V2406 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

-40°C 70°C

> 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, supporting non-standard baudrates
> 3 USB 2.0 ports for high speed peripherals
> 6 DIs, 2 DOs
> CompactFlash socket for storage expansion
> 1 SATA-150 connector for hard disk drive expansion
> M12 power connector
> EN50155 certified
> Ready-to-run Embedded Linux, or Windows Embedded Standard 2009 platform
> -40 to 70°C wide temperature models available

Microsoft® **Windows**® Embedded   CCC   RoHS   CE   FC   c(UL)us LISTED

Overview

The V2406 Series embedded computers are based on the Intel Atom N270 x86 processor, and feature 4 RS-232/422/485 serial ports, dual LAN ports, and 3 USB 2.0 hosts. In addition, the V2406 computers provide VGA and DVI-I outputs , and are EN50155 certified, making them particularly well-suited for railway and industrial applications.
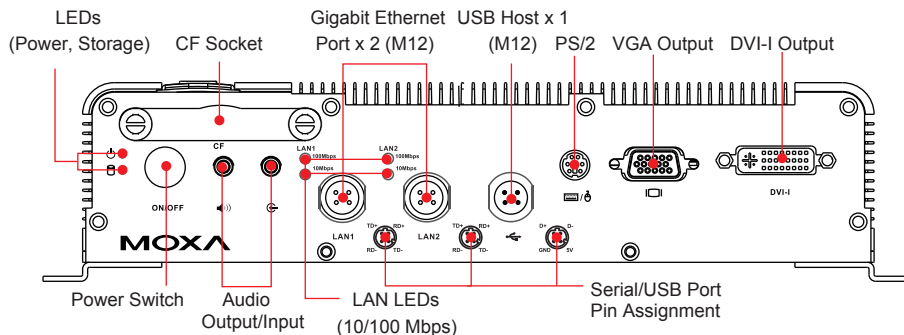
The dual 10/100 Mbps Ethernet ports with M12 connectors offer a reliable solution for network redundancy, promising continuous operation for data communication and management. As an added convenience, the V2406 computers have 6 DIs and 2 DOs for

connecting digital input/output devices, and the CompactFlash feature provides the reliability needed for industrial applications that require data buffering and storage expansion.
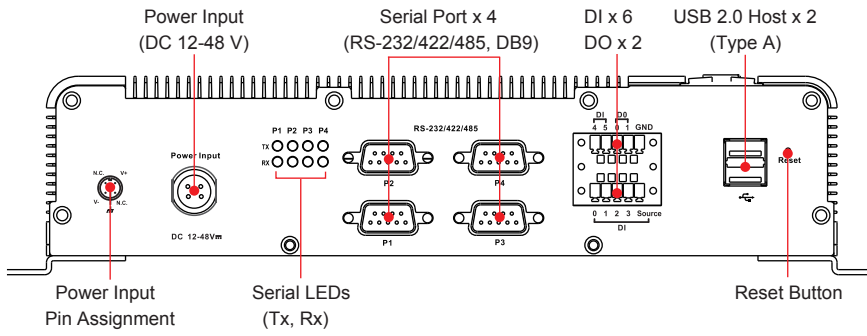
Pre-installed with Linux or Windows Embedded Standard 2009, the V2406 Series provides programmers with a friendly environment for developing sophisticated, bug-free application software at a low cost. Wide temperature models of the V2406 Series that operate reliably in a -40 to 70°C operating temperature range are also available, offering an optimal solution for applications subjected to harsh environments.
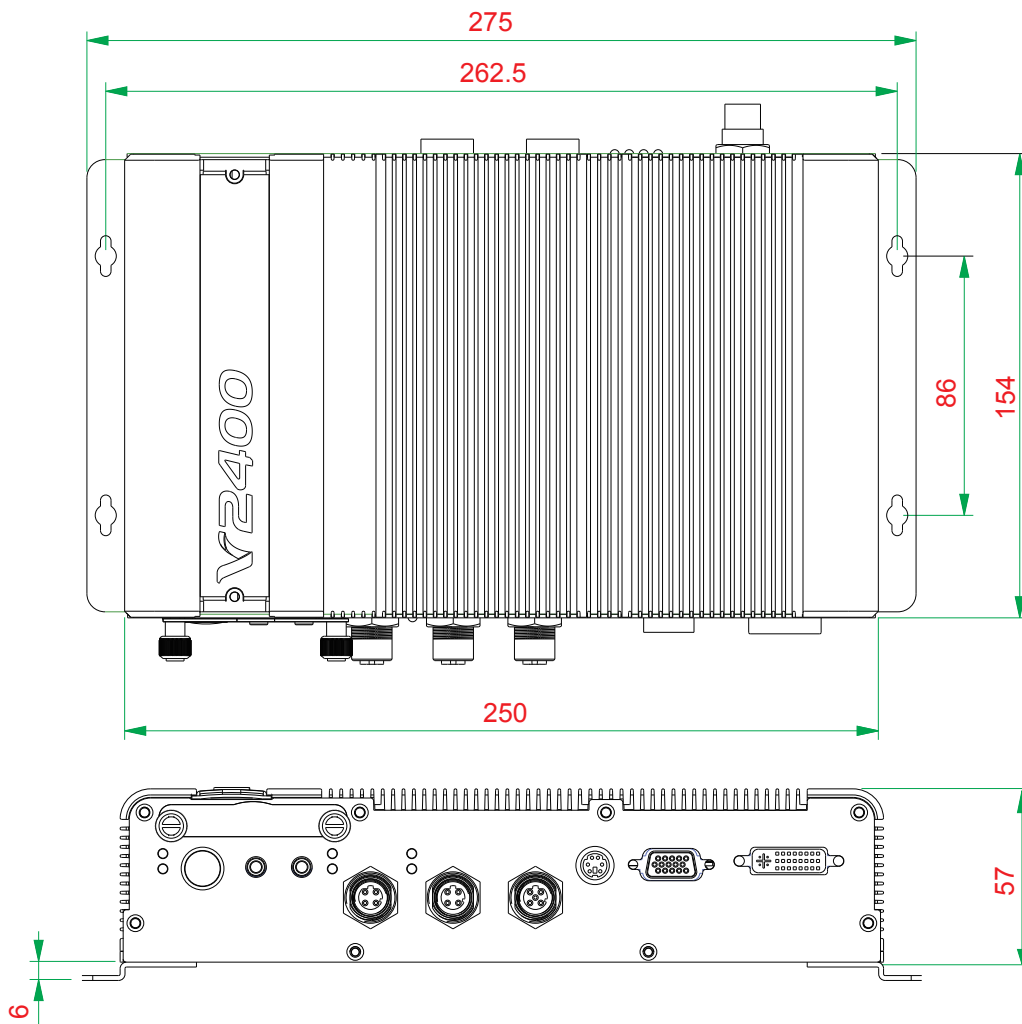
Appearance

Front View

MOXA®

Rear View

Power Input
(DC 12-48 V)

Serial Port x 4
(RS-232/422/485, DB9)

DI x 6
DO x 2

USB 2.0 Host x 2
(Type A)

P1 P2 P3 P4

RS-232/422/485

TX

RX

Power Input

P2

P4

DI D0

GND

Reset

DC 12-48Vin

P1

P3

0 1 2 3 Source

DI

Power Input
Pin Assignment

Serial LEDs
(Tx, Rx)

Reset Button

Dimensions (unit = mm)

275

262.5

V2400

86

154

250

57

6

: 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 support DDR2 533 up to 2 GB, built-in 1 GB
USB: USB 2.0 compliant hosts, type A connector 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-150 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 pin 9 signal can be selected as N/C (default), +5 V, or +12 V by jumper
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
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. 20 mA per channel
On-state Voltage: 24 VDC nominal
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: 2 kg
Dimensions:
Without ears: 250 x 57 x 154 mm (9.84 x 2.24 x 6.06 in)
With ears: 275 x 63 x 154 mm (10.83 x 2.48 x 6.06 in)
Mounting: DIN-Rail, wall, VESA

Environmental Limits
Operating Temperature:
Standard models: -25 to 55°C (-13 to 131°F)
Wide temp. models: -40 to 70°C (-40 to 158°F)
Operating Humidity: 5 to 95% RH
Storage Temperature:
Standard models: -20 to 80°C (-4 to 176°F)
Wide temp. models: -40 to 85°C (-40 to 185°F)
Anti-vibration: EN50155 standard
Anti-shock: EN50155 standard

Power Requirements
Input Voltage: 12 to 48 VDC (M12 connector)
Power Consumption: 26 W
2.16 A @ 12 VDC
1.08 A @ 24 VDC
542 mA @ 48 VDC

Regulatory Approvals
EMC: CE, FCC, CCC, EN50155
Safety: UL/cUL, LVD, CCC
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

: Software Specifications

Linux

Distribution: Debian Etch 5.0
Kernel Version: 2.6.26
Protocol Stack: TCP, UDP, IPv4, SNMP V1, ICMP, ARP, HTTP, CHAP, PAP, SSH 1.0/2.0, SSL, DHCP, NTP, NFS, Telnet, FTP, PPP, PPPoE
File System: EXT2
System Utilities: bash, busybox, login, telnet, ftp, ssh, openbsd-inetd, apt, apt-utils, dpkg, grub, udev
telnetd: telnet Server daemon
ftpd: FTP server daemon
sshd: secure shell server
Apache: web server daemon, supporting PHP and XML
openvpn: virtual private network service manager
iptables: Firewall service manager
NAT: Network Address Translation
pppd: dial in/out over serial port daemon & PPPoE
pppoe: PPP over ethernet
tftp/tftpd: Trivial file transfer protocol client/server
snmpd: snmpd agent daemon
usbmount: supports USB PnP
DHCP Client: dhcp3-client
cron: to manage regular background processing
grep: NU grep, egrep, and fgrep
minicom: friendly serial communication program
watchdog: software watchdog
inetd: TCP server manager program
Application Development Environment: GNU Make 3.8.1 (GNU make utility to maintain groups of programs)
Automatic Configuration Script Builder: autoconf 2.13
gcc: GNU C compiler
g++: GNU C++ compiler
libc6-dev: GNU C library (development libraries and headers)
Perl: Pratical Extraction and Report Language
Vim: Vi IMproved (enhanced vi editor)

Windows XP Embedded

Version: Windows Embedded Standard 2009
File System: NTFS
Protocol Stack: DHCP, IPv4, DNS, IPsec, HTTP, TCP, UDP, ICMP, IGMP, ARP, TAPI, TSP, SNMP V2, NTP, ICS, PPP, CHAP, EAP, SNTP, Telnet, FTP, SMTP, PPPoE, PPTP, NetBIOS, remote Desktop Protocol 6.1
Telnet Server: Allows users to connect to Telnet servers from remote computers.
IIS Web Server: Allows you to create and manage Web sites.
Terminal Server: Microsoft Terminal Server client application (mstsc.exe).
COM+ Services: The next evolution of Microsoft Component Object Model (COM) and Microsoft Transaction Server (MTS).
Computer Browser Service: Computer browsing functionality exposed by Windows through Microsoft Networking. Allows a client machine to browse its network neighborhood for available computers exposing file and print sharing services.
Internet Explorer 7: The Internet Explorer Web browser that allows customers to connect to the Internet or to an intranet (see properties via inetcpl.cpl)
Windows Media Player 11: Playback functionality for digital media that includes videos, CDs, and DVDs for end users and developers.
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.

Disk Management Services: Support for disk and volume management operations. The component implements a Component Object Model (COM) interface that can be used to query and configure disks and volumes, both basic and dynamic. The component also monitors disk arrivals and removals and other changes in the storage subsystem.
Remote Registry Service: Enables remote users to modify registry settings on this computer.
Watchdog: A hardware function to reset CPU in a user specified time interval (triggered by calling a MOXA library function).
Enhanced Write Filter: Redirect disk write operations to volatile (RAM) or non-volatile (disk) storage
Application Development Software:
• Microsoft .Net Framework 3.5 (CLR and the .NET Framework class library)
• Active Directory Service Interface (ADSI) Core
• Active Template Library (ATL),ASP.NET 2.0
• Certificate Request Client & Certificate Autoenrollment
• Common Control Libraries
• Common File Dialogs
• Direct3D, DirectPlay, DirectShow and Direct show filters
• Distributed Transaction Coordinator (MSDTC)
• Event Log, Internet Explorer
• Mapi32 Libraries
• Message Queuing (MSMQ) Core
• Microsoft Visual C++ Run Time Libraries
• Power Management dynamic-link library
• Registry Editor
• Registry Filter
• RPC
• Smart Card Cryptographic Service Providers
• USB 2.0 core drivers compliant with USB .95 or 1.0
• Windows API, Script Engines, and WMI
• XML paper specification

: Ordering Information

Available Models

V2406-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 55°C operating temperature

V2406-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 55°C operating temperature

V2406-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

V2406-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

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-75125-01: Hard disk installation package
DK-DC50131-01: DIN-Rail mounting kit

Package Checklist

- V2406 embedded computer
- Terminal block to power jack converter
- PS2 to KB/MS Y-type cable
- Document and Software CD or DVD
- Quick Installation Guide (printed)
- Product Warranty Statement (printed)