

DA-682A-DPP Series Quick Installation Guide

x86 Rackmount Embedded Computers

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Overview

The DA-682A-DPP series of computers are x86-based hardware platforms with VGA, six Gigabit Ethernet ports, CompactFlash, USB, and two PCI ports for expansion modules. The DA-682A-DPP is available in three basic modules with different CPU options, giving designers the flexibility to choose the DOM (Disk on Module) option, RAM option, and operating system as per their requirements.

Compliance with IEC-61850-3 and IEEE 1613 standards confirms that the DA-682A-DPP computer can deliver stable and reliable system operations in power applications. Additional value and convenience is provided through a modular design with two independent slots for flexible system integration and expansion. Users have the option to add a variety of different communications modules using these expansion slots, including 8-port RS-232/422/485 module, 8-port RS-422/485 module, 8-port 10/100 Mbps switch module, IRIG-B time-synchronization card, and a universal PCI expansion module.

Model Names and Package Checklist

The DA-682A-DPP Series includes the following models:

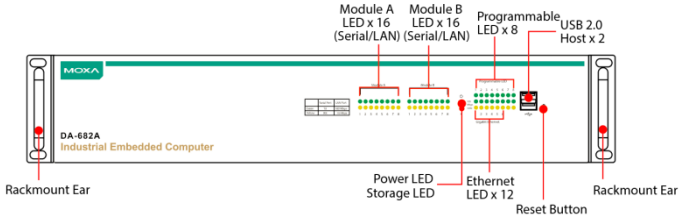
- **DA-682A-C1-DPP:** Rackmount computer with Celeron, 1047UE, 1.4 GHz, dual-core CPU, without DOM/RAM/OS; VGA, 6 Gigabit LANs, USB x 4, CompactFlash socket
- **DA-682A-C1-DPP-LX:** Rackmount computer with Celeron, 1047UE, 1.4 GHz, dual-core CPU, VGA, 6 Gigabit LANs, USB x 4, CompactFlash socket, 1 GB system memory, 2 GB DOM with pre-installed Debian Linux 7.
- **DA-682A-C3-DPP:** Rackmount computer with Core i3-3217UE 1.6 GHz, dual-core CPU, without DOM/RAM/OS; VGA, 6 Gigabit LANs, USB x 4, CompactFlash socket
- **DA-682A-C3-DPP-LX:** Rackmount computer with Core i3-3217UE 1.6 GHz, dual-core CPU, VGA, 6 Gigabit LANs, USB x 4, CompactFlash socket, 1GB system memory, 2 GB DOM with pre-installed Debian Linux 7.
- **DA-682A-C7-DPP:** Rackmount computer with Core i7-3517UE 1.7 GHz, dual-core CPU, without DOM/RAM/OS; VGA, 6 Gigabit LANs, USB x 4, CompactFlash socket
- **DA-682A-C7-DPP-LX:** Rackmount computer with Core i7-3517UE 1.7 GHz, dual-core CPU, VGA, 6 Gigabit LANs, USB x 4, CompactFlash socket, 1 GB system memory, 2 GB DOM with pre-installed Debian Linux 7.

Each basic system model is shipped with following standard items:

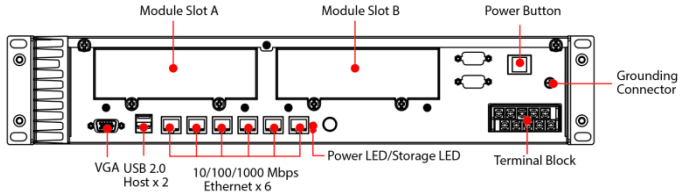
- DA-682A-DPP rackmount computer
- Rackmount kit
- Quick Installation Guide
- Document & Software CD
- Product Warranty Statement

Hardware Installation

Front View



Rear View



Connecting the Power

The DA-682A-DPP has dual power inputs. Use a Phillips screwdriver to remove the terminal clamp screws. Connect the power cord to the screws, and then fasten the screws to the unit. Refer to the following figure for detailed information:

PWR1		PWR2	
+ / L 1	3	COM 5	7
- / N 2	4	NO 6	8
			9
			10

AC Terminal

DC Terminal

Power Terminal Block Pin Assignment

Terminal Number	Description	Note
1	PWR1 Line/DC+	PWR1 Line/DC+ is connected to the positive (+) terminal if the power source is DC, or to the Line terminal if the power source is AC.
2	PWR1 Neutral/DC-	PWR1 Neutral/DC- is connected to the negative (-) terminal if the power source is DC, or to the Neutral terminal if the power source is AC.
3	NC	Reserved for future customization.
4	Signal Ground	Signal Ground should be connected to the ground terminal for AC power source 1.
5	COM	COM pin for the alarm relay.
6	NO	Normal Open pin for the alarm relay.
7	Signal Ground	Signal Ground should be connected to the ground terminal for AC power source 2.
8	NC	Reserved for future customization.
9	PWR2 Line/DC+	PWR2 Line/DC+ is connected to the positive (+) terminal if the power source is DC, or to the Line terminal if the power source is AC.
10	PWR2 Neutral/DC-	PWR2 Neutral/DC- is connected to the negative (-) terminal if the power source is DC, or to the Neutral terminal if the power source is AC.

After you have connected the power cords to the power input unit, the system will automatically boot up. Depending on the operating system, it will take about 30 to 60 seconds.

Front Panel LEDs

There are 58 LED indicators on the front panel, and 2 on the rear panel. Information about each LED is given in the following table:

LED	Color	Description
Power	Green	Power is ON
	Off	Power supply has been cut or is OFF
Storage	Yellow/ Blinking	Data is being written to or read from the storage unit
	Off	Storage unit is idle
Gigabit Ethernet LEDs 1-6	Green	100 Mbps Ethernet mode
	Yellow	1000 Mbps (gigabit) Ethernet mode
	Off	No connection or 10 Mbps Ethernet mode
Programmable 1-8	Green	Defined by user
Module A LEDs 1-8	Green	100 Mbps Ethernet mode or TX signal of serial port is active.
	Yellow	10 Mbps Ethernet mode or RX signal of serial port is active.
	Off	Failed connection / no connection
Module B LED 1-8	Green	100 Mbps Ethernet mode OR serial port is transmitting
	Yellow	10 Mbps Ethernet mode OR serial port is receiving
	Off	Inactive / no connection

Connecting to a Display

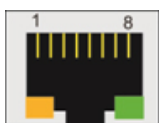
The VGA hardware interface is a D-Sub 15-pin female connector. Be sure to cut off system power before you connect or disconnect the monitor cable.

USB Ports

The DA-682A-DPP comes with four USB 2.0 ports, two on the rear panel, and two on the front. Users may use these USB ports to connect keyboard, mouse, or other peripherals such as flash drives to expand the system's storage capacity.

Ethernet Ports

The DA-682A-DPP provides six 100/1000 Mbps Ethernet RJ45 ports. The pin assignments are shown in the table below:



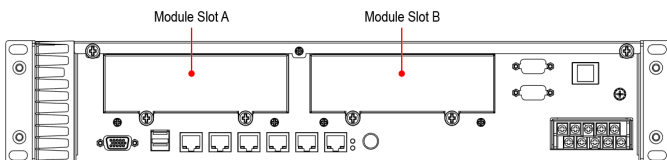
Pin	100 Mbps	1000 Mbps
1	Tx+	TRD(0)+
2	Tx-	TRD(0)-
3	Rx+	TRD(1)+
4	-	TRD(2)+
5	-	TRD(2)-
6	Rx-	TRD(1)-
7	-	TRD(3)+
8	-	TRD(3)-

The default IP addresses and netmasks of the Ethernet ports are as follows. Please note that W7E models default to DHCP.

	Default IP Address	Netmask
LAN 1	192.168.3.127	255.255.255.0
LAN 2	192.168.4.127	255.255.255.0
LAN 3	192.168.5.127	255.255.255.0
LAN 4	192.168.6.127	255.255.255.0
LAN 5	192.168.7.127	255.255.255.0
LAN 6	192.168.8.127	255.255.255.0

Installing Expansion Modules

The DA-682A-DPP is provided with two expansion slots, which can be used to connect Moxa's DA Series expansion modules. These modules provide serial ports, Ethernet LAN interfaces, unmanaged switch ports, and fiber interfaces. The modules can also serve as PCI development modules for custom application development for PCI-based devices. Expansion modules are loaded using the slots on the rear panel of the DA-682A-DPP computer.



Configuring the Ethernet Interface

Linux users should follow these steps:

If you use the console cable to configure network settings for the first time, use the following commands to edit the interfaces file.

STEP 1: Take all network interfaces offline, before you reconfigure the LAN settings using the following command:

```
MOXA:~# ifdown -a
```

STEP 2: Edit the network interfaces file.

You can use a text editor of your choice, but VI is the default text editor on the DA-682A-DPP-LX.

```
MOXA:~#vi /etc/network/interfaces
```

STEP 3: Set the DA-682A-DPP for either dynamic IP addressing or static addressing.

To set it for dynamic IP addressing, enter the following lines into the network interfaces file:

```
# The primary network interface
auto eth0
iface eth0 inet dhcp
```

To set an interface for static IP addressing, use the following configuration:

```
# The loopback network interface
auto lo
iface lo inet loopback
```

```
# The first LAN interface, LAN 1
auto eth0
iface eth0 inet static
    address 192.168.3.127
    netmask 255.255.255.0
    broadcast 192.168.3.255
```

```
# The second LAN interface, LAN 2
auto eth1
iface eth1 inet static
    address 192.168.4.127
    netmask 255.255.255.0
    broadcast 192.168.4.255
```

Each interface must be configured with separate entries in the network/interfaces file. LAN1 corresponds to eth0, LAN 2 corresponds to eth1, and so forth for the remaining interfaces.

STEP 4: Exit the text editor.

Use the following command to exit VI:

```
:wq
```

STEP 5: After the interfaces file has been configured, use the following commands to reinitialize the network interfaces and to activate the new settings:

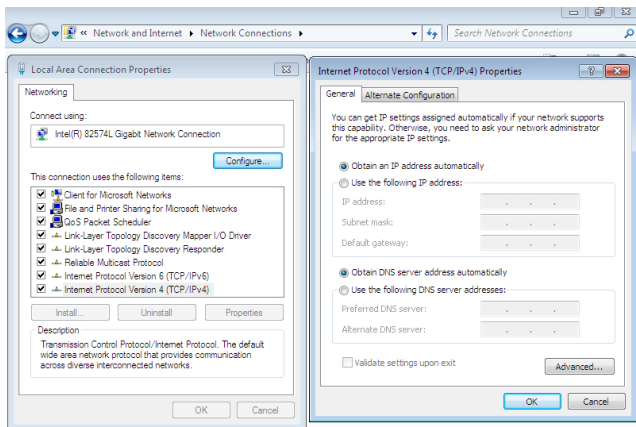
```
MOXA:~#sync; ifup -a
```

Win 7 users should follow these steps:

Step 1: Go to **Start → Control Panel → Network and Internet → Network Connections**.

Step 2: In **Local Area Connection Properties**, select **Internet Protocol Version 4 (TCP/IPv4)** and click **Properties**.

Step 3: Click **OK** after entering the preferred IP address and netmask.



NOTE Refer to the DA-682A-DPP software user's manual for the OS installed on your machine for additional configuration information.