IA260 Series

RISC-embedded computers with 4 serial ports, dual LANs, VGA, DIOs, CompactFlash, USB

> Cirrus Logic EP9315 ARM9 CPU, 200 MHz
> 128 MB RAM on-board, 32 MB flash disk
> 4 software-selectable RS-232/422/485 serial ports
> VGA interface for field site monitoring
> Dual 10/100 Mbps Ethernet for network redundancy
> 8+8 DI/DO channels, up to 30 VDC
> 12 to 48 VDC power input design
> Supports CompactFlash and USB 2.0 hosts
> Ready-to-run Linux or WinCE 6.0 platform
> H-type heat dissipation design for system reliability
> -40 to 75°C wide operating temperature model available

Windows® Embedded   CCC   RoHS   c UL us LISTED   CE   FC

Overview

The IA260 embedded computers come with 4 RS-232/422/485 serial ports, dual Ethernet ports, 8 digital input channels, 8 digital output channels, a VGA output, 2 USB hosts, and a CompactFlash socket. The computers are housed in a compact, IP40 protected, industrial-strength aluminum case.
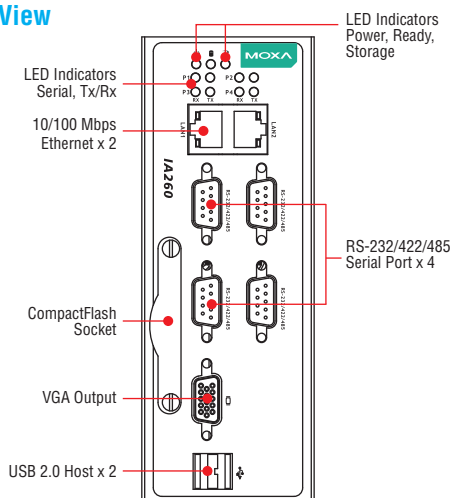
The IA260 computers use the Cirrus Logic EP9315 ARM9, 32-bit, 200 MHz RISC CPU. This powerful computing engine supports several useful communication functions, but will not generate too much heat. The built-in 32 MB NOR Flash ROM and 128 MB SDRAM give you enough memory to run your application software directly on the IA260.

The patented "H-Type" heat dissipation design can directly transmit heat from inside the housing to the outside, which makes the IA260 an ideal computing unit for applications that involve extremely high temperatures. With its built-in VGA output interface, the IA260 computers are suitable for use with SCADA systems in industrial applications, such as factory automation, production line process monitoring, and mining automation, that require VGA and HMI features.
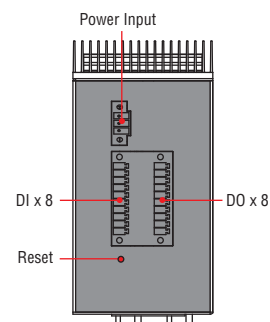
The IA260 computers support RS-232/422/485, digital I/O, and have dual LAN ports, making them ideal for communication platforms in industrial applications that require network redundancy. In addition to the standard model, a wide-temperature (-40 to 75°C) model is available for use in harsh industrial-automation environments.

Appearance

Front View

LED Indicators Power, Ready, Storage
LED Indicators Serial, Tx/Rx
10/100 Mbps Ethernet x 2
RS-232/422/485 Serial Port x 4
CompactFlash Socket
VGA Output
USB 2.0 Host x 2

Top View

Power Input
DI x 8
DO x 8
Reset

: Hardware Specifications

Computer
CPU: Cirrus EP9315 ARM9 CPU, 200 MHz
USB: USB 2.0 hosts x 2, type A connector
DRAM: DDR2 SDRAM, 128 MB
Flash: NOR Flash, 32 MB
OS (pre-installed): Linux or Windows CE 6.0

Storage
Storage Expansion: CF card type I/II

Display
Graphics Controller: EP9315 internal graphics accelerator engine with TTL graphical signal support
Display Memory: Dynamic video memory (shares system memory)
Display Interface: CRT interface for VGA output, DB15 female connector
Resolution: 1024 x 768, 8 bits

Ethernet Interface
LAN: Auto-sensing 10/100 Mbps ports (RJ45) x 2
Magnetic Isolation Protection: 1.5 kV built-in

Serial Interface
Serial Standards: RS-232/422/485 ports, software-selectable (DB9 male) x 4
ESD Protection: 4 kV for all signals
Console Port: RS-232 (TxD, RxD, GND), 4-pin header output (115200, n, 8, 1)

Serial Communication Parameters
Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF, ADDC® (automatic data direction control) for RS-485
Baudrate: 50 bps to 921.6 kbps (supports nonstandard baudrates; see user's manual for details)

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

Digital Input
Input Channels: DI x 8
Input Voltage: 0 to 30 VDC
Digital Input Levels for Dry Contacts:
• Logic level 0: Close to GND
• Logic level 1: Open
Digital Input Levels for Wet Contacts:
• Logic level 0: +3 V max.
• Logic level 1: +10 V to +30 V (COM to DI)
Connector Type: 10-pin screw-fastened terminal block (8 points, COM, GND)
Isolation: 3 kV optical isolation

Digital Output
Output Channels: DO x 8, sink type
Output Current: Max. 200 mA per channel
On-State Voltage: 24 VDC nominal, open collector to 30 V
Connector Type: 9-pin screw-fastened terminal block
Isolation: 3 kV optical isolation

LEDs
System: Power, Ready, Storage
LAN: 10M/Link x 2, 100M/Link x 2 (on connector)
Serial: TxD x 4, RxD x 4

Switches and Buttons
Reset Button: Supports "Reset to Factory Default"

Physical Characteristics
Housing: Aluminum, industrial vertical form factor
Weight: 1 kg (2.22 lb)
Dimensions: 52 x 112.6 x 162 mm (2.05 x 4.43 x 6.38 in)
Mounting: DIN-rail, wall

Environmental Limits
Operating Temperature:
Standard Models: -10 to 60°C (14 to 140°F)
Wide Temp. Models: -40 to 75°C (-40 to 167°F)
Storage Temperature:
Standard Models: -20 to 80°C (-4 to 176°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)
Anti-Vibration: 2 Grms @ 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: 12 to 48 VDC (3-pin terminal block)
Input Current:
With no load on USB ports:
• 240 mA @ 24 VDC
• 480 mA @ 12 VDC
With full load on USB ports:
• 450 mA @ 24 VDC
• 900 mA @ 12 VDC
Power Consumption:
With no load on USB ports: 5.8 W
With full load on USB ports: 11 W

Standards and Certifications
Safety: UL 60950-1, CSA C22.2 No. 60950-1-03, EN 60950-1, CCC (GB4943, GB9254, GB17625.1)
EMC: EN 55032 Class A, EN 61000-3-2 Class A, EN 61000-3-3, EN 55024, FCC Part 15 Subpart B Class A
EMS:
IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m
IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV
IEC 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV
IEC 61000-4-6 CS: Signal: 3 V/m
IEC 61000-4-8 1 A/m
IEC 61000-4-11
Green Product: RoHS, CRoHS, WEEE

Reliability
Automatic Reboot Trigger: Built-in WDT (watchdog timer)

MTBF (mean time between failures)
Time: 145,328 hrs
Standard: Telcordia (Bellcore) Standard

Warranty
Warranty Period: 5 years
Details: See www.moxa.com/warranty
Note: The Hardware Specifications apply to the embedded computer unit itself, but not to accessories. In particular, the wide temperature specification does not apply to accessories such as the power adapter and cables.

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Software Specifications

Linux

OS: Linux 2.6.23
Web Server (Apache): Allows you to create and manage web sites
Terminal Server (SSH): Provides secure encrypted communications between two untrusted hosts over an unsecure network
File System: JFFS2, NFS, Ext2, Ext3
Internet Protocol Suite: TCP, UDP, IPv4, SNMPv1, ICMP, ARP, HTTP, CHAP, PAP, DHCP, NTP, NFS, SMTP, Telnet, FTP, TFTP, PPP, PPPoE
Internet Security: OpenVPN, IPTables Firewall
Dial-up Networking: PPP Daemon (pppd) for Linux that uses the PPP protocol and allows Unix machines to connect to the Internet as PPP servers or clients, through dialup. The PPP Daemon Works with chat, dip, and diald programs among others, and supports the IP, TCP, UDP, and IPX for Linux (Novell) protocols.
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, Moxa DI/DO API)
• GNU C/C++ cross-compiler
• GNU C library
• GDB source-level debugging server
Software Protection: Encryption tool for user executable files (based on patented Moxa technology)

Windows Embedded CE 6.0

OS: Windows Embedded CE 6.0
File System: FAT (for onboard flash memory)
Internet Protocol Suite: TCP, UDP, IPv4, SNMPv2, ICMP, IGMP, ARP, HTTP, CHAP, PAP, SSL, DHCP, SNTP, SMTP, Telnet, FTP, PPP
Web Server (WinCE IIS): Supports ASP, ISAPI Secure Socket Layer (SSL 2/3) and Transport Layer Security (TLS/SSL 3.1) public key-based protocols, and Web Administration ISAPI Extensions
Dial-up Networking: Supports RAS client API and PPP, Extensible Authentication Protocol (EAP), and RAS scripting
**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 WinCE 6.0 SDK
• Moxa API Library
• C Libraries and Run-times
• Component Services (COM and DCOM)
• Microsoft® .NET Compact Framework 2.0
• XML, including DOM, XQL, XPATH, XSLT, SAX, SAX2
• SOAP Toolkit Client
• Winsock 2.2

Dimensions

Unit: mm (inch)

52 (2.05)   112.6 (4.43)   162 (6.38)
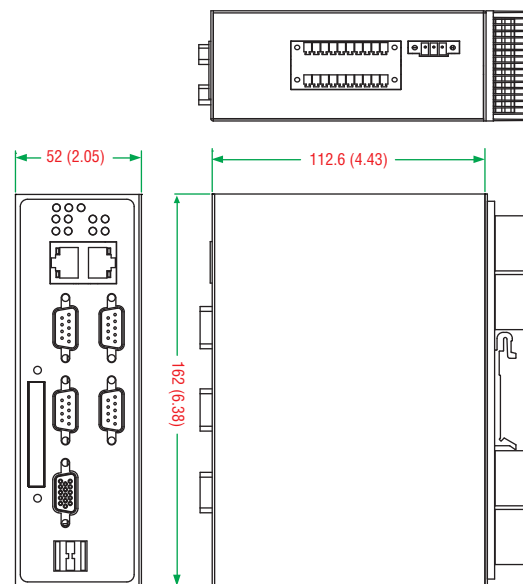
Ordering Information

Available Models

IA260-CE: RISC-based embedded computer with 4 serial ports, 8 DIs, 8 DOs, dual LANs, VGA, CompactFlash, USB, Win CE 6.0 OS, -10 to 60°C operating temperature
IA260-LX: RISC-based industrial embedded computer with 4 serial ports, 8 DIs, 8 DOs, dual LANs, VGA, CompactFlash, USB, Linux OS, -10 to 60°C operating temperature
IA260-T-CE: RISC-based embedded computer with 4 serial ports, 8 DIs, 8 DOs, dual LANs, VGA, CompactFlash, USB, Win CE 6.0 OS, -40 to 75°C operating temperature
IA260-T-LX: RISC-based industrial embedded computer with 4 serial ports, 8 DIs, 8 DOs, dual LANs, VGA, CompactFlash, USB, Linux OS, -40 to 75°C operating temperature

Package Checklist

• IA260 or IA260-T embedded computer
• Wall-mounting kit
• DIN-rail mounting kit
• Ethernet cable: RJ45-to-RJ45 cross-over cable, 100 cm
• CBL-RJ45F9-150: 8-pin RJ45-to-DB9 female console port cable, 150 cm
• CBL-RJ45M9-150: 8-pin RJ45-to-DB9 male serial port cable, 150 cm
• Universal power adapter
• Documentation and software CD
• Quick installation guide (printed)
• Warranty card