MOXA®

DA-662A Series
Quick Installation Guide

First Edition, August 2015

Overview

DA-662A computers are RISC-based, ready-to-run embedded computers designed for industrial data acquisition applications. The DA-662A computers come with 8 to 16 RS-232/422/485 serial ports, 4 Ethernet ports, and 2 USB 2.0 ports, all based on the Moxa Macro communication processor. In addition, the DA-662A-I-8/16-LX's serial ports support 2k digital isolation and 8 kV contact, 15 kV Air ESD protection and 2 kV line-to-line, as well as 4 kV line-to-ground surge protection. The casing is a standard 1U, 19-inch wide rack-mounted rugged enclosure. The robust, rack-mountable design provides the hardened protection needed for industrial environment applications, and makes it easy for users to install the DA-662A series on a standard 19-inch rack. The DA-662A computers are ideal for applications that require a distributed embedded technology, such as SCADA systems, plant floor automation, and power electricity monitoring applications.
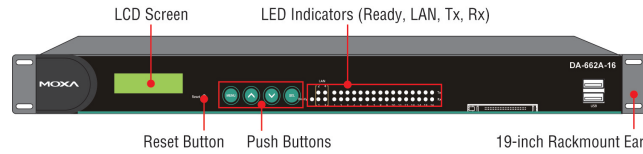
Package Checklist

Before installing your DA-662A computer, verify that the package contains the following items:

- 1 DA-662A series computer
- 6 jumper caps
- 19-inch Rackmount Kit:
  2 L-shaped metal plates and 8 screws
- Cross-over Ethernet cable
- CBL-RJ45M9-150:
  150 cm, 8-pin RJ45 to DB9 (M) serial port cable
- CBL-RJ45F9-150:
  150 cm, 8-pin RJ45 to DB9 (F) console port cable
- Quick installation guide (this guide)
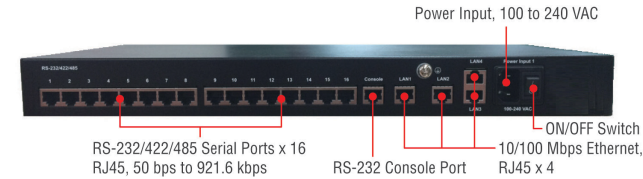- Document & software CD
- Warranty card

Notify your sales representative if any of the above items are missing or damaged.

DA-662A Series Panel Layout

Front View

LCD Screen   LED Indicators (Ready, LAN, Tx, Rx)

Reset Button   Push Buttons   19-inch Rackmount Ear

Rear View

Power Input, 100 to 240 VAC

RS-232/422/485 Serial Ports x 16
RJ45, 50 bps to 921.6 kbps

RS-232 Console Port

ON/OFF Switch

10/100 Mbps Ethernet,
RJ45 x 4

LED Indicators

The following LED indicators are located on the front panel of the DA-662A series.

LED Name	LED Color	LED Function
Ready	Green	Power is on and functioning normally
LAN1, LAN2, LAN3, LAN4	Orange	10 Mbps Ethernet connection
	Green	100 Mbps Ethernet connection
P1-P16 (Tx)	Green	Serial port is transmitting data
	Off	Serial port is not transmitting data
P1-P16 (Rx)	Orange	Serial port is receiving data
	Off	Serial port is not receiving data

Installing Your DA-662A Computer

Desktop Mounting

Place the DA-662A on a clean, flat, well-ventilated desktop. For better ventilation, attach the 4 pads from the desktop kit to the bottom of the DA-662A, and leave some space between the DA-662A and other equipment. Do not place equipment or objects on top of the DA-662A, since doing so could damage it.

Rack Mounting

The DA-662A can be mounted on a standard 19-inch rack. Use the enclosed pair of L-shaped metal plates and screws to fasten the DA-662A to the rack cabinet. You can lock either the front panel or the rear panel of the DA-662A to the front side of the rack. Each L-shaped plate has 6 holes, leaving two outer or inner holes open for your convenience.
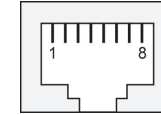
Connecting Your DA-662A Computer

Power Connector

Connect the 100-240 VAC power line to the DA-662A's power connector. The Ready LED on the front panel will glow a steady green when the OS is ready.
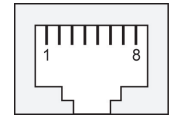
Ethernet Ports

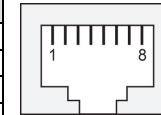| Pin	Signal
1	ETx+
2	ETx-
3	ERx+
6	ERx-

Serial Ports

The DA-662A has 8 or 16 serial ports that use RJ45 connectors. The ports can be configured independently for RS-232, RS-422, or RS-485 by software.

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

Serial Ports (DA-662A-I-8/16-LX only)

Pin	RS-232
1	-
2	RTS
3	GND
4	TXD
5	RXD
6	–
7	CTS
8	–

Console Ports

The console port is an RJ45 RS-232 port. The pin definitions are the same as for the serial ports.

Reset Button

Press the "Reset" button on the front panel continuously for at least 5 seconds to load the factory default configuration. After the factory default configuration has been loaded, the system will reboot automatically. The Ready LED will blink for the first 5 seconds, and then maintain a steady glow once the system has rebooted.

LCD Screen

The DA-662A has an LCD screen on the front panel. The LCD screen displays 16 columns and 2 rows of text. On boot-up, the LCD screen displays the model name and firmware version, as shown here:

```
D  A  -  6  6  2  A  -  1  6
V  E  R  .  1  .  0
```

There are four push buttons on the DA-662A's front panel. The buttons are used to enter text onto the LCD screen. The buttons are MENU, ∧ (up cursor), ∨ (down cursor), and SEL:

Button	Action
MENU	Displays the main menu
∧	Scrolls up through a list of items shown on the LCD screen's second line
∨	Scrolls down through a list of items shown on the LCD screen's second line
SEL	Selects the option listed on the LCD screen

Real-time Clock

The DA-662A's real-time clock is powered by a lithium battery. We strongly recommend that you do not replace the lithium battery without help from a qualified Moxa support engineer. If you need to change the battery, contact the Moxa RMA service team.

Powering on Your DA-662A Computer

To power on the DA-662A, connect the power line to the DA-662A's AC power connector (located on the right side of the rear panel), and then turn on the power switch. It takes about 30 seconds for the system to boot up. Once the system is ready, the Ready LED on the front panel will light up, and the DA-662A will display the model name and firmware version on the LCD screen.

Connecting to DA-662A from a PC

There are two ways to connect to the DA-662A from a PC: through the serial console port or by Telnet over the network. The COM settings for the serial console port are: **Baudrate = 115200 bps, Parity = None, Data bits = 8, Stop bits = 1, Flow Control = None**.

When using Telnet, you need to know the DA-662A's IP address and netmask. The default LAN settings are shown below. For first-time configuration, you may find it convenient to use a cross-over Ethernet cable to connect directly from the PC to the DA-662A.

	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

Once the DA-662A is powered on, the Ready LED will light up, and a login page will open. Use the following default Login name and Password to proceed.

Login: root
Password: root

Configuring the Ethernet Interface

If you use the console cable for first-time configuration of the Network settings, use the following commands to edit the interface file:

```
# ifdown –a
  //Disable LAN1/LAN2 interface first, before you
  reconfigure the LAN settings. LAN 1 = eth0, LAN 2= eth1//
# vi /etc/network/interfaces
  //check the LAN interface first//
```

After the boot settings of the LAN interface have been modified, use the following commands to activate the LAN settings immediately:

```
# sync ; ifup –a
```

Developing Your Application
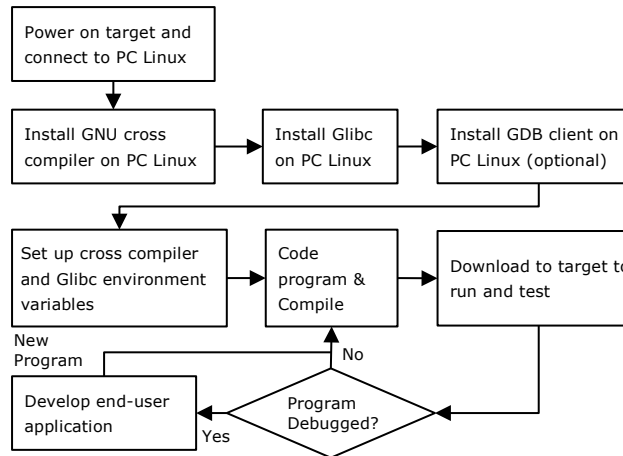
Installing the DA-662A Tool Chain

The PC must have the Linux operating system pre-installed to install the DA-662A GNU Tool Chain. Redhat 7.3/8.0/9.0 Fedora Core 1/2/3/4/5 Debian 7 and later compatible versions are recommended. The Tool Chain will use about 1 GB of your PC's hard disk space. Use the following command to install the Tool Chain from the DA-662A series CD:

```
# mount /dev/cdrom /mnt/cdrom
# sh /mnt/cdrom/Toolchain/
arm-linux_x.x.x-Vx_Build_YYMMDDHH.sh
```

The Tool Chain will be installed on your PC automatically.

Compiling and Running Hello.c

The path to the Tool Chain is:
```
#export PATH="/usr/local/arm-linux-4.4.2-v4/bin:$PATH"
```

The DA-662A software CD also includes several example programs. Here we use **hello.c** as an example to show you how to compile and run your applications. Type the following commands on your PC:
```
# cd /tmp/
# mkdir example
# cp –r /mnt/cdrom/example/* /tmp/example
```

Next, go to the **hello** subdirectory and type the following command:
```
# make
```
to finish compiling **hello.c**.

Finally, run the executable file that was created to generate **hello-release** and **hello-debug**.

Environmental Specifications

Power requirements	100 to 240 VAC auto ranging (47 to 63 Hz for AC input)
Dimensions (W×D×H):	
With rack-mount ears	480 × 237 × 45 mm
Without rack-mount ears	440 × 237 × 45 mm
Operating temperature	-10 to 60°C (14 to 140°F), 5 to 95% RH
Storage temperature	-20 to 80°C (-4 to 176°F), 5 to 95%
Regulatory approvals	UL 60950-1, EN 55022/24, CISPR 22, FCC Part 15B Class A, IEC 61000-4-2 ESD: Contact 8 kV; Air 15 kV, IEC 61000-4-3 RS: 3 V/m (80 MHz to 1 GHz) IEC 61000-4-4 EFT: Power 1 kV; Signal 0.5 kV, IEC 61000-4-5 Surge: Power 2 kV; Signal 4 kV, IEC 61000-4-6 CS: 3 V IEC 61000-4-8 IEC 61000-4-11
Warranty	5 years

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