

DA-682A-DPP Series

x86 2U 19-inch rackmount computer with Intel® i7 CPU, 6 gigabit Ethernet ports, 2 PCI expansion slots, fanless design



- > IEC 61850-3, IEEE 1613, and IEC 60255 compliant for power substation automation systems
- > EN 50121-4 compliant for railway wayside applications
- > 3rd generation Intel core processors (Ivy Bridge)
- > Built-in DDR3 SDRAM and industrial DOM
- > 6 gigabit Ethernet ports for network redundancy
- > 2 PCI expansion slots for expansion modules
- > 1 CompactFlash socket for storage expansion
- > 4 high-speed, system-bootable USB 2.0 ports
- > Supports both 100 to 240 VAC and VDC power inputs (dual power)
- > Optional IRIG-B expansion module available



Overview

The DA-682A-DPP computers have an x86 platform with VGA, 6 gigabit Ethernet ports, CompactFlash, USB, and two PCI ports for DA Series expansion modules. The DA-682A-DPP comes with three different CPU options, and basic models that allow system designers to install the DOM, RAM, and operating system according to their specific requirements.

IEC-61850-3 and IEEE 1613 compliance confirms that the DA-682A-DPP 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, including an 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.

The DA-682A-DPP also complies with the IEC 60255 standards to enable the protection of electrical relays in a smart substation. IEC 60255 is one of the most widely used standards for testing relays and protection equipment, and compliance ensures that the DA-682A-DPP will work reliably and seamlessly with IEDs (intelligent electronic devices) as a part of the robust substation automation system.

EN 50121-4 compliance confirms that the DA-682A-DPP can deliver stable and reliable system operations in rail applications. In station ISCS (Integrated Supervisory Control System) and wayside control and monitoring systems, a powerful front-end processor is needed for controlling the local SCADA and traction power relay house. The expandable serial interfaces and Gigabit Ethernet ports enable the integration of station subsystems, including AFC, PAS, PSD, and FAS, on a single platform. For wayside applications, you can also integrate disaster prevention, traction power, and signaling and safety systems to provide an integrated view of your smart rail setup.

Smart Recovery Function

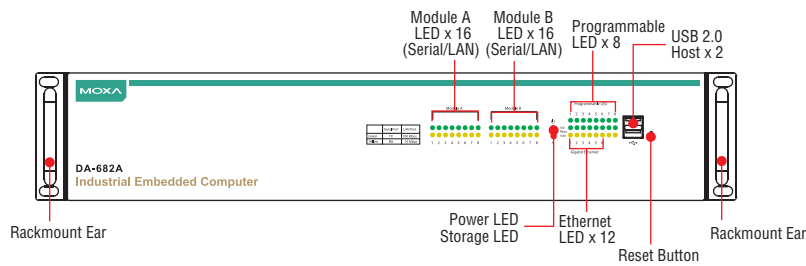
The DA-682A-DPP's Smart Recovery function minimizes downtime by making it easy to recover from operating system crashes. Engineers who are experts in a particular vertical market may not have enough computer domain knowledge to know how to fix operating system problems. Moxa Smart Recovery™ is an automated BIOS-level software recovery system that allows engineers to automatically trigger OS recovery to minimize downtime.

Proactive Monitoring Function

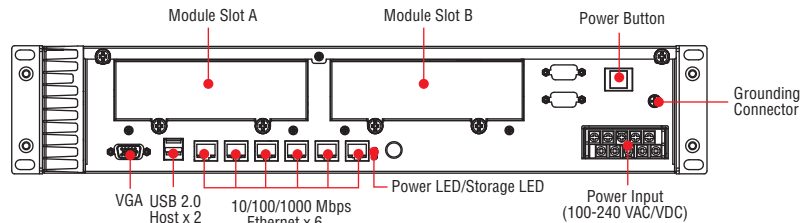
The DA-682A-DPP's Proactive Monitoring function monitors the computer's health by keeping an eye on CPU usage, memory usage, storage partition usage, the operating temperature of the CPU and motherboard, and can trigger a relay to provide either audio or visual alarms.

Appearance

Front View



Rear View



Hardware Specifications

Computer

CPU: 3rd generation Intel core processors (Ivy Bridge)

- Intel Celeron 1047UE, 1.4 GHz dual-core processor
- Intel Core i3-3217UE, 1.6 GHz dual-core processor
- Intel Core i7-3517UE, 1.7 GHz dual-core processor

OS: Linux Debian 7 (pre-installed)

Note: W7E available by CTOS

System Chipset: Intel HM65

BIOS: SPI Flash 64-Mbit BIOS, PCI Plug & Play, ACPI function support

System Memory: 8 GB capacity, 1 GB for Linux pre-installed; 1 slot of DDR3-1066/1333 SO-DIMM SDRAM

USB: USB 2.0 hosts x 2, system bootable, type A connector

Storage

Built-in: 2 GB for Linux (pre-installed industrial DOM)

Storage Expansion:

- 1 x CompactFlash socket
- 2 x SATA-300 connector

Display

Graphics Controller: Intel® HD Graphics (Integrated)

Display Interface: 1 VGA output (DB15 female connector)

Resolution: CRT display mode with pixel resolution up to 2048 x 1536 at 75 Hz

Ethernet Interface

LAN: Auto-sensing 10/100/1000 Mbps ports x 6

Magnetic Isolation Protection: 1.5 kV built-in

LEDs

System: Power, Storage

LAN: 100/1000M mode

Programmable: 8 LEDs

Communication: Module A x 16, Module B x 16

Switches and Buttons

Power Button: On/Off (on rear panel)

Reset Button: Hard Reset (on front panel)

Physical Characteristics

Housing: SECC sheet metal (1 mm)

Weight: 6.5 kg (14.33 lb)

Dimensions: 440 x 315 x 90 mm (17.32 x 12.40 x 3.54 in) (without rackmount ears)

Mounting: Standard 19-inch rack

Environmental Limits

Operating Temperature: -25 to 60°C (-13 to 140°F)

Storage Temperature: -40 to 80°C (-40 to 176°F)

Ambient Relative Humidity: 5 to 95% (non-condensing)

Anti-Vibration: 3 mm (2-9 Hz), 10 m/s² (9-200 Hz), 15 m/s² (200-500 Hz) @ IEC-61850-3, IEC 60870-2-2/Bm/(3M6)/(4M6), sine wave, 2-500 Hz, 1 Oct/min, 10 cycles, 2 hrs 40 mins per axis

Anti-Shock: 100 m/s² @ IEC-61850-3, IEC 60870-2-2/Bm/(3M6)/(4M6), half sine wave, 11 ms

Power Requirements

Input Voltage: 100 to 240 VAC; 100 to 240 VDC

Input Current: 1.37 A @ 100 VAC; 0.77 A @ 100 VDC

Standards and Certifications

Safety: UL 60950-1, IEC 60950-1, EN 60950-1

Electrical Substation: IEC 61850-3, IEEE 1613, IEC 60255

Protection Relay: IEC 60255

EMC: EN 61000-6-2/6-4

EMI: CISPR 22, FCC Part 15B Class A

EMS:

IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV

IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m

IEC 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV

IEC 61000-4-5 Surge: Power: 4 kV; Signal: 4 kV

IEC 61000-4-6 CS: 10 V

IEC 61000-4-8

IEC 61000-4-11

Green Product: RoHS, CRoHS, WEEE

Reliability

Alert Tools:

- Built-in buzzer and RTC (real-time clock) with lithium battery backup
- Built-in relay for audio/visual alarm

Automatic Reboot Trigger: Built-in watchdog timer, configurable for restarts at 1 to 255 second intervals

MTBF (mean time between failures)

Time: 360,807 hrs

Warranty

Warranty Period: 3 years

Details: See www.moxa.com/warranty

• Software Specifications

Linux

OS: Linux Debian 7

Web Server (Apache): Allows you to create and manage web sites; supports PHP and XML

File System: EXT2, JFFS2

Internet Protocol Suite: TCP, UDP, IPv4, SNMPv1/v2c/v3, ICMP, ARP, HTTP, CHAP, PAP, SSH 1.0/2.0, SSL, DHCP, NTP, NFS, Telnet, FTP, TFTP, PPP, PPPoE

Internet Security: OpenVPN, iptables firewall

Secure Shell for Remote Access: SSH allows remote logins to a secure encrypted console from any connected network

Dial-up Networking: PPP Daemon for Linux that allows Unix machines to connect to the Internet through dialup lines, using the Point-to-Point Protocol (PPP). Works with 'chat', 'dip', and 'diald', among (many) others. Supports IP, TCP, UDP, and (for Linux) IPX (Novell).

File Server: Enables remote clients to access files and other resources over the network

Watchdog: A watchdog timer that triggers a system reset upon software freezes, for both specific applications and system-wide failures.

Application Development Software:

- Moxa API Library (Watchdog timer, Moxa serial I/O control)
- GNU C/C++ cross-compiler
- GNU C library
- Perl

Windows Embedded Standard 7 (by CTOS)

Core OS:

- Windows 7 Embedded, 32 bit
- Sensor and Location Platform
- Remote Procedure Call

Applications and Services Development:

- .Net Framework 3.5
- Remote Desktop Protocol 7.1
- COM OLE Application Support
- COM+ Application Support
- MSMQ

Internet Services:

- Internet Explorer 8.0
- IIS 7.0

File Systems and Data Storage:

- Windows Data Access Components
- Windows Backup and Restore

Diagnostics:

- Common Diagnostic Tools
- Problem Reports and Solutions

Fonts:

- Chinese (Trad. and Simp.), Middle East, South East Asian, and South Asian Fonts
- True Type Fonts

International:

- IME Simplified Chinese Support
- IME Traditional Chinese Support

Management:

- Group Policy Management
- Windows Management Instrument (WMI)
- Windows Update

Networking:

- Extensible Authentication Protocol (EAP)
- Internet Authentication Service
- Telnet Server
- Bluetooth
- Domain Services
- Network Access Protection
- Network and Sharing Center
- Quality of Service
- Remote Access Service (RAS)
- Telephony API Client
- Windows Firewall
- Wireless Networking

Security:

- Credential Roaming Service
- Credentials and Certificate Management
- Windows Authorization Manager (AZMAN)
- Windows Security Center
- Active Directory Rights Management
- Security Base
- Encrypted File System (EFS)

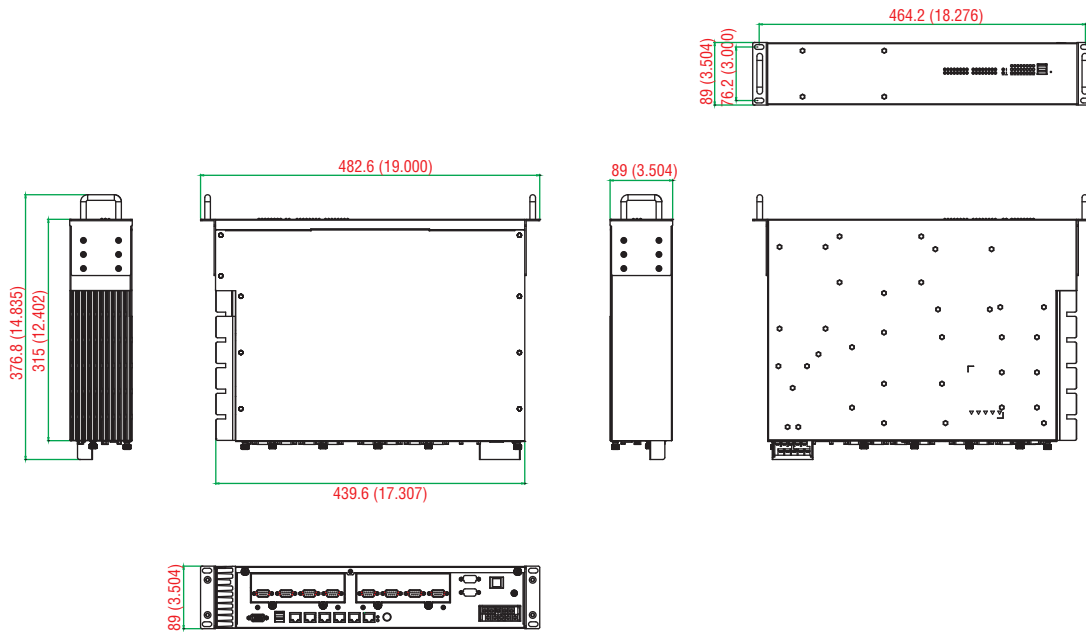
Embedded Features:

- Enhanced Write Filter (EWF)
- File-Based Write Filter (FBWF)
- Message Box Default Reply
- Registry Filter
- WSDAPI for .NET

Embedded Self-Health Diagnostics: SNMP-based remote scripting layer for monitoring, reporting, and control

Dimensions

Unit: mm (inch)



Ordering Information

Available 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, Compact Flash socket

DA-682A-C1-DPP-LX: Rackmount computer with Celeron, 1047UE, 1.4 GHz, dual-core CPU, VGA, 6 Gigabit LANs, USB x 4, Compact Flash socket, 1 GB system memory, 2 GB DOM, Linux Debian 7 pre-installed flash disk module

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, Compact Flash 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, Compact Flash socket, 1 GB system memory, 2 GB DOM, Linux Debian 7 pre-installed flash disk module

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, Compact Flash 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, Compact Flash socket, 1 GB system memory, 2 GB DOM, Linux Debian 7 pre-installed flash disk module

Expansion Modules (can be purchased separately)

DA-SP08-I-EMC4-DB: 8-port RS-232/422/485 serial module with DB9 connector and isolation; suitable for EMC Level 4 environments

DA-SP08-I-EMC4-TB: 8-port RS-232/422/485 serial module with terminal block connector and isolation; suitable for EMC Level 4 environments

DA-SP08-I-DB: 8-port RS-232/422/485 serial module with a digitally isolated DB9 connector

DA-SP08-DB: 8-port RS-232/422/485 serial module with DB9 connector

DA-SP08-I-TB: 8-port RS-422/485 serial module with digitally isolated terminal block

DA-SP38-I-TB: 8-port RS-422/485 serial module with digitally isolated terminal block

DA-SW08-RJ: 8-port 10/100 Mbps unmanaged switch module

DA-UPCI-DK: Universal PCI development kit

DA-FX04-MM-ST-T: 4-port (100BaseFX) fiber LAN module with multi-mode, ST connector, supports IP Teaming

DA-IRIGB-4DIO-PCI104-EMC4: Time synchronization expansion module, 1 IRIG-B signal input port, 3 digital inputs, 4 digital outputs

Optional Accessories (can be purchased separately)

DA-682A HDD Kit: Hard disk installation package

Package Checklist

- DA-682A-DPP embedded computer
- Rackmount kit
- Documentation and software CD or DVD
- Quick installation guide (printed)
- Warranty card