V2406-24I Series

x86 ready-to-run embedded computers with Intel Atom N270, VGA, DVI-I, audio, 2 LANs, 4 serial ports, 6 DIs, 2 DOs, 3 USB 2.0 ports, CompactFlash, 24V power input

> Intel Atom N270 1.6 GHz processor
> DDR2 SODIMM socket supporting DDR2 533 up to 2 GB (max.)
> Dual independent displays (VGA + DVI-I)
> 2 10/100 Mbps Ethernet ports with M12 connectors
> 4 RS-232/422/485 serial ports (non-standard baudrates supported)
> 3 USB 2.0 ports for high speed peripherals
> 6 DIs, 2 DOs
> CompactFlash socket for storage expansion
> 1 SATA-II connector for hard disk drive expansion
> M12 power connector
> Full EN 50121-4 and EN 50155 compliance
> Ready-to-run Embedded Linux, or Windows Embedded Standard 2009 platform
> -40 to 70°C wide temperature models available
> Conformal coating models available

EN 50155

Microsoft® Windows® Embedded   RoHS   c UL us LISTED   CE   FC

Introduction

The V2406-24I computers come with 4 RS-232/422/485 serial ports, making them ideal for connecting a wide range of serial devices, and the dual 10/100 Mbps Ethernet ports offer a reliable solution for network redundancy, promising continuous operation for data communication and management. As an added convenience, the V2406-24I computers have 6 DIs and 2 DOs for connecting digital input/output devices.

CompactFlash and USB sockets provide the V2406-24I computers with the reliability needed for industrial applications that require data buffering and storage expansion. In addition, these computers are fully compliant with the EN 50155 standard, making them an excellent choice for rail and industrial applications.
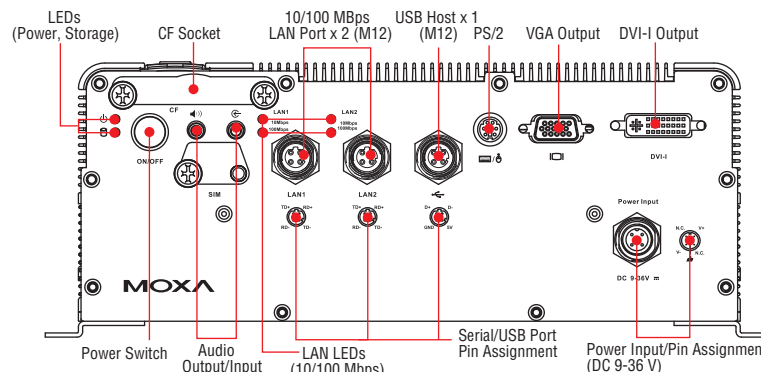
Pre-installed with Linux or Windows Embedded Standard 2009, the V2406-24I computers provide programmers with a friendly environment for developing sophisticated, bug-free application software at a low cost.
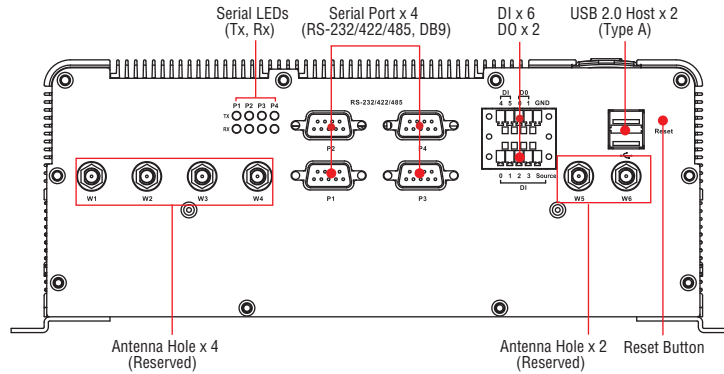
Models with conformal coating are also available to offer reliable operation during harsh environments for a variety of industrial applications.

Appearance

Front View

LEDs (Power, Storage)
CF Socket
10/100 MBps LAN Port x 2 (M12)
USB Host x 1 (M12)
PS/2
VGA Output
DVI-I Output

Power Switch
Audio Output/Input
LAN LEDs (10/100 Mbps)
Serial/USB Port Pin Assignment
Power Input/Pin Assignment (DC 9-36 V)

MOXA®

Rear View

Serial LEDs (Tx, Rx)
Serial Port x 4 (RS-232/422/485, DB9)
DI x 6 DO x 2
USB 2.0 Host x 2 (Type A)

Antenna Hole x 4 (Reserved)
Antenna Hole x 2 (Reserved)
Reset Button

: Hardware Specifications

Computer
CPU: Intel Atom N270 1.6 GHz processor
OS (pre-installed): Linux or Windows Embedded Standard 2009
System Chipset: Intel 945GSE + ICH7-M
BIOS: 8 Mbit Flash BIOS, PLCC type, ACPI function supported
FSB: 533 MHz
System Memory: 1 x 200-pin DDR2 SODIMM socket supporting DDR2 533 up to 2 GB; 1 GB built in
USB: USB 2.0 compliant hosts, type A connectors x 2; supports system boot up, M12 connector x 1

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

Other Peripherals
KB/MS: 1 PS/2 interface supporting standard PS/2 keyboard and mouse through Y-type cable
Audio: Line-in, line-out interface

Display
Graphics Controller: Intel Gen 3.5 Integrated Graphics Engine, 250 MHz core render clock and 200 MHz core display clock at 1.05-V core voltage
VGA Interface: DB15 female connector, up to 2048 x 1536 resolution
DVI Interface: DVI-I connector (chrontel CH7307 SDVO to DVI transmitter), up to 1600 x 1200 resolution

Ethernet Interface
LAN: 2 auto-sensing 10/100 Mbps ports (M12)

Serial Interface
Serial Standards: 4 RS-232/422/485 ports*, software selectable (DB9 male)
*COM1's pin 9 signal can be set by jumper as N/C (default), +5 V, or +12 V
ESD Protection: 8 KV for all signals

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 (non-standard baudrates supported; 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: 6, source type
Input Voltage: 0 to 30 VDC at 25 Hz
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 (Source to DI)
Isolation: 3 KV optical isolation

Digital Output
Output Channels: 2, sink type
Output Current: Max. 200 mA per channel
On-state Voltage: 24 VDC nominal, open collector to 30 VDC
Connector Type: 10-pin screw terminal block (6 DI points, 2 DO points, DI Source, GND)
Isolation: 3 KV optical isolation

LEDs
System: Power, Storage
LAN: 10M/Link x 2, 100M/Link x 2
Serial: TX x 4, RX x 4

Switches and Buttons
Power Switch: On/Off (front panel)
Reset Button: For warm reboot (front panel)

Physical Characteristics
Housing: Aluminum
Weight: 4 kg
Dimensions:
Without ears: 250 x 98 x 154 mm (9.84 x 3.86 x 6.06 in)
With ears: 275 x 104 x 154 mm (10.83 x 4.09 x 6.06 in)
Mounting: DIN rail, wall, VESA

Environmental Limits
Operating Temperature:
Standard models: -25 to 60°C (-13 to 140°F)
Wide temp. models: -40 to 70°C (-40 to 158°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)
Anti-vibration: EN 50155 standard
Anti-shock: EN 50155 standard
Conformal Coating: Available with *-CT models

Power Requirements
Input Voltage: 12 to 48 VDC (M12 connector)
Note: Compliant with EN 50155 on 24 VDC
Power Consumption: 26 W
2.16 A @ 12 VDC
1.08 A @ 24 VDC
542 mA @ 48 VDC

Standards and Certifications

Safety: UL 60950-1, CSA C22.2 No. 60950-1-07, EN 60950-1
EMC: EN 55022 Class A, EN 61000-3-2 Class D, EN 61000-3-3, EN 55024, FCC Part 15 Subpart B Class A
Rail Traffic: EN 50155, EN 50121-3-2, EN 50121-4, IEC 61373
Green Product: RoHS, CRoHS, WEEE

Reliability

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
Note: These hardware specifications describe the embedded computer unit itself, but not its official accessories. In particular, the wide temperature specification does not apply to accessories such as power adaptors and cables.

Dimensions

Unit: mm (inch)

275 (10.83)
262.5 (10.33)
86 (3.39)
154 (6.06)
V2400
97.55 (3.84)
6 (0.24)
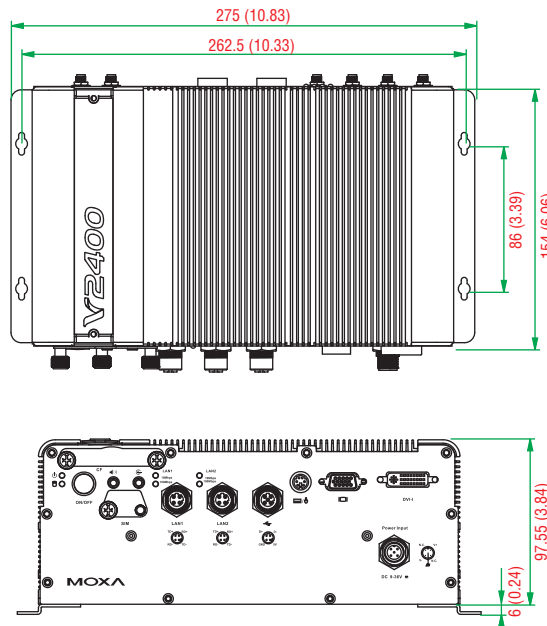
Software Specifications

Linux

OS: Linux 2.6.26, Debian Lenny 5.0
File System: EXT2
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
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, Moxa DI/DO API)
• GNU C/C++ compiler
• GNU C library
• Perl

Windows XP Embedded

OS: Windows Embedded Standard 2009 SP3
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
Web Server (IIS): Allows users to create and manage websites
Silverlight 2.0: A free runtime that powers rich application experiences and delivers high quality, interactive video across multiple platforms and browsers, using the .NET framework
Remote Registry Service: Enables remote users to modify registry settings on this computer
Remote Desktop: The Terminal Server Remote Desktop component provides remote access for the desktop of a computer running Terminal Services
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 Write Filter: The File Based Write Filter (FBWF) component 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), ASP.NET 2.0
- 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

V2406-24I-XPE: x86 ready-to-run embedded computer with Intel Atom N270, VGA, DVI-I, Audio, 2 LANs, 4 serial ports, 6 DIs, 2 DOs, 3 USB 2.0 ports, CF, Windows Embedded Standard 2009, -25 to 60°C operating temperature (EN 50155 Class T1)

V2406-24I-LX: x86 ready-to-run embedded computer with Intel Atom N270, VGA, DVI-I, Audio, 2 LANs, 4 serial ports, 6 DIs, 2 DOs, 3 USB 2.0 ports, CF, Linux 2.6, -25 to 60°C operating temperature (EN 50155 Class T1)

V2406-24I-T-XPE: x86 ready-to-run embedded computer with Intel Atom N270, VGA, DVI-I, Audio, 2 LANs, 4 serial ports, 6 DIs, 2 DOs, 3 USB 2.0 ports, CF, Windows Embedded Standard 2009, -40 to 70°C operating temperature (EN 50155 Class TX)

V2406-24I-T-LX: x86 ready-to-run embedded computer with Intel Atom N270, VGA, DVI-I, Audio, 2 LANs, 4 serial ports, 6 DIs, 2 DOs, 3 USB 2.0 ports, CF, Linux 2.6, -40 to 70°C operating temperature (EN 50155 Class TX)

V2406-24I-CT-XPE: x86 ready-to-run embedded computer with Intel Atom N270, VGA, DVI-I, Audio, 2 LANs, 4 serial ports, 6 DIs, 2 DOs, 3 USB 2.0 ports, CF, conformal coating, Windows Embedded Standard 2009, -25 to 60°C operating temperature (EN 50155 Class T1)

V2406-24I-CT-LX: x86 ready-to-run embedded computer with Intel Atom N270, VGA, DVI-I, Audio, 2 LANs, 4 serial ports, 6 DIs, 2 DOs, 3 USB 2.0 ports, CF, conformal coating, Linux 2.6, -25 to 60°C operating temperature (EN 50155 Class T1)

V2406-24I-CT-T-XPE: x86 ready-to-run embedded computer with Intel Atom N270, VGA, DVI-I, Audio, 2 LANs, 4 serial ports, 6 DIs, 2 DOs, 3 USB 2.0 ports, conformal coating, CF, Windows Embedded Standard 2009, -40 to 70°C operating temperature (EN 50155 Class TX)

V2406-24I-CT-T-LX: x86 ready-to-run embedded computer with Intel Atom N270, VGA, DVI-I, Audio, 2 LANs, 4 serial ports, 6 DIs, 2 DOs, 3 USB 2.0 ports, CF, conformal coating, Linux 2.6, -40 to 70°C operating temperature (EN 50155 Class TX)

Optional Accessories (can be purchased separately)

PWR-24250-DT-S1: Power adaptor
PWC-C7US-2B-183: Power cord with 2-pin connector, USA plug
PWC-C7EU-2B-183: Power cord with 2-pin connector, Euro plug
PWC-C7UK-2B-183: Power cord with 2-pin connector, British plug
PWC-C7AU-2B-183: Power cord with 2-pin connector, Australia plug
PWC-C7CN-2B-183: Power cord with 2-pin connector, China plug
FK-75125-02: Hard disk installation package (for HDD, SSD, EN 50155)
DK-DC50131-01: DIN-Rail mounting kit

M12 Connectors (can be purchased separately)

M12A-5P-IP68: Field-installation A-coded screw-in power connector, 5-pin female M12 connector, IP68-rated
M12D-4P-IP68: Field-installation D-coded screw-in Ethernet connector, 4-pin male M12 connector, IP68-rated
M12A-5PMM-IP68: D-coded screw-in USB connector, 5-pin male M12 connector, IP68-rated

M12 Cables (can be purchased separately)

CBL-M12(FF5P)/Open-100 IP67: 1-meter A-coded M12-to-5-pin power cable, 5-pin female M12 connector, IP67-rated
CBL-M12D(MM4P)/RJ45-100 IP67: 1-meter D-coded M12-to-RJ45 Cat-5C UTP Ethernet cable, 4-pin male M12 connector, IP67-rated