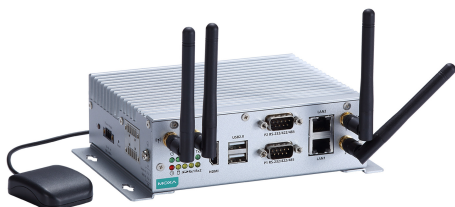


# V2201 Series

Fanless, ultra-compact x86 IIoT embedded computers and gateways



## Features and Benefits

- Intel Atom E3800 Series processor with three performance options
- Dual mini-PCIe sockets for wireless modules, supports Wi-Fi, 3G, LTE, and GPS<sup>1</sup>
- -40 to 85°C system operating temperature (-40 to 70°C with LTE module installed)<sup>1</sup>
- Variety of interfaces: 2 serial ports, 2 Ethernet LAN ports, 4 DIs, 4 DOs, SD, USB, HDMI, wireless
- EN 61000-6-2 and EN 61000-6-4 certification;<sup>2</sup> meets EMC standard for heavy industry
- Up to 5 Grms anti-vibration protection and 100 g/11 ms anti-shock protection
- Ready-to-run Debian 8, Windows Embedded Standard 7, and Windows 10 Embedded IoT Enterprise 2016 LTSB platforms
- Moxa Proactive Monitoring utility for system hardware health monitoring
- Moxa Smart Recovery utility to recover system from boot failure (W7E only)

## Certifications



## Introduction

The V2201 Series ultra-compact x86 embedded computer is based on the Intel® Atom™ E3800 Series processor, features the most reliable I/O design to maximize connectivity, and supports dual wireless modules, making it suitable for a diverse range of communication applications.<sup>1</sup> The computer's thermal design ensures reliable system operation in temperatures ranging from -40 to 85°C (-40 to 70°C with a special purpose Moxa wireless module installed). The V2201 Series supports "Moxa Hardware Monitoring" for device I/O status monitoring and alerts, system temperature monitoring and alerts, and system power management. Monitoring system status closely makes it easier to recover from errors and provides the most reliable platform for your applications.

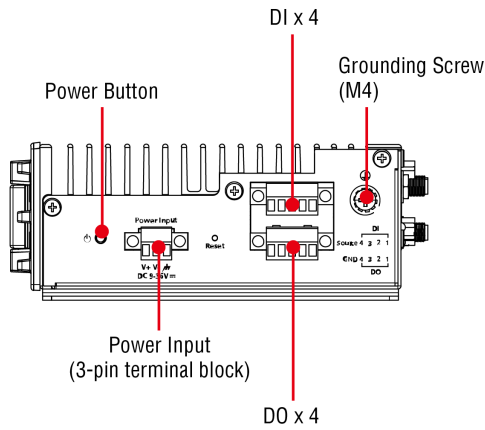
## Applications

- Remote Terminal Unit (RTU)
- Data acquisition
- M2M communication (smart gateway)
- Digital signage
- Factory automation
- In-vehicle monitor/data logger (transportation)
- Programmable router
- Energy usage optimization
- Predictive maintenance
- Asset management

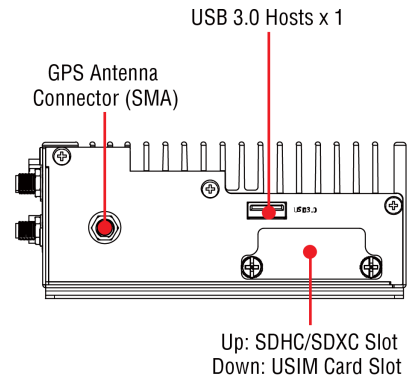
1. Wireless modules must be purchased separately.  
2. Passed with AC/DC adapter.

## Appearance

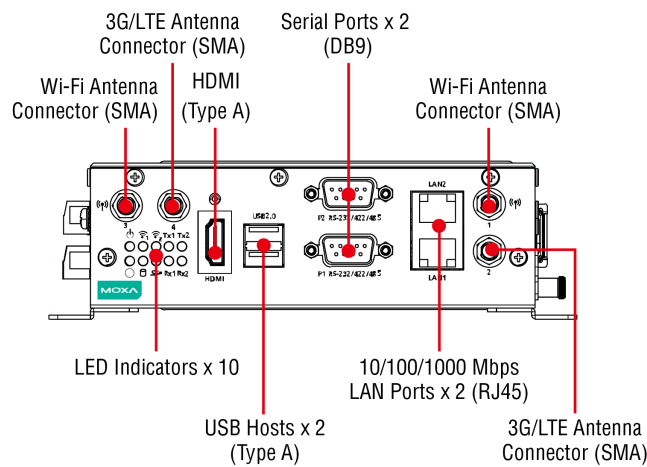
### Left Side View



### Right Side View



### Front View



## Specifications

### Computer

|                             |  |
|-----------------------------|--|
| CPU                         | V2201-E1 Series: Intel Atom Processor E3815 (Single core, 512 K cache, 1.46 GHz)<br>V2201-E2 Series: Intel Atom Processor E3826 (Dual core, 1 M cache, 1.46 GHz)<br>V2201-E4 Series: Intel Atom Processor E3845 (Quad core, 2 M cache, 1.91 GHz) |
| System Memory Pre-installed | 4 GB DDR3L   |
| System Memory Slot          | SODIMM DDR3/DDR3L slot x 1   |
| Supported OS                | Linux Debian 8 (Linux kernel v4.1)<br>Windows Embedded Standard 7 (WS7E) 32-bit<br>Windows Embedded Standard 7 (WS7E) 64-bit   |
| Storage Slot                | mSATA slots x 1<br>SD 3.0 (SDHC/SDXC) socket x 1   |

### Computer Interface

|                |  |
|----------------|--|
| Ethernet Ports | Auto-sensing 10/100/1000 Mbps ports (RJ45 connector) x 2 |
| Serial Ports   | RS-232/422/485 ports x 2, software selectable (DB9 male) |
| USB 2.0        | USB 2.0 hosts x 2, type-A connectors                     |
| USB 3.0        | USB 3.0 hosts x 1, type-A connectors                     |
| Digital Input  | DIs x 4  |

|                            |                                   |
|----------------------------|-----------------------------------|
| Digital Output             | DOs x 4                           |
| Expansion Slots            | mPCIe slot x 2                    |
| Video Output               | HDMI x 1, HDMI connector (type A) |
| Wi-Fi Antenna Connector    | RP-SMA x 2                        |
| Cellular Antenna Connector | SMA x 2                           |
| Number of SIMs             | 1                                 |
| SIM Format                 | Mini                              |
| GPS Antenna Connector      | SMA x 1                           |

#### Digital Inputs

|                         |   |
|-------------------------|---|
| Isolation               | 3K VDC                                  |
| Connector               | Screw-fastened Euroblock terminal       |
| Dry Contact             | On: short to GND<br>Off: open           |
| I/O Mode                | DI                                      |
| Sensor Type             | Dry contact<br>Wet Contact (NPN or PNP) |
| Wet Contact (DI to COM) | On: 10 to 30 VDC<br>Off: 0 to 3 VDC     |

#### Digital Outputs

|                |                                   |
|----------------|-----------------------------------|
| Connector      | Screw-fastened Euroblock terminal |
| Current Rating | 200 mA per channel                |
| I/O Type       | Sink                              |
| Voltage        | 24 to 30 VDC                      |

#### LED Indicators

|                          |  |
|--------------------------|--|
| System                   | Power x 1<br>Storage x 1<br>Programmable x 1 |
| Wireless Signal Strength | Cellular/Wi-Fi x 2                           |
| LAN                      | 1 per port (10/100/1000 Mbps)                |
| Serial                   | 2 per port (Tx, Rx)                          |
| System                   | SD slots x 1                                 |

#### Serial Interface

|              |  |
|--------------|--|
| Baudrate     | 50 bps to 115.2 kbps   |
| Flow Control | RTS/CTS, XON/XOFF, ADDC® (automatic data direction control) for RS-485, RTS Toggle (RS-232 only) |
| Isolation    | N/A  |
| Parity       | None, Even, Odd, Space, Mark   |
| Stop Bits    | 1, 1.5, 2  |

## Serial Signals

|           |  |
|-----------|--|
| RS-232    | TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND |
| RS-422    | Tx+, Tx-, Rx+, Rx-, GND                |
| RS-485-2w | Data+, Data-, GND                      |
| RS-485-4w | Tx+, Tx-, Rx+, Rx-, GND                |

## Power Parameters

|                          |                                |
|--------------------------|--------------------------------|
| Input Voltage            | 9 to 36 VDC                    |
| Power Connector          | Terminal block (for DC models) |
| Power Consumption (Max.) | 2000 mA @ 9 VDC                |
| Power Consumption        | 18 W (max.)                    |

## Physical Characteristics

|                           |  |
|---------------------------|--|
| Housing                   | Aluminum   |
| IP Rating                 | IP30   |
| Dimensions (with ears)    | 178 x 52.5 x 120.2 mm (7.01 x 2.07 x 4.73 in)        |
| Dimensions (without ears) | 150 x 48.8 x 120.2 mm (5.91 x 1.92 x 4.73 in)        |
| Weight                    | 940 g (2.09 lb)                                      |
| Installation              | DIN-rail mounting, Wall mounting (with optional kit) |

## Environmental Limits

|  |   |
|--|---|
| Operating Temperature                  | E1/E2 models: -40 to 85°C (-40 to 185°F)<br>E4 models: -40 to 70°C (-40 to 158°F) |
| Storage Temperature (package included) | -40 to 85°C (-40 to 185°F)  |
| Ambient Relative Humidity              | 5 to 95% (non-condensing)   |

## Standards and Certifications

|           |  |
|-----------|--|
| EMC       | EN 55032/24, EN 61000-6-2/-6-4   |
| EMI       | CISPR 32, FCC Part 15B Class A   |
| EMS       | IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 20 V/m<br>IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV<br>IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV<br>IEC 61000-4-6 CS: 10 V<br>IEC 61000-4-8 PFMF |
| Safety    | EN 60950-1, UL 508, UL 60950-1   |
| Shock     | IEC 60068-2-27   |
| Vibration | IEC 60068-2-64   |

## Declaration

|               |                   |
|---------------|-------------------|
| Green Product | RoHS, CRoHS, WEEE |
|---------------|-------------------|

## MTBF

|           |                          |
|-----------|--------------------------|
| Time      | 408,275 hrs              |
| Standards | Telcordia (Bellcore), GB |

## Warranty

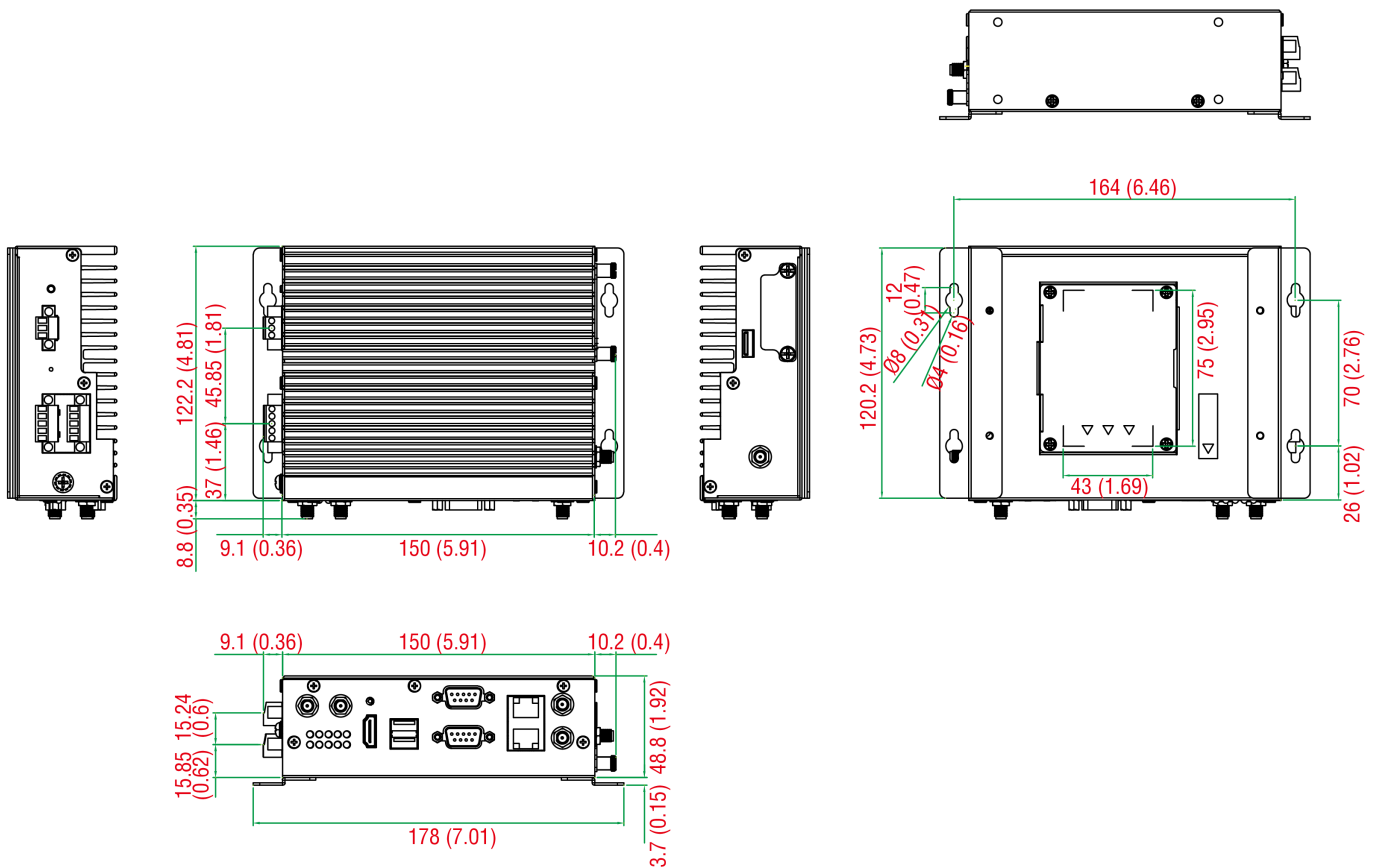
|                 |  |
|-----------------|--|
| Warranty Period | 3 years  |
| Details         | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> |

## Package Contents

|                  |   |
|------------------|---|
| Device           | 1 x V2201 Series computer   |
| Installation Kit | Wall-mounting kit (all models except V2201-E4-W-T-LX)<br>DIN-rail mounting kit (V2201-E4-W-T-LX)<br>1 x wall-mounting kit |
| Cable            | 1 x terminal block to power jack converter  |
| Documentation    | 1 x document and software CD<br>1 x quick installation guide<br>1 x warranty card   |

## Dimensions

Unit: mm (inch)



## Ordering Information

| Model Name | CPU               | Memory (Default) | mSATA (Default) | SD Card Slots | USIM Slot | Antenna Connectors | Operating Temp. |
|------------|-------------------|------------------|-----------------|---------------|-----------|--------------------|-----------------|
| V2201-E1-T | Intel Atom® E3815 | 4 GB             | 8 GB            | 1 (Optional)  | 1         | -                  | -40 to 85°C     |
| V2201-E2-T | Intel Atom® E3826 | 4 GB             | 8 GB            | 1 (Optional)  | 1         | -                  | -40 to 85°C     |
| V2201-E4-T | Intel Atom® E3845 | 4 GB             | 8 GB            | 1 (Optional)  | 1         | -                  | -40 to 70°C     |

| Model Name      | CPU               | Memory (Default) | mSATA (Default) | SD Card Slots | USIM Slot | Antenna Connectors | Operating Temp. |
|-----------------|-------------------|------------------|-----------------|---------------|-----------|--------------------|-----------------|
| V2201-E1-W-T    | Intel Atom® E3815 | 4 GB             | 8 GB            | 1 (Optional)  | 1         | 5                  | -40 to 85°C     |
| V2201-E2-W-T    | Intel Atom® E3826 | 4 GB             | 8 GB            | 1 (Optional)  | 1         | 5                  | -40 to 85°C     |
| V2201-E4-W-T    | Intel Atom® E3845 | 4 GB             | 8 GB            | 1 (Optional)  | 1         | 5                  | -40 to 70°C     |
| V2201-E1-T-LX   | Intel Atom® E3815 | 2 GB             | 8 GB            | 1 (Optional)  | 1         | –                  | -40 to 85°C     |
| V2201-E1-T-W7E  | Intel Atom® E3815 | 4 GB             | 8 GB            | 1 (Optional)  | 1         | –                  | -40 to 85°C     |
| V2201-E4-W-T-LX | Intel Atom® E3845 | 4 GB             | 32 GB           | 16 GB         | 1         | 5                  | -40 to 70°C     |

## Accessories (sold separately)

### Power Adapters

|                 |  |
|-----------------|--|
| PWR-24270-DT-S1 | Power adapter, input voltage 90 to 264 VAC, output voltage 24 V with 2.5 A DC load |
|-----------------|--|

### Power Cords

|                 |   |
|-----------------|---|
| PWC-C7AU-2B-183 | Power cord with Australian (AU) plug, 2.5A/250V, 1.83 m         |
| PWC-C7CN-2B-183 | Power cord with two-prong China (CN) plug, 1.83 m               |
| PWC-C7EU-2B-183 | Power cord with Continental Europe (EU) plug, 2.5A/250V, 1.83 m |
| PWC-C7UK-2B-183 | Power cord with United Kingdom (UK) plug, 2.5A/250V, 1.83 m     |
| PWC-C7US-2B-183 | Power cord with United States (US) plug, 10A/125V, 1.83 m       |

### DIN-Rail Mounting Kits

|               |                                 |
|---------------|---------------------------------|
| DK-DC50131-01 | DIN-rail mounting kit, 6 screws |
|---------------|---------------------------------|

### Antennas

|                   |  |
|-------------------|--|
| ANT-GPS-OSM-05-3M | Active GPS antenna, 26 dBi, 1572 MHz, L1 band antenna for GPS          |
| ANT-WCDMA-ASM-1.5 | GSM/GPRS/EDGE/UMTS/HSPA, omni-directional rubber duck antenna, 1.5 dBi |

### Antennas

|                |   |
|----------------|---|
| ANT-WDB-ARM-02 | 2.4/5 GHz, omni-directional rubber duck antenna, 2 dBi, RP-SMA (male) |
|----------------|---|

### Wi-Fi Wireless Modules

|                       |  |
|-----------------------|--|
| V2201 Wi-Fi mini card | SparkLAN WPEA-252NI Wi-Fi mini card , 4 black screws |
|-----------------------|--|

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