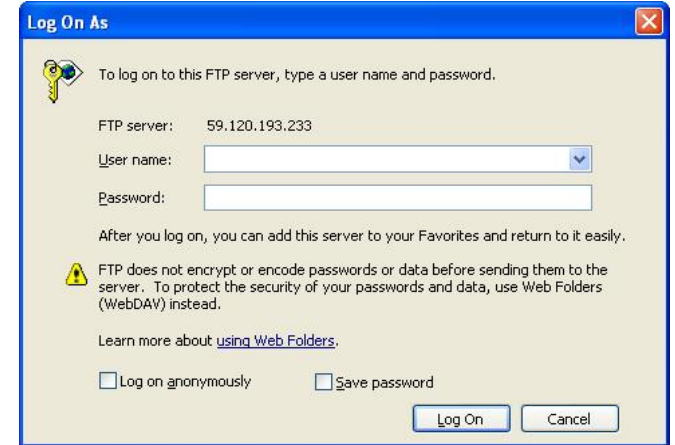
The Manager Utility software, `manager.jar` is a java program and is used to discovered the EX9486-L in the network if the IP address is forgotten. It can be run at any OS where java run time is available. To install the java run time platform at your computer, please visit <http://java.sun.com> and download the Java 2 Standard Edition (J2SE). Once the EX9486-L is found, you can click the Telnet Console to configure the EX9486-L.

Upload file to EX9486-L

To upload the file to EX9486-L, you can use FTP command in command line or Web Browser such as Microsoft Internet Explorer. Type `ftp://192.168.2.127` And under the file menu, click log on option to login EX9486-L. After login, you can see the files system of EX9486-L.



| Number | Device Name | MAC Address | IP Address | Netmask | Gateway | Password | Model Name | Device Mode |
|--------|-------------|-------------------|---------------|---------------|---------------|----------|------------|-------------|
| 1 | EX9486-L | 00:13:48:00:0A:84 | 192.168.2.127 | 255.255.255.0 | 192.168.2.254 | None | EX-9486-L | Normal |



Compile and upload the C program

Use following command of the GNU cross compiler to compile the C program `#arm-linux-gcc -o hello hello.c`

Then upload the `hello` to EX9486-L. Remember to change the mode of the file After upload to EX9486-L by

```
chmod +x hello
```