

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
- > 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.

Smart Recovery Function

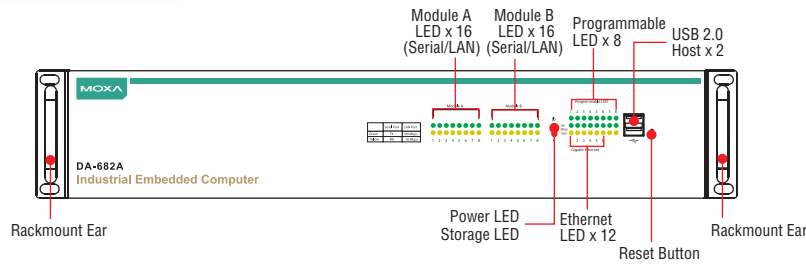
The DA-682A-DPP's Smart Recovery function minimizes downtime by making it easy to recover from operating system crashes. Engineers who are experts in a particular vertical market may not have enough computer domain knowledge to know how to fix operating system problems. Moxa Smart Recovery™ is an automated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

Proactive Monitoring Function

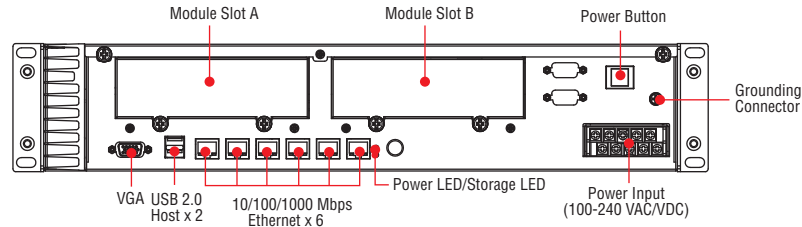
The DA-682A-DPP's Proactive Monitoring function monitors the computer's health by keeping an eye on CPU usage, memory usage, storage partition usage, the operating temperature of the CPU and motherboard, and can trigger a relay to provide either audio or visual alarms.

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 8 (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)

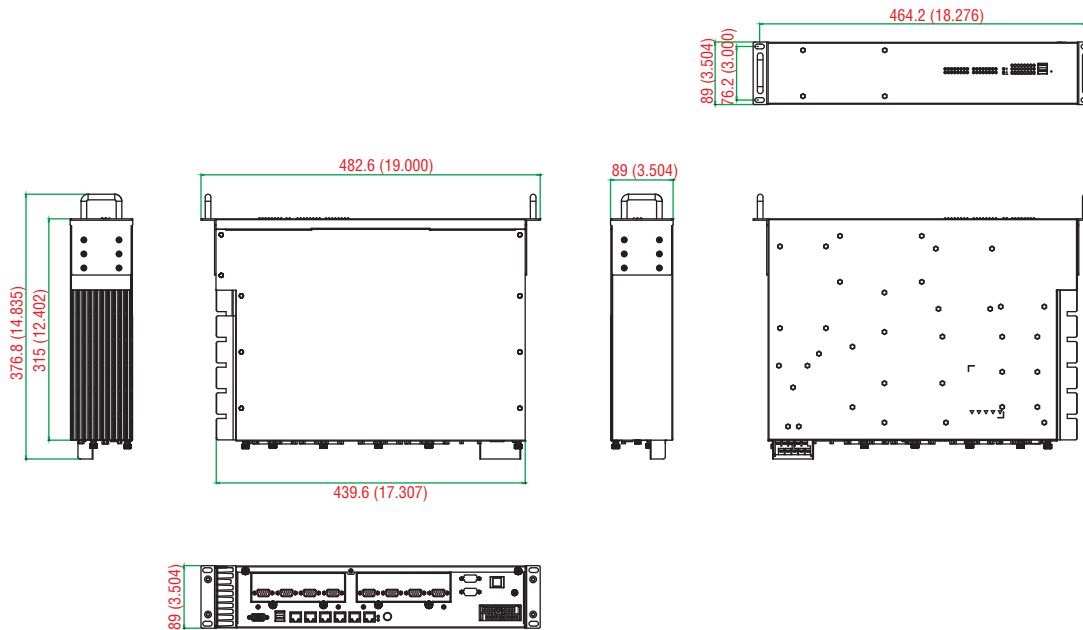
Embedded Features:

- 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