

# UC-8430 Series

**RISC-based industrial embedded computer with 8 serial ports, 4 DIs, 4 DOs, 3 LANs, CompactFlash, dual VGA, audio, 6 USB**



- > Intel XScale IXP435 533 MHz processor
- > 256 MB DDR2 SDRAM
- > 32 MB NAND Flash for data storage
- > 32 MB NOR Flash to store OS
- > Dual VGA displays
- > 3 10/100 Mbps Ethernet Ports
- > 8 RS-232/422/485 serial ports (non-standard baudrates supported)
- > 6 USB 2.0 ports for high speed access to peripherals
- > 4 digital input channels and 4 digital output channels
- > Supports IPv6 function (Linux model only)
- > CompactFlash socket for storage expansion
- > Ready-to-run Embedded Linux or Windows CE 6.0
- > Robust, fanless design



## Overview

The UC-8430 embedded computer comes with 8 RS-232/422/485 serial ports, 3 Ethernet ports, dual displays, 4 digital input channels, 4 digital output channels, a CompactFlash socket, and 6 USB 2.0 hosts.

The computer uses the Intel XScale IXP435 533 MHz RISC CPU. This powerful computing engine supports several useful communication functions, but will not generate too much heat. The built-in 32 MB NOR Flash ROM and 256 MB SDRAM give you enough memory to run your application software directly on the UC-8430, and the 32 MB NAND Flash can be used to provide additional data storage.

Moreover, the 256 KB SRAM offers a better data retention mechanism for avoiding data loss. The UC-8430 computer comes with 8 RS-232/422/485 serial ports, digital I/O, and has 3 LAN ports, making it ideal as a communication platform for industrial applications that

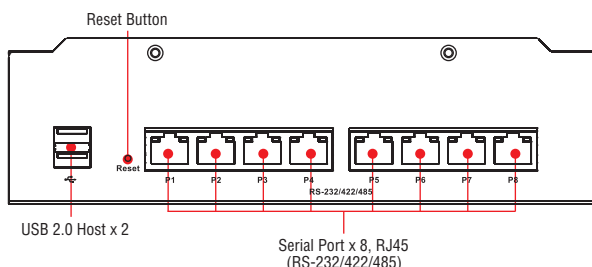
require network redundancy. As an added convenience, the UC-8430 comes with dual VGA outputs; this is particularly helpful when establishing an industrial application at a remote field site.

The UC-8430 comes with the Linux 2.6 or Windows CE 6.0 platform pre-installed to provide an open software operating system for software program development. Software written for a desktop PC can be easily ported to the UC-8430 platform by using a common compiler, without needing to modify the code. This makes the UC-8430 an optimal solution for use with industrial applications, but with minimal cost and effort.

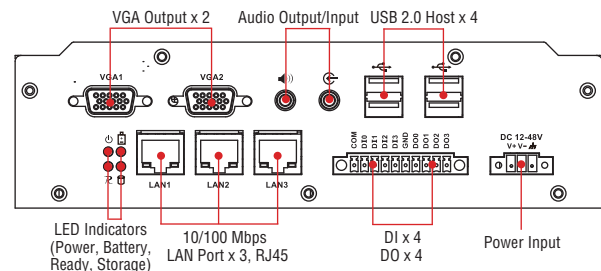
A wide temperature model of the UC-8430, designed to operate reliably in temperatures ranging from -40 to 75°C, is also available.

## Appearance

### Front View

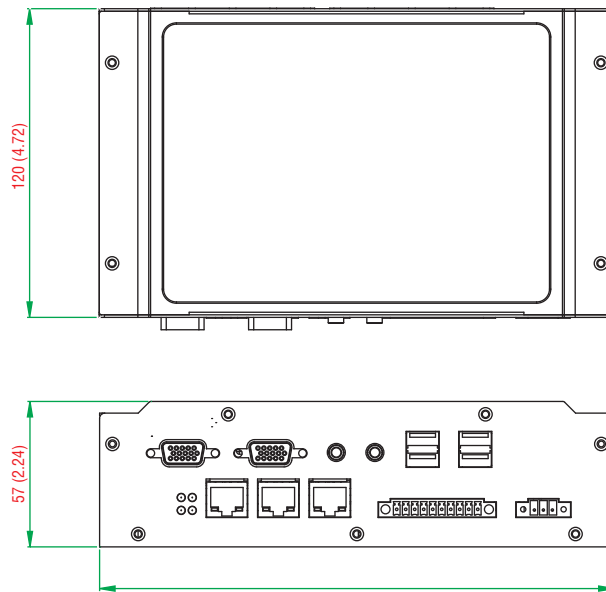


### Rear View



## Dimensions

Unit: mm (inch)



## Hardware Specifications

### Computer

**CPU:** Intel XScale IXP435, 533 MHz

**OS (pre-installed):** Linux, Window CE 6.0

**DRAM:** 256 MB DDR2 SDRAM onboard (supports DDR2 up to 512 MB)

**SRAM:** 256 KB, battery backup

### Flash:

32 MB NOR Flash onboard to store OS

32 MB NAND Flash onboard to store data

**USB:** USB 2.0 host x 6

### Storage

**Storage Expansion:** CompactFlash socket

**Expansion Bus:** PCI/104

### Other Peripherals

**Audio:** SM502 chip with line-in/out interface

### Display

**Graphics Controller:** SM502 chip

**Display Interface:** 15-pin D-Sub connector x 2

**Resolution:** CRT display mode with pixel resolution up to 1024 x 768

### Ethernet Interface

**LAN:** 3 auto-sensing 10/100 Mbps ports (RJ45)

**Magnetic Isolation Protection:** 1.5 kV built-in

### Serial Interface

**Serial Standards:** 8 RS-232/422/485 ports, software-selectable (8-pin RJ45)

**Console Port:** RS-232 (TxD, RxD, GND), 4-pin pin header output (115200, n, 8, 1)

### 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 (supports non-standard baudrates; 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

#### 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 (COM to DI)

**Connector Type:** 10-pin screw terminal block (4 points, COM, GND)

**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 V

**Connector Type:** 10-pin screw terminal block (4 points, GND)

### LEDs

**System:** Power, Ready, Storage, Battery for SRAM

**LAN:** 10M/Link x 3, 100M/Link x 3 (on connector)

**Serial:** TxD x 8, RxD x 8

**Reset Button:** Supports "Reset to Factory Default"

### Physical Characteristics

**Housing:** SECC sheet metal (1 mm)

**Weight:** 1 kg

**Dimensions:** 200 x 57 x 120 mm (7.87 x 2.24 x 4.72 in)

**Mounting:** DIN-Rail, wall

### Environmental Limits

#### Operating Temperature:

Standard Models: -10 to 60°C (14 to 140°F)

Wide Temp. Models: -40 to 75°C (-40 to 167°F)

#### Storage Temperature:

Standard Models: -20 to 75°C (-4 to 167°F)

Wide Temp. Models: -40 to 85°C (-40 to 185°F)

**Ambient Relative Humidity:** 5 to 95% (non-condensing)  
**Anti-vibration:** 2 g rms @ IEC-68-2-34, random wave, 5-500 Hz, 1 hr per axis  
**Anti-shock:** 20 g @ IEC-68-2-27, half sine wave, 30 ms

### Power Requirements

**Input Voltage:** 12 to 48 VDC (3-pin terminal block)  
**Power Consumption:** 14 W  
 • 270 mA @ 48 VDC  
 • 533 mA @ 24 VDC  
 • 1120 mA @ 12 VDC

### Standards and Certifications

**Safety:** UL 60950-1, EN 60950-1, CCC (GB9254, GB17625.1)  
**EMC:** EN55022 Class B, EN 55024-4-2, EN 55024-4-3, EN 55024-4-4, FCC Part 15 Subpart B Class B

### Reliability

**Alert Tools:** Built-in buzzer and RTC (real-time clock)  
**Automatic Reboot Trigger:** Built-in WDT (watchdog timer)  
**MTBF (mean time between failures):** 217,675 hrs

### Warranty

**Warranty Period:** 5 years  
**Details:** See [www.moxa.com/warranty](http://www.moxa.com/warranty)  
**Note:** The Hardware Specifications apply to the embedded computer unit itself, but not to accessories. In particular, the wide temperature specification does not apply to accessories such as the power adaptor and cables.

## Software Specifications

### Linux

**OS:** Linux 2.6.23  
**File System:** JFFS2, NFS, Ext2, Ext3  
**Internet Protocol Suite:** TCP, UDP, IPv4, IPv6, SNMPv1, ICMP, ARP, HTTP, CHAP, PAP, DHCP, NTP, NFS, SMTP, 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).  
**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++ cross-compiler  
 • GNU C library  
 • GDB source-level debugging server  
**QT Embedded:** Supports GUI development  
**Software Protection:** Encryption tool for user executable files (based on patented Moxa technology)

### Windows Embedded CE 6.0

**OS:** Windows Embedded CE 6.0 R3  
**File System:** FAT  
**Internet Protocol Suite:** TCP, UDP, IPv4, IPv6, SNMPv2, ICMP, IGMP, ARP, HTTP, CHAP, PAP, SSL, DHCP, SNTP, SMTP, Telnet, FTP, PPP  
**Web Server (WinCE IIS):** Supports ASP, ISAPI Secure Socket Layer (SSL 2/3) and Transport Layer Security (TLS/SSL 3.1) public key-based protocols, and Web Administration ISAPI Extensions  
**Dial-up Networking:** Supports RAS client API and PPP, Extensible Authentication Protocol (EAP), and RAS scripting  
**Watchdog:** Features a hardware function to trigger system reset in a user specified time interval. (Moxa API provided)  
**Application Development Software:**  
 • Moxa WinCE 6.0 SDK  
 • Moxa API Library  
 • C Libraries and Run-times  
 • Component Services (COM and DCOM)  
 • Microsoft® .NET Compact Framework 3.5  
 • XML, including DOM, XQL, XPATH, XSLT, SAX, SAX2  
 • SOAP Toolkit Client  
 • Winsock 2.2

## Ordering Information

### Available Models

**UC-8430-LX:** RISC-based industrial embedded computer with 8 serial ports, 4 DIs, 4 DOs, 3 LANs, CompactFlash, Dual VGA, Audio, 6 USB, Linux OS, -10 to 60°C operating temperature  
**UC-8430-CE:** RISC-based industrial embedded computer with 8 serial ports, 4 DIs, 4 DOs, 3 LANs, CompactFlash, Dual VGA, Audio, 6 USB, Windows CE 6.0 OS, -10 to 60°C operating temperature  
**UC-8430-T-LX:** RISC-based industrial embedded computer with 8 serial ports, 4 DIs, 4 DOs, 3 LANs, CompactFlash, Dual VGA, Audio, 6 USB, Linux OS, -40 to 75°C operating temperature  
**UC-8430-T-CE:** RISC-based industrial embedded computer with 8 serial ports, 4 DIs, 4 DOs, 3 LANs, CompactFlash, Dual VGA, Audio, 6 USB, Windows CE 6.0 OS, -40 to 75°C operating temperature

### Package Checklist

- UC-8430 embedded computer
- Wall mounting kit
- DIN-Rail mounting kit
- Ethernet cable: RJ45 to RJ45 cross-over cable, 100 cm
- CBL-4PINDB9F-100: 4-pin pin header to DB9 female console port cable, 100 cm
- Universal power adaptor (including power jack converter)
- Documentation and software CD or DVD
- Quick installation guide (printed)
- Warranty card