

V2422 Series

x86 ready-to-run embedded computers with Intel Atom N270, VGA, DVI-I, audio, 2 Gigabit LANs, 4 serial ports, 4 DIs, 4 DOs, 6 USB 2.0 ports, CompactFlash, 2 peripheral expansion slots



- > 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 10/100/1000 Mbps Ethernet ports
- > 4 RS-232/422/485 serial ports (non-standard baudrates supported)
- > 6 USB 2.0 ports for high speed peripherals
- > 4 DIs, 4 DOs
- > CompactFlash socket for storage expansion
- > 1 SATA-II connector for hard disk drive expansion
- > Ready-to-run Embedded Linux, or Windows Embedded Standard 2009 platform



Overview

The V2422 Series embedded computers are based on the Intel Atom N270 x86 processor, and feature 4 RS-232/422/485 serial ports, dual Gigabit LAN ports, and 6 USB 2.0 hosts. In addition, the V2422 computers provide VGA and DVI-I outputs, and are EN 50155 certified, making them particularly well-suited for railway and industrial applications.

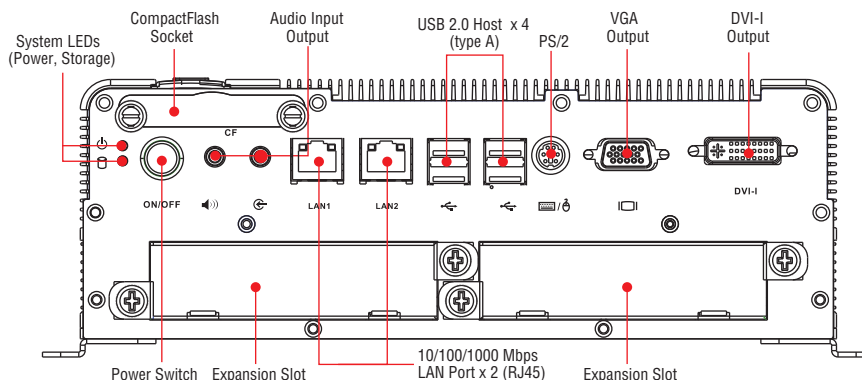
The dual 10/100/1000 Mbps Ethernet ports offer a reliable solution for network redundancy, promising continuous operation for data communication and management. As an added convenience, the V2422 computers have 4 DIs and 4 DOs for connecting digital input/output devices. In addition, the CompactFlash socket, SATA connector,

and USB sockets provide the V2422 computers with the reliability needed for industrial applications that require data buffering and storage expansion. Moreover, the V2422 computers come with 2 peripheral expansion slots for inserting different communication modules, such as a 2-port CAN module, an HSDPA, GPS, WLAN module, an 8+8 port digital input/output module, a 2-port serial module, a mini PCI expansion module, and a PCI Express module, providing greater flexibility for setting up different industrial applications at field sites.

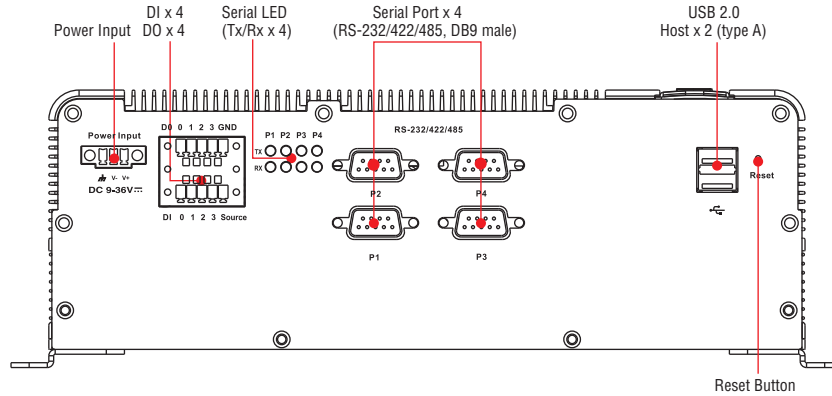
Pre-installed with Linux or Windows Embedded Standard 2009, the V2422 Series provides programmers with a friendly environment for developing sophisticated, bug-free application software at a low cost.

Appearance

Front View

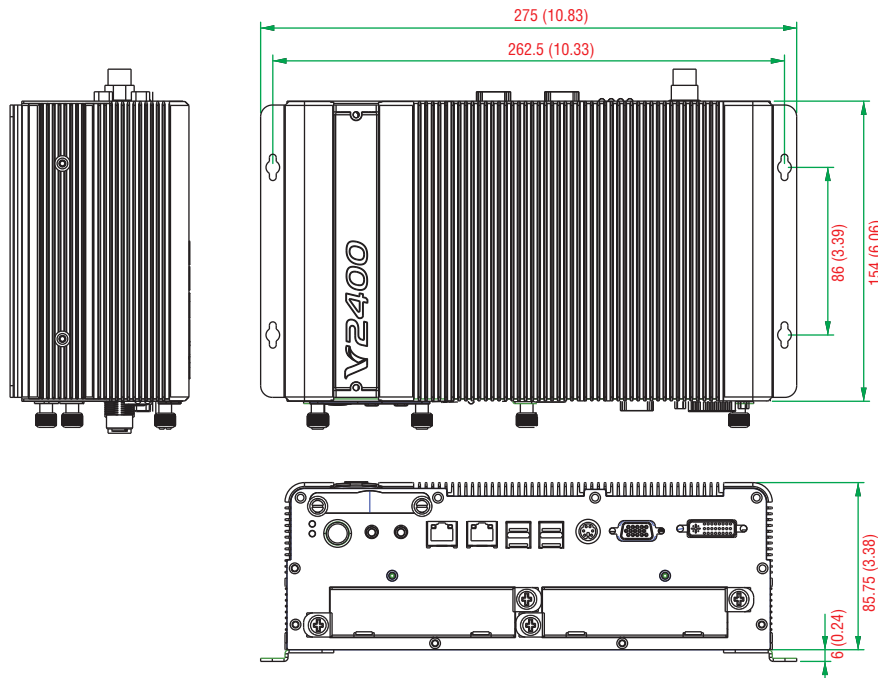


Rear View



Dimensions

Unit: mm (inch)



: 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
Expansion Bus: PCI interface reserved
USB: USB 2.0 compliant hosts, type A connector x 6, supports system boot up

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 10/100/1000 Mbps ports (RJ45)

Magnetic Isolation Protection: 1.5 KV

Serial Interface

Serial Standards:

4 RS-232/422/485 ports*, software selectable (DB9 male)

*COM1's pin 9 signal can be set 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: 4, 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: 4, 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 (4 DI points, 4 DO points, DI Source, GND)

Isolation: 3 KV optical isolation

LEDs

System: Power, Storage

LAN: 100M/Link x 2, 1000M/Link x 2

Serial: TX x 4, RX x 4

Switches and Buttons

Power Switch: on/off (front panel)

Reset Button: For warm reboot (rear panel)

Physical Characteristics

Housing: Aluminum

Weight: 4 kg

Dimensions:

Without ears: 154 x 250 x 86 mm (6.06 x 9.84 x 3.39 in)

With ears: 154 x 275 x 92 mm (6.06 x 10.83 x 3.62 in)

Mounting: DIN-Rail, wall, VESA

Environmental Limits

Operating Temperature: -10 to 60°C (14 to 140°F)

Storage Temperature: -20 to 80°C (-4 to 176°F)

Ambient Relative Humidity: 5 to 95% (non-condensing)

Anti-vibration: 5 g rms @ IEC-68-2-34, random wave, 5-500 Hz, 1 hr/axis

Anti-shock: 50 g @ IEC-68-2-27, half sine wave, 11 ms

Power Requirements

Input Voltage: 9 to 36 VDC (3-pin terminal block for V+, V-, SG)

Power Consumption: 48 W

5.3 A @ 9 VDC

2 A @ 24 VDC

1.3 A @ 36 VDC

Standards and Certifications

Safety: UL 508, UL 60950-1, CSA C22.2 No. 60950-1-07, EN 60950-1, CCC (GB9254, GB17625.1)

EMC: EN 55022 Class A, EN 61000-3-2 Class D, EN 61000-3-3, EN 55024, FCC Part 15 Subpart B Class A

Wheeled Vehicles: e-Mark (e4)

Green Product: RoHS, CRoHS, WEEE

Reliability

Automatic Reboot Trigger: Built-in WDT (watchdog timer) supporting 1-255 level time interval system reset, software programmable

MTBF (mean time between failures): 144,114 hrs

Warranty

Warranty Period: 3 years

Details: See www.moxa.com/warranty

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)
- 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

V2422-XPE: x86 ready-to-run embedded computer with Intel Atom N270, VGA, DVI-I, Audio, 2 LANs, 4 serial ports, 4 DIs, 4 DOs, 6 USB 2.0 ports, CF, 2 peripheral expansion slots, Windows Embedded Standard 2009

V2422-LX: x86 ready-to-run embedded computer with Intel Atom N270, VGA, DVI-I, Audio, 2 LANs, 4 serial ports, 4 DIs, 4 DOs, 6 USB 2.0 ports, CF, 2 peripheral expansion slots, Linux 2.6

Expansion Modules (can be purchased separately)

EPM-3112: 2 isolated CAN ports, DB9 connector

EPM-3337: HSDPA, GPS, WLAN (11a/b/g/n)

EPM-3438: 8+8 DI/DO with 2 KV digital isolation protection, 2 KHz counter

EPM-3032: 2 isolated RS-232/422/485 ports with DB9 connectors

EPM-DK01: 1-slot mini PCI and mini PCIe expansion module

EPM-3552: 1 VGA or DVI-I display connector

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 (for SSD)

DK-DC50131-01: DIN-Rail mounting kit

Package Checklist

- V2422 embedded computer
- Terminal block to power jack converter
- Wall mounting kit
- PS2 to KB/MS Y-type cable
- Documentation and software CD or DVD
- Quick installation guide (printed)
- Warranty card