

# 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**



- > 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)
- > CompactFlash socket for storage expansion
- > 1 SATA-II connector for hard disk drive expansion
- > M12 power connector
- > Compliant with EN 50121-4 and essential sections of EN 50155
- > -40 to 70°C wide temperature models available
- > Conformal coating models available



## 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

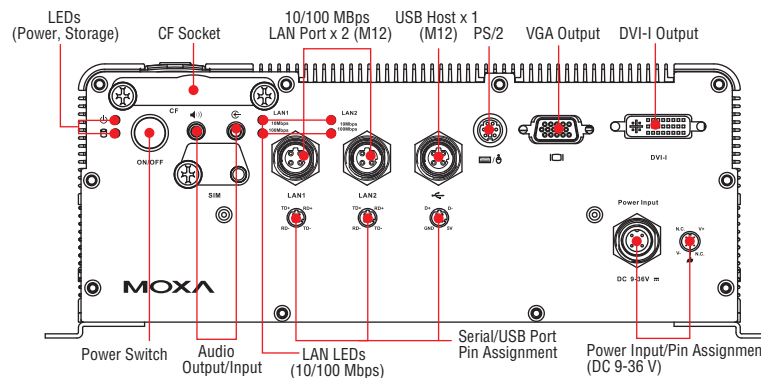
choice for rail and industrial applications.

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.

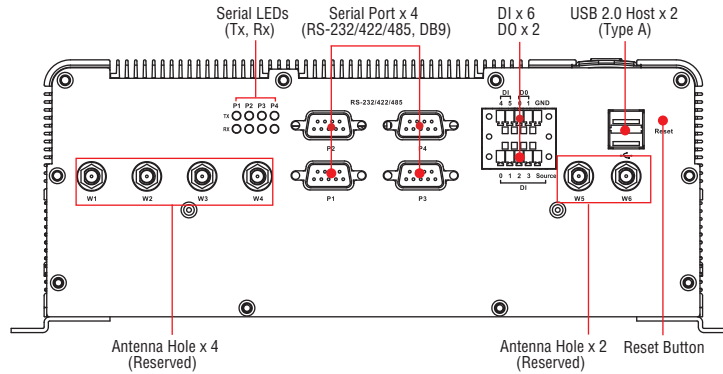
Models with conformal coating are also available to offer reliable operation during harsh environments for a variety of industrial applications.

## Appearance

Front View



## Rear View



## 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:** 2 GB capacity, 1 GB pre-installed: 1 x DDR2-533 200 pin SO-DIMM SDRAM slot  
**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 (chronitel 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

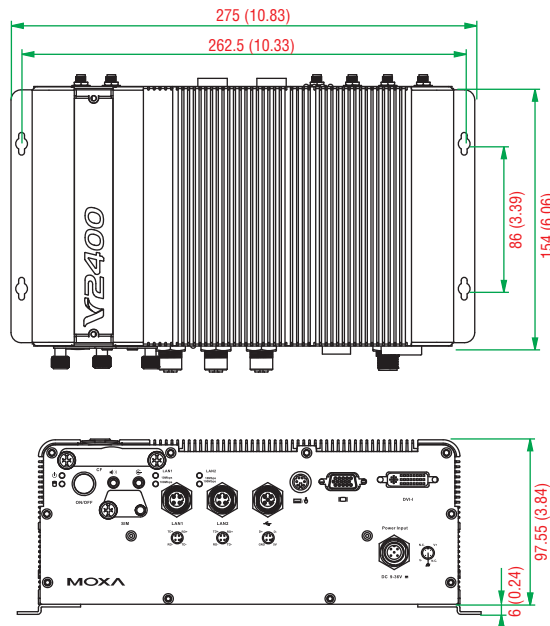
**Warranty Period:** 3 years

**Details:** See [www.moxa.com/warranty](http://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)



### 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, SMTP, 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

**Package Checklist**

- V2406-24I embedded computer
- PS2 to KB/MS Y-type cable
- Documentation and software CD or DVD
- Quick installation guide (printed)
- Warranty card