

# Quick Start

## ICP DAS LinPAC-8X81

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Implement industry control with Linux Technique

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# 1. Hardware Interface Introduction

Fig. 1-1 illustrates hardware architecture of the LP-8781.

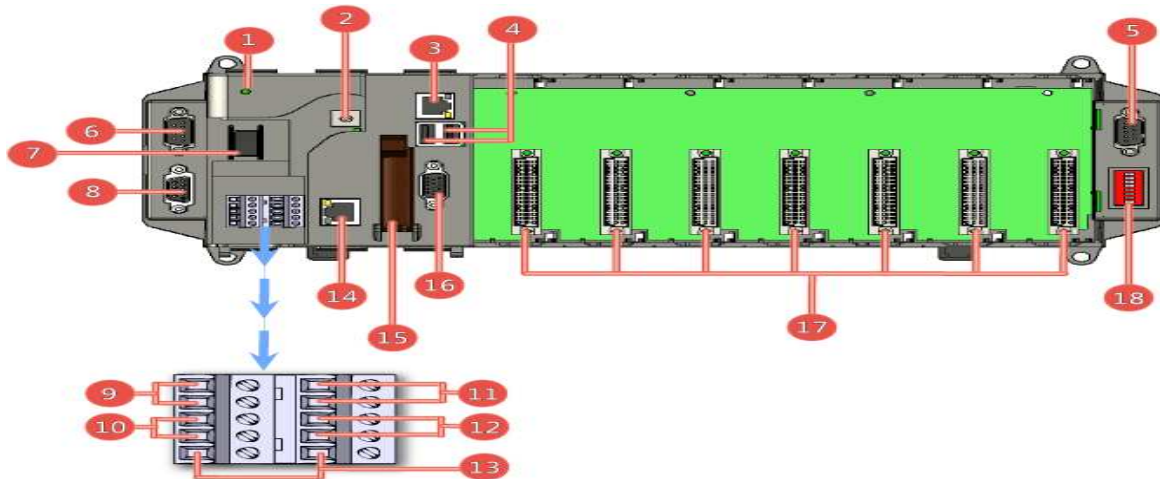


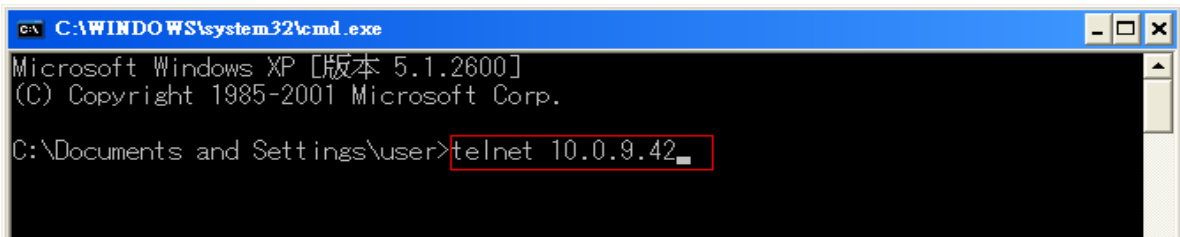
Fig. 1-1

NO	Interface Name	NO	Interface Name
1	Power LED Indicator	10	RS-485 Data+ and Data-
2	Rotary Switch	11	Redundant Power and Ground
3	Ethernet Port 1	12	Relay Output R.COM and R.NO
4	USB 2.0 Ports	13	Frame Ground
5	COM Port 5 (RS-232)	14	Ethernet Port 2
6	COM Port 4 (RS-232/RS-485)	15	CF (Compact Flash) Card Slot
7	Power Switch	16	VGA Port
8	COM Port 2 (RS-232)	17	Slot 1 ~ Slot 7
9	Power and Ground	18	DIP Switch

# 2. LP-8X81 Network Configuration

The LP-8X81 network setting includes two ways. One is **DHCP** and the other is **“Assigned Static IP”**. DHCP is the default setting after the LP-8X81 is produced and this way is easy for users. After finishing the LinPAC network setting by DHCP, users can type **“ifconfig”** to see the network setting. Then user can use the command

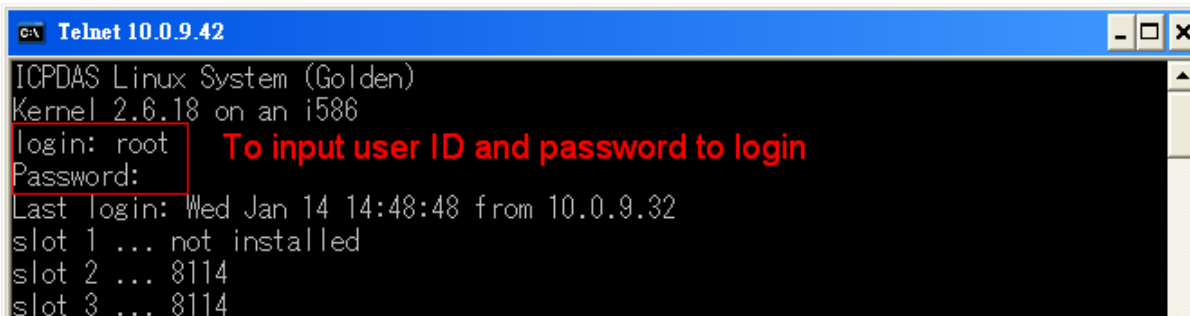
“telnet” to connect to LP-8X81 to configure system, check system status and startup/stop system service(please refer to Fig 2-1, 2-2).The default ID is “root” and password is “icpdas”.



```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [版本 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\user>telnet 10.0.9.42
```

Fig 2-1



```
Telnet 10.0.9.42
ICPDAS Linux System (Golden)
Kernel 2.6.18 on an i586
login: root To input user ID and password to login
Password:
Last login: Wed Jan 14 14:48:48 from 10.0.9.32
slot 1 ... not installed
slot 2 ... 8114
slot 3 ... 8114
```

Fig 2-2

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### 3. The LinPAC-8X81 SDK Introduction

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LP-8X81 SDK” consists of the following major items.

- LinPAC SDK library files
- LinPAC SDK include files
- Demo files

From <http://ftp.icpdas.com/pub/cd/linpac/napdos/lp-8x8x/>, you can download the latest version of LP-8X81 SDK and Manual.

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### 4. Instructions for the LP-8X81

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The i-Talk utility provides **fifteen instructions** that make it convenient for users

to access the modules and hardware in the LP-8X81 and they are placed in the path

– **/usr/bin**. The Table. 4-1 describes the functions of i-Talk utility.

<b>Instruction</b>	<b>Function Discription</b>
getlist	List all module name in the LP-8X81
setdo	Set digital output value to 8k module
setao	Set analog output value to 8k module
getdi	Get digital input value from 8k module
getai	Get analog input value from 8k module
setexdo	Set digital output value to 7k/87k module
setexao	Set analog output value to 7k/87k module
getexdi	Get digital input value from 7k/87k module
getexai	Get analog input value from 7k/87k module
setport	Set port value by offset to a module
getport	Get port value by offset from a module
setsend	Send string from LinPAC COM port
getreceive	Receive string from LinPAC COM port
getsendreceive	Send/Receive string from LinPAC COM port
read_sn	Get Hardware Serial Number of LP-8X81

Table 4-1

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## **5. Additional Support**

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In this chapter, ICP DAS provides extra module supported and instructions to enhance LP-8X81 functionality and affinity.

## 5.1 N-Port Module ( i-8114w or other serial module ) Support

The **i-8114w** modules provide **four serial ports** respectively. Users can insert it into the LP-8X81 slots. In this way, users can use more serial ports in the LP-8X81 and the expanded maximum number of serial port in the LP-8781 will be twenty-eight. The LP-8X81 is a multi-tasking system, therefore users can control all the serial ports simultaneously. Fig.5-1 is the serial port number corresponding to the **device name** in the LP-8781.

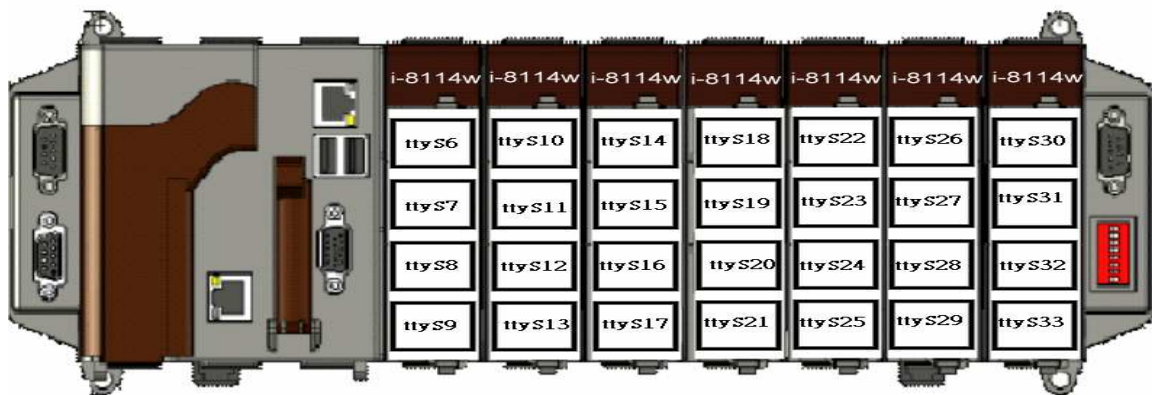


Fig.5-1

## 5.2 N-Port Serial Modules(i-8114w or others) Driver Install

The comport linux driver can be used in LP-8X81 to support i-8114w or other serial module. For LP-8X81 Linux OS, the recommended installation and uninstall steps as follows:

- (1) To type **“cd /etc/init.d/”** and type **“./comport.inst”** to install serial module driver automatically.
- (2) To type **“dmesg”** to check the status of installing comport driver.
- (3) If user want to remove the comport driver, user could type **“cd /etc/init.d/”** and type **“./comport.remove”** to remove comport driver automatically.

## 5.3 GUI Funtion Support

Now **“ X-window ”** is supported in the LP-8X81 and when the LP-8X81 boot up,

the GUI like “ **Windows screen** “ will show up. The most important thing is that users can write GUI programs and run them in the LP-8X81. The GUI Library in the LP-8X81 is provided with **GTK+ v1.2 & v2.0** Library. Therefore users can design their own “ **SCADA** “ screen by the GTK+ Library in the LP-8X81. In the meanwhile, we provide some GUI demo programs to control I/O modules of ICP DAS and assist users to develop own GUI programs quickly. After user download the latest version of LP-8X81 SDK “LP-8X81sdk\_for\_linux.tar.gz” from the ftp path(please refer to chapter 3), then user could use command “**tar zxvf LP-8X81sdk\_for\_linux.tar.gz**” to unzip SDK “LP-8X81sdk\_for\_linux.tar.gz” in the LP-8X81, user can find all GUI demo programs(include demo source code and executes file) in the “examples/gui” directory. ( Refer to the Fig. 5-2 )

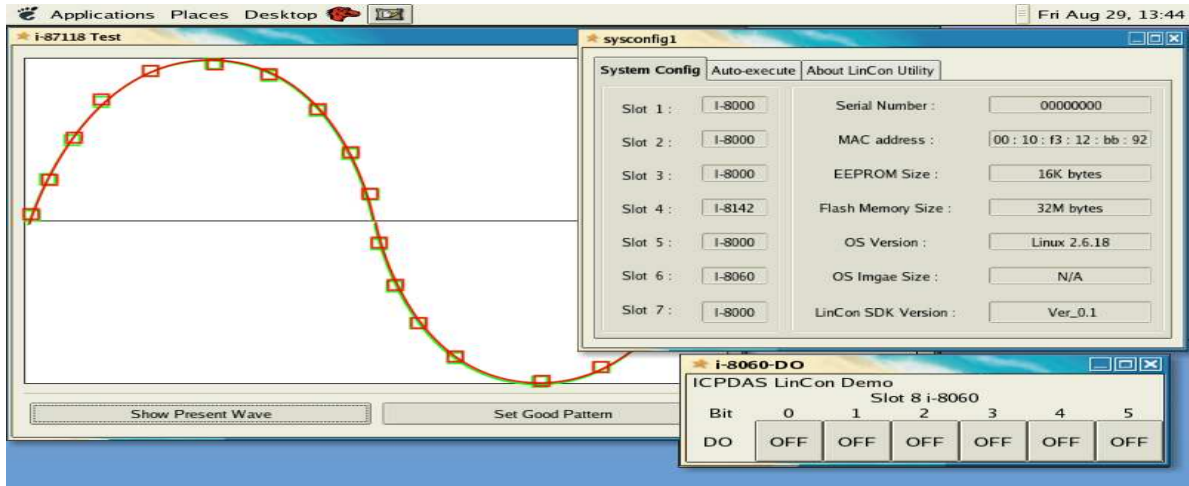


Fig. 5-2

## 5.4 Application Support

There are many applications in the LP-8X81.

### (1)Provide Media Player

Users can play media by using the media player built in the LP-8X81. Just click the icon “xine” to open the media player.

### (2)Provide Web Browser

Users can see the Web Page by using the Web Browser built in the LP-8X81. Just click the icon “firefox” to open the web browser.

### (3)Provide Apache Server

The Web Server — “ **Apache Server** “ has been built in the LP-8X81 and it will be started automatically at boot time (default the system will startup apache server at boot time, if user don't startup web server at boot time, user can type “ **mv /etc/rc5.d/S56httpd /etc/rc5.d/xS56httpd**“ to rename the S56httpd symbolic link for turn off running program automatically at boot time). Users can type like “ **http://xx.xx.xx.xx** “ to connect to the web server in the LP-8X81. The index web page of Apache Server is in the path : “ **/var/www/html/index.php**“.

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## Appendix A. Service Information

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This appendix will show how to contact ICP DAS when you have problems in the LP-8X81 or other products.

### Internet Service :

The [internet service](#) provided by ICP DAS will be satisfied and it includes [Technical Support](#), [Driver Update](#), [OS\\_Image](#), [LinPAC\\_SDK](#) and [User's Manual Download](#) etc. Users can refer to the following web site to get more information :

1. ICP DAS Web Site : <http://www.icpdas.com/>
2. Software Download : <http://ftp.icpdas.com/pub/cd/linpac/napdos/lp-8x8x/>
3. E-mail for Technical Support : [service@icpdas.com](mailto:service@icpdas.com)

### Manual Revision :

Manual Edition	Revision Date	Revision Details
v 1.0	2009. 4.3	1.The first version of user manual.