DA-685 Series

rackmount x86 substation computer with VGA, 2 RS-232/422/485 and 6 RS-485 serial ports, 6 LANs, CompactFlash, USB

> Intel Atom D510 1.66 GHz processor
> 1 DDR2 SODIMM sockets supporting DDR2 667 up to 2 GB (max.)
> 6 10/100/1000 Mbps Ethernet ports
> 2 RS-232/422/485 serial ports (DB9 male)
> 6 RS-485 serial ports (terminal block)
> 2 USB 2.0 ports for high speed peripherals
> CompactFlash socket for storage expansion
> 1 SATA interface for hard disk drive expansion
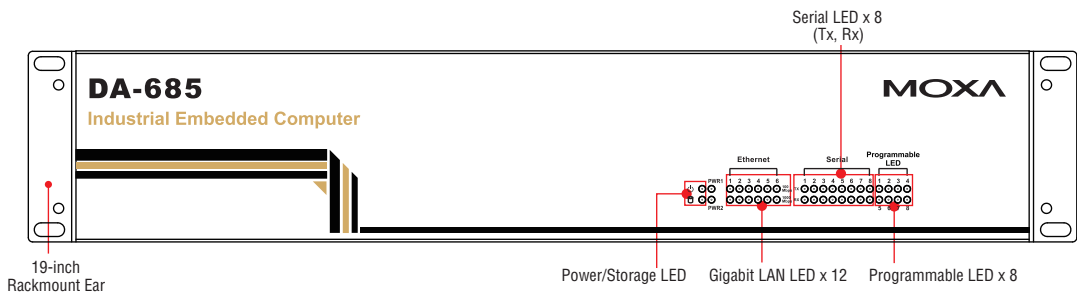> EMC Level 4 certified

:: Overview

DA-685 industrial computers excel in a wide array of power automation applications. The DA-685 series is based on the Intel x86 processor and supports VGA, 6 Gigabit Ethernet ports, 2 RS-232/422/485 and 6 RS-485 serial ports, CompactFlash, and USB. The computers come standard in a 19-inch, 2U high form factor, and the Intel Core Duo processor gives them enough punch to perform demanding industrial tasks without consuming a lot of power.
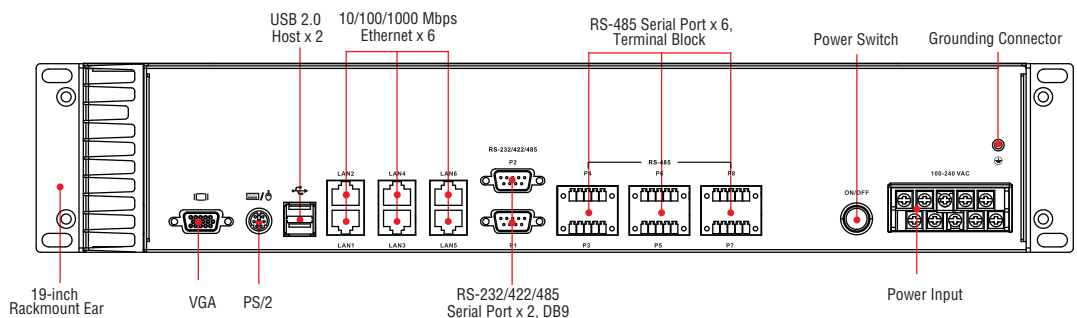
The DA-685 computer are pre-installed with Linux or the Windows Embedded Standard 2009 operating systems, providing a familiar environment for developing sophisticated application software.

:: Appearance

Front View

Serial LED x 8 (Tx, Rx)

DA-685
Industrial Embedded Computer

19-inch Rackmount Ear

Power/Storage LED   Gigabit LAN LED x 12   Programmable LED x 8

Rear View

USB 2.0 Host x 2
10/100/1000 Mbps Ethernet x 6
RS-485 Serial Port x 6, Terminal Block
Power Switch
Grounding Connector

19-inch Rackmount Ear
VGA   PS/2
RS-232/422/485 Serial Port x 2, DB9
Power Input

MOXA®

Dimensions

Unit: mm (inch)

483 (19.02)

90 (3.54)

440 (17.32)

315 (14.40)
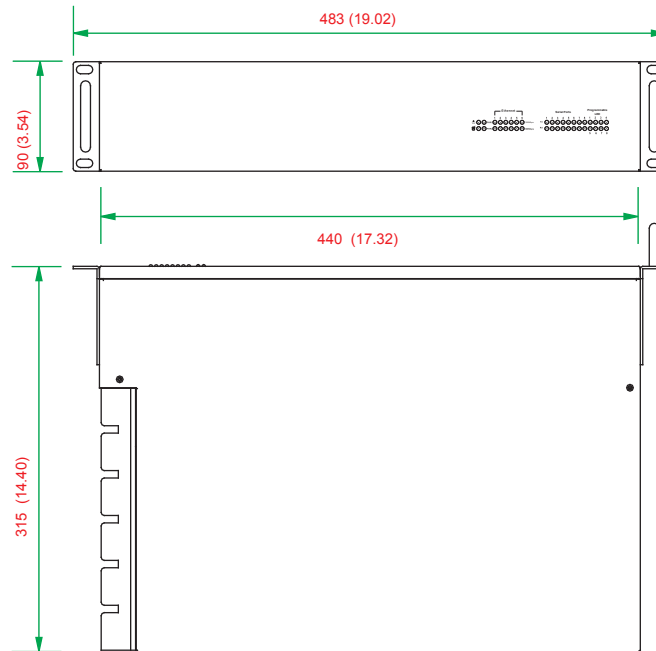
: Hardware Specifications

Computer
CPU: Intel Atom D510 1.66 GHz processor
OS: Linux, Windows 7, Windows XP Professional, or Windows Embedded Standard 2009 (must be installed by the user)
System Chipset: Intel Pineview-D + ICH8M
BIOS: 16 Mbit Flash BIOS, PCI Plug & Play, ACPI function support
FSB: 667 MHz
System Memory: 1 200-pin DDR2 SODIMM socket supporting DDR2 667; up to 2 GB, with 1 GB built in
Expansion Bus: PCI/104 interface reserved
USB: USB 2.0 compliant hosts, Type A connector x 2, supports system boot up

Storage
Built-in: 2 GB industrial DOM onboard to store OS
Storage Expansion: CompactFlash socket for CF card expansion, supporting CF Type-I/II
HDD Support: 1 SATA connector for drive expansion

Other Peripherals
KB/MS: 1 PS/2 interface, supports standard PS/2 keyboard and mouse through Y-type cable

Display
Graphics Controller: Intel® GMA3150 graphics controller on Intel D510 card
Display Interface: VGA output (DB15 female connector)
Resolution: CRT display mode with pixel resolution up to 2048 x 1536 at 75 Hz

Ethernet Interface
LAN: 6 auto-sensing 10/100/1000 Mbps Gigabit ports
Magnetic Isolation Protection: 1.5 KV built-in

Serial Interface
Serial Standards:
• 2 RS-232/422/485 ports (DB9 male)
• 6 RS-485-2W ports (terminal block)

Serial Signals
RS-232: TxD, RxD, DTR, DSR, RTS, CTS, DCD, GND, RI
RS-422: TxD+, TxD-, RxD+, RxD-, GND
RS-485-4w: TxD+, TxD-, RxD+, RxD-, GND
RS-485-2w: Data+, Data-, GND

LEDs
System: Power, Storage
Gigabit LAN: 100M x 6, 1000M x 6
Serial: TX/RX
Programmable: LED x 8

Switches and Buttons
Power Switch: on/off (on rear panel)

Physical Characteristics
Housing: SECC sheet metal (1 mm)
Weight: 4 kg
Dimensions: 315 x 440 x 90 mm (12.40 x 17.32 x 3.54 in) (without rackmount ears)
Mounting: Standard 19-inch rackmount

Environmental Limits
Operating Temperature: -10 to 55°C (14 to 131°F)
Storage Temperature: -20 to 80°C (-4 to 176°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)
Anti-vibration: 2 g rms @ IEC-68-2-34, random wave, 5-500 Hz, 1 hr per axis
Anti-shock: 20 g @ IEC-68-2-27, half sine wave, 11 ms

Power Requirements

Input Voltage: 100 to 240 VAC, 50/60 Hz, 0.9-0.4 A
Power Consumption: 40 W

Standards and Certifications

Safety: LVD, UL, cUL, CCC
EMC: FCC, CE (Class A)
Green Product: RoHS, CRoHS, WEEE

Reliability

Alert Tools: Built-in buzzer and RTC (real-time clock) with lithium backup battery
Automatic Reboot Trigger: Built-in WDT (watchdog timer) supporting 1-255 level time interval system reset, software programmable

Warranty

Warranty Period: 3 years
Details: See www.moxa.com/warranty

: Software Specifications

Linux

OS: Linux 2.6.18, Debian Etch 5
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, PTP
Internet Security: OpenVPN, iptables firewall
Web Server (Apache): Allows you to create and manage web sites; supports PHP and XML
Terminal Server (SSH): Provides secure encrypted communications between two un-trusted hosts over an insecure network
Dial-up Networking: PPP Daemon for Linux that allows Unix machines to connect to the Internet through dialup lines, using the PPP protocol, as a PPP server or client. 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: Features a hardware function to trigger system reset in a user specified time interval (Moxa API provided)
Application Development Software:
• Moxa API Library (Watchdog timer, Moxa serial I/O control)
• GNU C/C++ cross-compiler
• GNU C library
• Perl

Windows XP Embedded

OS: Windows Embedded Standard 2009
File System: NTFS

Internet Protocol Suite: DHCP, DNS, FTP, HTTP, SNTP, NTP, Telnet, SMTP, SNMPv2, TCP, UDP, IPv4, ICMP, IGMP, IPsec, TAPI, ICS, PPP, CHAP, EAP, PPPoE, PPTP, NetBIOS, PTP
Web Server (IIS): Allows users to create and manage websites
Remote Registry Service: Enables remote users to modify registry settings on this computer
Watchdog: Features a hardware function to trigger system reset in a user specified time interval (Moxa API provided)
Enhanced Writer Filter: Redirect disk write operations to volatile (RAM) or non-volatile (disk) storage
File-based Writer Filter: Redirects all write requests directed at protected volumes to the overlay cache, which records and displays the changes while preserving the protected status of the target volume.
Application Development Software:
• Moxa API Library
• Microsoft .Net Framework 3.5 with SP1
• Active Directory Service Interface (ADSI) Core
• Active Template Library (ATL)
• Common Control Libraries
• Common File Dialogs
• Direct3D, DirectPlay, DirectShow, and Direct show filters
• Mapi32 Libraries
• Message Queuing (MSMQ) Core
• Microsoft Visual C++ Run Time Libraries
• Power Management dynamic-link library
• RPC
• Windows API, Script Engines, and WMI

: Ordering Information

Available Models

DA-685-XPE: x86 Rackmount Computer with 1.66GHz CPU, VGA, 6 Gigabit Ethernet Ports, 2 RS-232/422/485, 6 2 Wire RS-485 Ports, Compact Flash, 2 USB, Single Power, Windows Embedded Standard
DA-685-LX: x86 Rackmount Computer with 1.66GHz CPU, VGA, 6 Gigabit Ethernet Ports, 2 RS-232/422/485, 6 2 Wire RS-485 Ports, Compact Flash, 2 USB, Single Power, Linux

Package Checklist

• DA-685 embedded computer
• Rackmount kit
• Ethernet cable: RJ45 to RJ45 cross-over cable, 100 cm
• Documentation CD or DVD
• Quick installation guide (printed)
• Warranty card