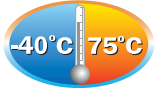


# UC-8410 Series

**RISC-based industrial embedded computer with 8 serial ports, 3 LANs, DIO, CompactFlash, USB**



- > Intel XScale IXP435 533 MHz processor
- > 256 MB DDR2 SDRAM and 16 MB Flash ROM onboard
- > 16 MB NOR Flash onboard to store OS, 32 MB NAND Flash onboard for data storage
- > 8 RS-232/422/485 serial ports
- > 4 digital input and 4 digital output channels
- > 3 10/100 Mbps Ethernet ports
- > 2 USB 2.0 hosts for mass storage devices
- > CompactFlash socket for storage expansion
- > Ready-to-run Linux platform
- > DIN-Rail or wall mounting installation
- > Robust, fanless design
- > Wide temperature model available

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.



## Overview

The UC-8410 embedded computers come with 8 RS-232/422/485 serial ports, 3 Ethernet ports, 4 digital input channels, 4 digital output channels, a CompactFlash socket, and 2 USB 2.0 hosts. The UC-8410 computers use the Intel XScale IXP435 533 MHz RISC CPU. This powerful computing engine supports several useful communication functions, but does not generate a lot of heat. The built-in 16 MB NOR Flash ROM and 256 MB SDRAM give you enough memory to run your application software directly on the UC-8410, and the 32 MB NAND Flash can be used for data storage.

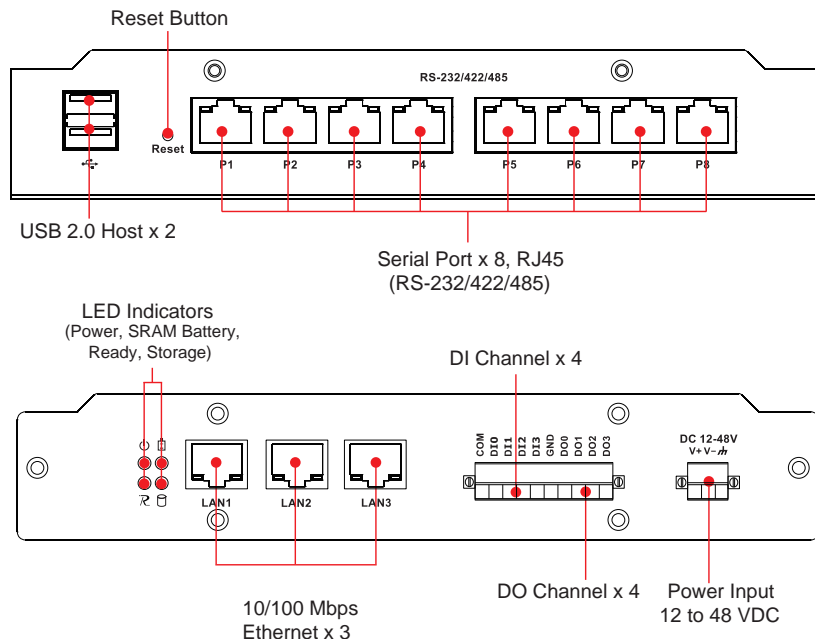
The UC-8410 computers support RS-232/422/485 serial ports, digital I/O channels, and has 3 LAN ports, making them ideal as

communication platforms for industrial applications that require network redundancy.

The UC-8410 computers come with the Linux 2.6 platform pre-installed to provide an open standard operating system for software program development. Software written for a desktop PC can be easily ported to the UC-8410 without modifying the code—all that's needed is a common compiler. This makes the UC-8410 an optimal solution for minimizing the cost and effort required for industrial applications.

In addition to the standard model, a wide temperature (-40 to 75°C) model of the UC-8410 is also available for use in harsh industrial environments.

## Appearance



## Hardware Specifications

### Computer

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

**OS (pre-installed):** Linux

**DRAM:** 256 MB DDR2 SDRAM onboard (512 MB max.)

#### Flash:

16 MB NOR Flash onboard to store OS (supports up to 32 MB)

32 MB NAND Flash onboard to store data

**Storage Expansion:** CompactFlash socket

### 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)

**ESD Protection:** 15 KV for all signals

**Console Port:** RS-232 (TxD, RxD, GND), 4-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: +3V max.
- Logic level 1: +10V to +30V (COM to DI)

**Connector Type:** 10-pin screw terminal block (8 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, COM, GND)

**Isolation:** 3 KV optical isolation

### LEDs

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

**LAN:** 10M/Link x 2, 100M/Link x 2 (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:** 850 g

**Dimensions:** 200 x 36.5 x 120 mm (7.87 x 1.44 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)

**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:** 1g @ IEC-68-2-6, sine wave, 5-500 Hz, 1 Oct./min, 1 hr/axis

**Anti-shock:** 5g @ IEC-68-2-27, half sine wave, 30 ms

### Power Requirements

**Input Voltage:** 12 to 48 VDC (3-pin terminal block)

**Power Consumption:** 15 W

• 300 mA @ 48 V

• 625 mA @ 24 VDC

• 1280 mA @ 12 V)

### Regulatory Approvals

**EMC:** CE (EN55022 Class B, EN55024-4-2, EN55024-4-3, EN55024-4-4), FCC (Part 15 Subpart B, Class B)

**Safety:** UL/cUL (UL60950-1), CCC, LVD

### Reliability

**Alert Tools:** Built-in buzzer and RTC (real-time clock)

**Automatic Reboot Trigger:** Built-in WDT (watchdog timer)

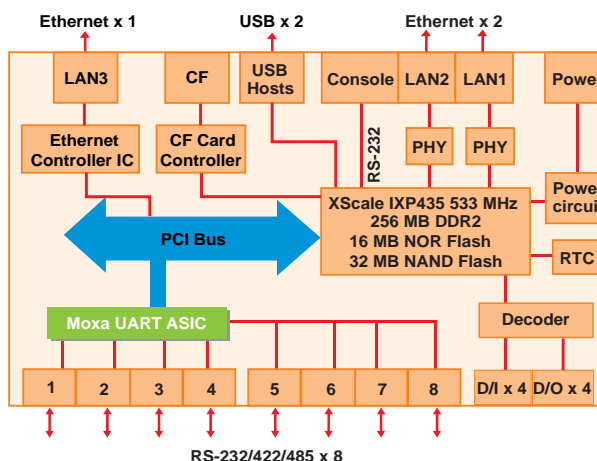
### Warranty

**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.

### H/W Block Diagram



## Software Specifications

### Linux

**Kernel Version:** 2.6.23

**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, OpenVPN

**File System:** JFFS2, NFS, Ext2, Ext3, VFAT/FAT

**System Utilities:** bash, busybox, tinylogin, telnet, ftp, ssh, scp

**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

**pppd:** dial in/out over serial port daemon

**snmpd:** snmpd agent daemon

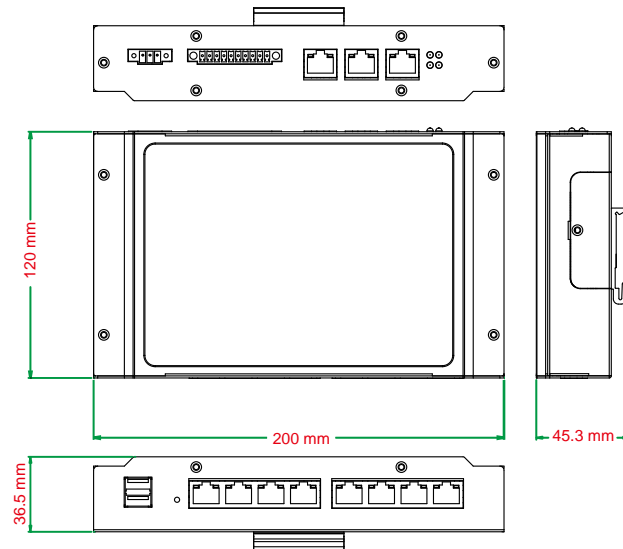
**openssl:** open SSL

**Application Development Software:** Moxa Linux API device control

### Linux Tool Chain:

- GCC (V4.2.1): C/C++ PC Cross Compiler
- Glibc (V2.2.5): POSIX standard C Library
- GDB (V6.3): source level debug server

### Dimensions (unit = mm)



## Ordering Information

### Available Models

**UC-8410-LX:** RISC-based industrial embedded computer with 8 serial ports, 4 DIs, 4 DOs, 3 LANs, CompactFlash, USB, Linux, -10 to 60°C operating temperature

**UC-8410-T-LX:** RISC-based industrial embedded computer with 8 serial ports, 4 DIs, 4 DOs, 3 LANs, CompactFlash, USB, Linux OS, -40 to 75°C operating temperature

### Package Checklist

- UC-8410 computer
- Wall mounting kit
- DIN-Rail mounting kit
- Ethernet cable: RJ45 to RJ45 cross-over cable, 100 cm
- CBL-4PINDB9F-150: 4-pin pin header to DB9 female console port cable, 150 cm
- Universal power adaptor (includes power jack converter)
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card