

LinPAC-8x41

Compact Embedded Controller

Hardware User's Manual

REV 1.0.0.0
2008/8/25



Warranty

All products manufactured by ICP DAS are warranted against defective materials for a period of one year from the date of delivery to the original purchaser.

Warning

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1. Introduction

1.1 Package List

Package List :

In addition to this manual, the package includes the following items:

- One set of LinPAC-8x41 hardware
- One Micro SD Memory card for storing system files
- One hardware user's manual (this manual)
- One software utility CD with Software User's Manual included

Note :

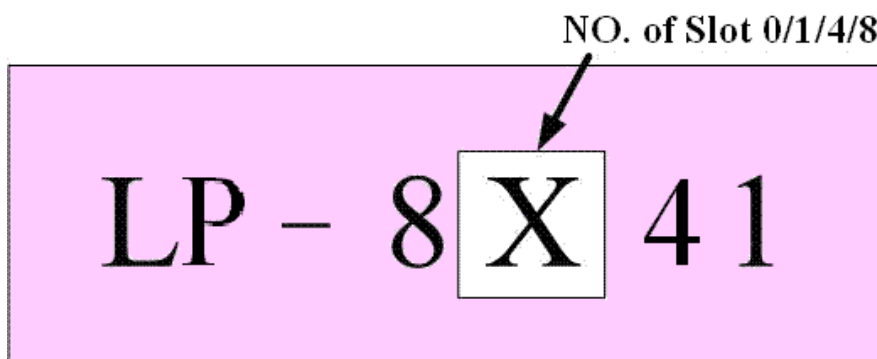
If any of these items are missing or damaged, contact the local distributors for more information. Save the shipping materials and cartons in case you want to ship in the future.

Ordering Information

Call your distributor for details.

1.2 LinPAC-8x41 Series

The LinPAC-8000 is the flagship compact embedded controller manufactured by ICPDAS. Its leading technology gives you all of the best features of both traditional PLCs and Linux capable PCs. The LinPAC-8000 system is powered by Linux and brings in the Linux programming style and skill into the world of PC-based PLC. Application developers can develop their own programs directly into C or Java language by using the LinPAC-8000 SDK, and then download them into the LinPAC-8000 for application and use.



The LinPAC-8x41 model type is ruled as LP-8x41, as shown in the above figure. The Second number shows the slot numbers coming with the main controller unit. Currently, we provide three types of 0、1、4 and 8 slots. The last number demonstrates the application platform. 1 stands as the Master controller and it means that the user needs to design the application program by themselves.

1.3 Contents of CD and Micro SD memory card

CD :

- LinPAC-8000 SDK
- LinPAC-8000 OS Image
- Contents of Micro SD card
- Source code of demo programs
- Software User's Manual

Micro SD memory card (default is 1 GB):

- LinPAC-8x41 System files
- Demo programs

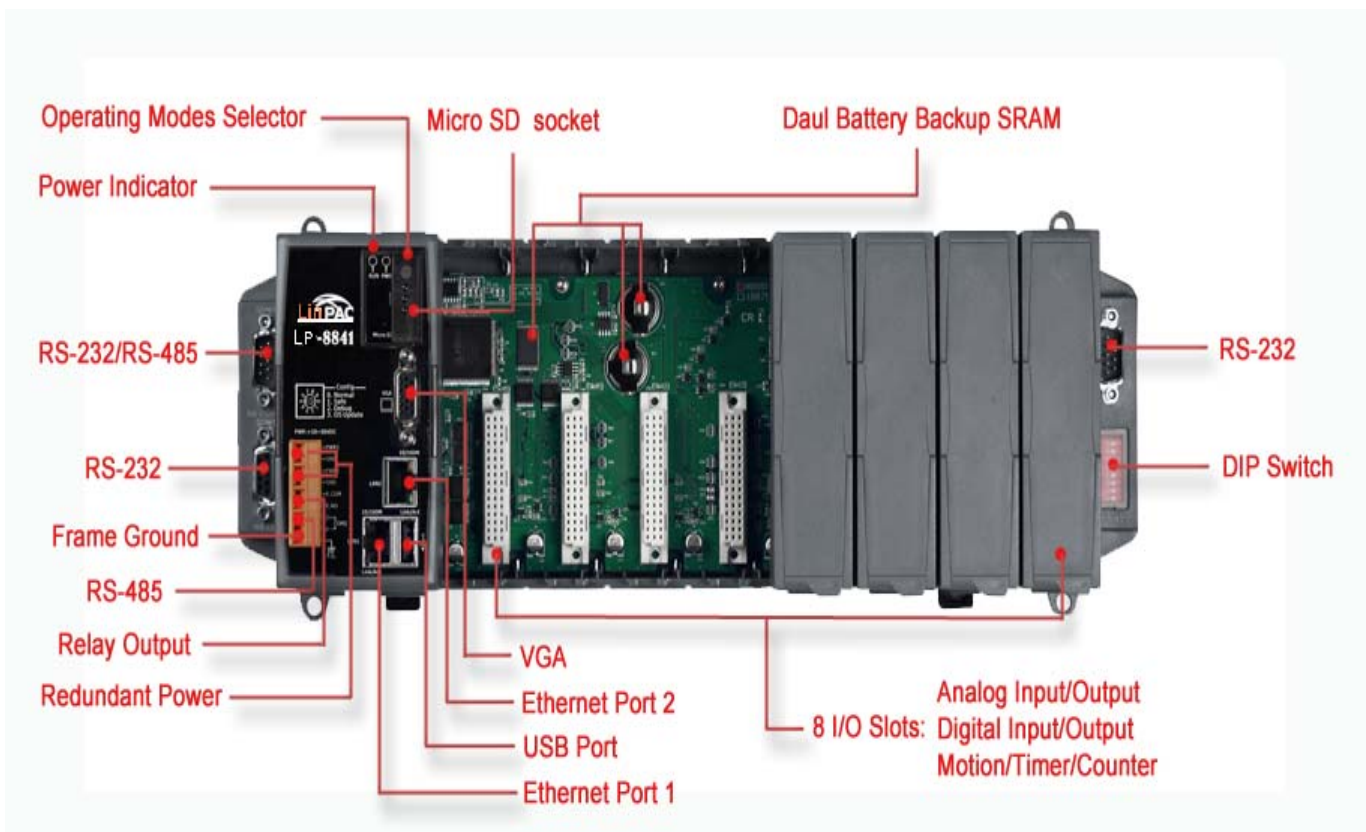
References are given in the Software User's Manual bundled CD

2. Hardware Information

The LinPAC-8000 Embedded Controller is competitive with Industrial PCs in performance, and is lower in price. The system provides VGA and USB keyboard/mouse for local visualization and management. User control programs and data can be saved in persistent storage via Micro SD memory card and USB interfaces. Furthermore, it has communication capabilities via the built-in Ethernet and RS 232/485 interfaces

2.1 Front View of the LinPAC-8x41

The following figure demonstrates the hardware system in the LinPAC-8x41. It includes the main controller with HMI, serial communication and I/O expansion interface.



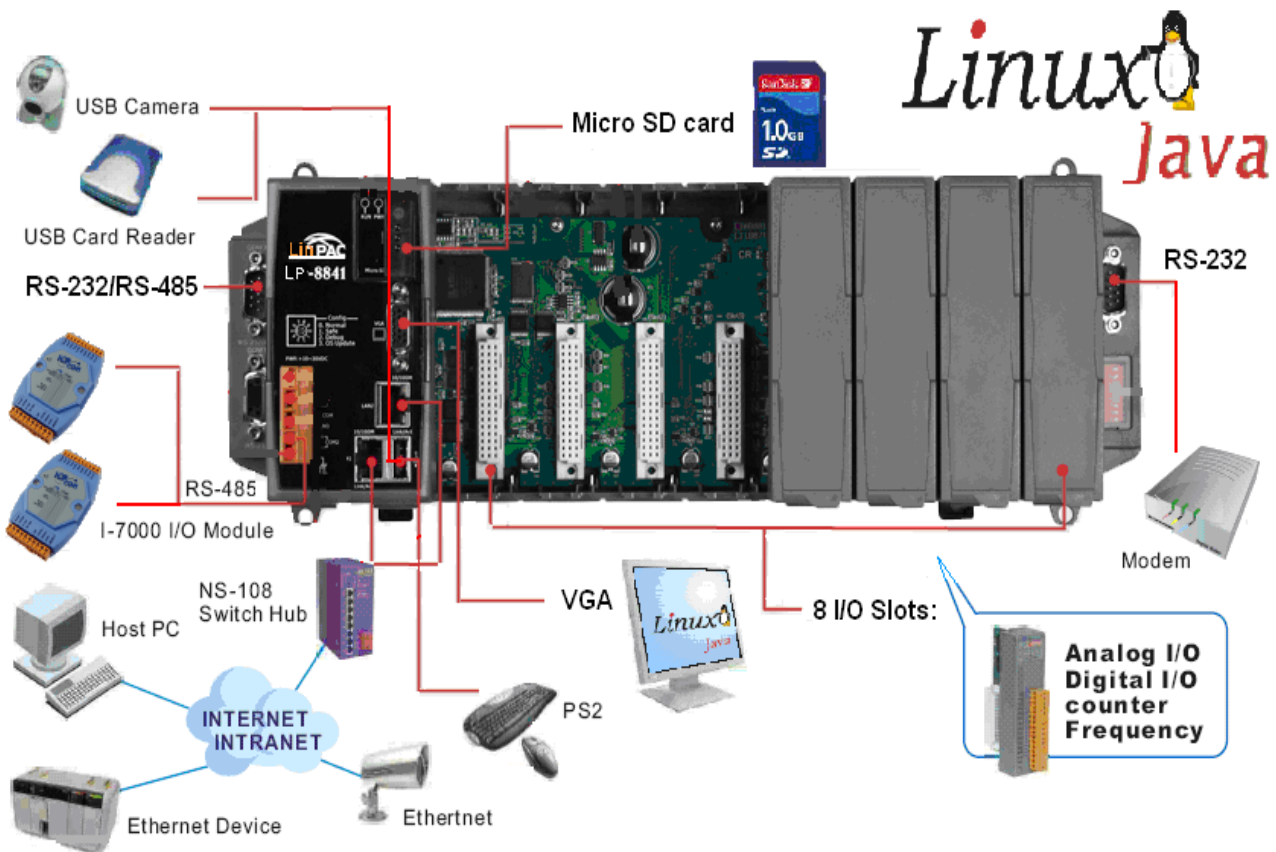
2.2 Specifications

System Software	
OS	Linux 2.6.19
Embedded service	Web Server, FTP Server, Telnet Server, SSH Server
SDK provided	Standard LinPAC SDK for Windows and Linux by GNU C language
Communication Interface	
CPU	PXA270 or compatible (32-bit and 520MHz)
SDRAM	128MB
Dual Battery Backup SRAM	512K bytes (for 5 years data retain)
Flash	48MB
Expansion Flash Memory	Micro SD socket with 1GB flash card
RTC (real time clock)	Provide seconds, minutes, hours, date of the month; month, year, valid up from 1980 to 2079
64-bit Hardware Serial Number	Yes
Dual Watchdog Timer	Yes
Programmable LED indicator	1
Rotary Switch	Yes (0~9)
DIP Switch	Yes (8 bits); (for LP-8441 and LP-8841 only)
Connectivity	
VGA	1 (800x600 resolution)
Ethernet Port	RJ45*2 10/100Base-TX Ethernet Controller (Auto-negotiating, Auto_MDIX, LED indicator)
USB 1.1 (host)	1
COM 0	Internal communication with the 87K modules in slots
COM 1	RS-232 (to update firmware) (RXD, TXD, and GND); Non-isolation
COM 2	RS-485 (D2+, D2-; self-tuner ASIC inside); 3000VDC isolation
COM 3	RS-232/RS-485 (RXD, TXD, CTS, RTS and GND for RS-232, Data+ and Data- for RS-485); Non-isolation;
COM 4	RS-232 (RXD, TXD, CTS, RTS, DSR, DTR, CD, RI and GND); Non-isolation

I/O expansion slots	
Slot numbers	LP-8441: 4 Slots; LP-8841: 8 Slots
Dimensions	
W x D x H (mm)	LP-8441: 230 x 132 x 98; LP-8841: 354 x 132 x 98
Operating Environment	
Operating Temperature	-25°C to +75°C
Storage Temperature	-40°C to +85°C
Humidity	5 ~ 95%,non-condensing
Power	
Input Range	+10V ~ +30V
Isolation	1KV
Redundant Power Inputs	Yes
Capacity	LP-8441: 1.1A, 5V supply to CPU and backplane; 4.9A, 5V supply to expansion slots, total 30W
	LP-8841: 1.2A, 5V supply to CPU and backplane; 4.8A, 5V supply to expansion slots, total 30W
Consumption	LP-8441: 9.1W (0.38A@24V); LP-8841: 9.6W (0.4A@24V)

3. Applications

The following figure diagrams the general application area and structure of the LinPAC-8x41. Com3/Com4 is the standard RS-232 interface, which can be connected via the modem or to the Com0 in the LP-8x41 Controller. Com2/Com3 is the RS-485 interface, which can be applied to control the ICPDAS DCON serial modules such as the I-7000, I-8000 and I-87K. The FRnet system is an optional control interface.



4. Quick Start

Step 1. Plug in your USB keyboard and mouse.

Step 2. Plug in your VGA monitor.

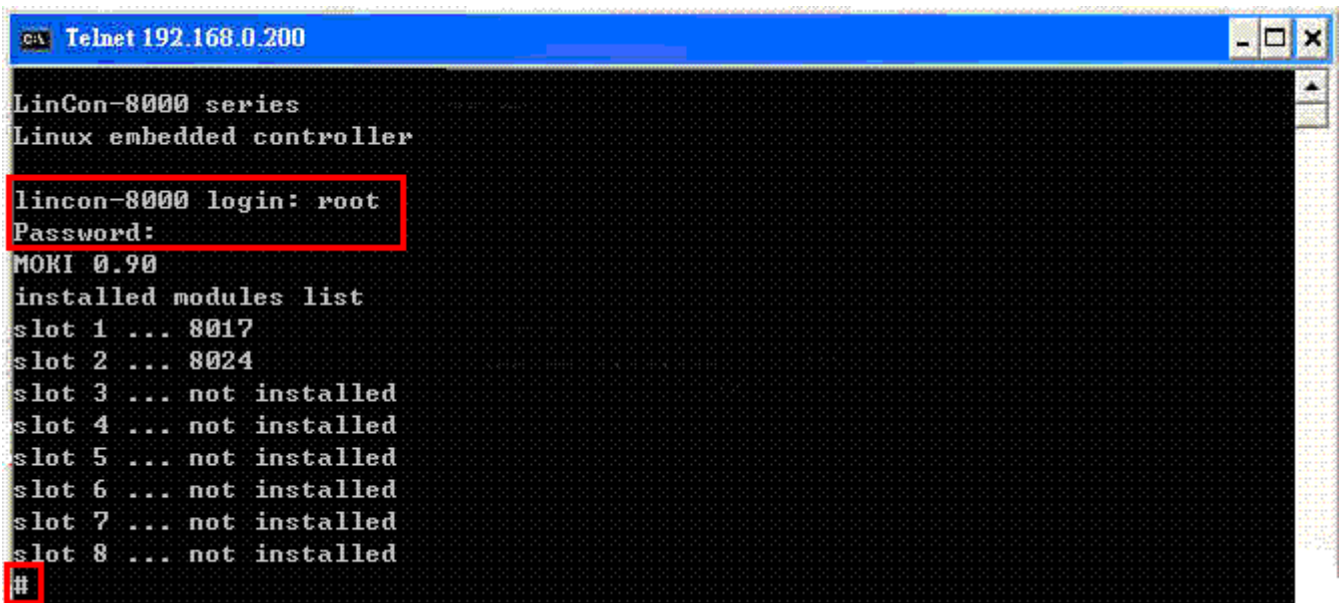
Step 3. Connect the LinPAC-8000 to the LAN

Step 4. Insert the I-8K/87K series I/O modules into the LinPAC-8x41 slots.

Step 5. Connect the COM2, COM3 or the COM4 ports to your devices controlled by LinPAC-8x41.

Step 6. Connect the DC power and turn it on.

Step 7. The Linux will start up, then please refer to the software user's manual for further operations and for developing your own applications.



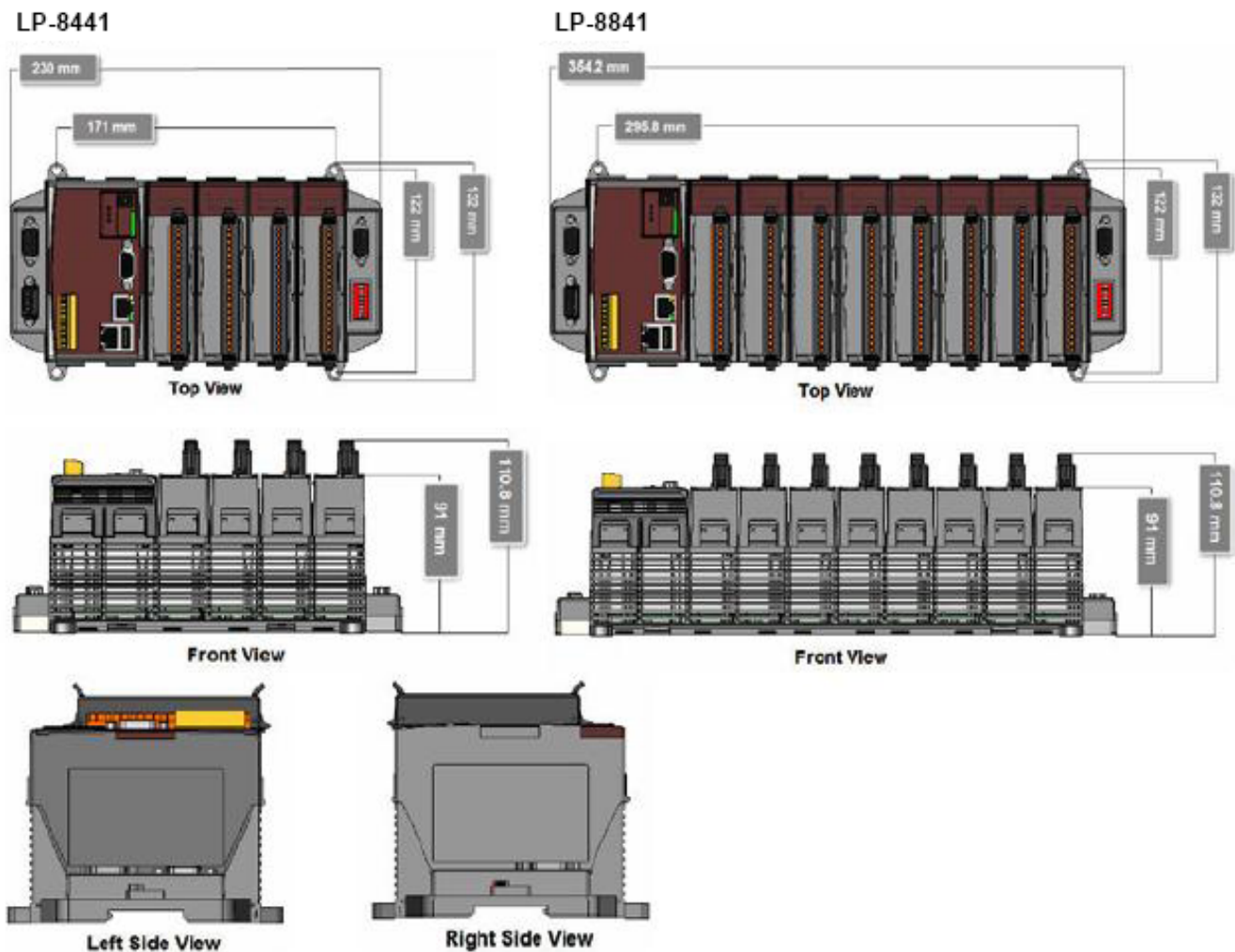
```
Ctrl Telnet 192.168.0.200
LinCon-8000 series
Linux embedded controller
lincon-8000 login: root
Password:
MOKI 0.90
installed modules list
slot 1 ... 8017
slot 2 ... 8024
slot 3 ... not installed
slot 4 ... not installed
slot 5 ... not installed
slot 6 ... not installed
slot 7 ... not installed
slot 8 ... not installed
#
```

Note: Power Supply : +10V ~ +30V/DC (EX:DP-665)

http://www.icpdas.com/products/Accessories/power_supply/power_list.htm

5. Mechanical Information

5.1 Dimensions



5.2 Dimensions Rail Mounting



5.3 Wall Mounting



6. Technical Support

- LinPAC-8000 User Manual
CD:\ Napdos\Linux\User_Manual
- LinPAC-8000 website
<http://www.icpdas.com/products/PAC/linpac-8000/introduction.htm>
- Our service email account
service@icpdas.com

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