UC-8410 Series

RISC ready-to-run embedded computers with 8 serial ports, 3 LANs, USB, CompactFlash





- > Intel XScale IXP435 533 MHz processor
- > 256 MB DDR2 SDRAM and 16 MB Flash ROM onboard
- > 32 MB NAND Flash for data storage
- > 256 KB battery backup SRAM
- > 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
- > Supports IPv6 function (Linux model only)
- > DIN-Rail or wall mount installation
- > Robust, fanless design
- > -40 to 75°C wide temperature model available
- > Ready-to-run Embedded Linux or Windows CE 6.0

















The UC-8410 Series embedded computers come with 8 RS-232/422/485 serial ports, 3 Ethernet ports, 4 digital input channels, 4digital output channels, a CompactFlash socket, and 2 USB 2.0 hosts.

The computers use 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 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 to provide additional data storage. Moreover, the 256 KB SRAM offers a better data retention mechanism for avoiding data loss. The UC-8410 computers come with 8 RS-232/422/485 serial ports, digital I/O, and have 3 LAN ports, making them ideal

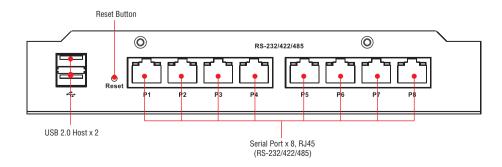
as a communication platform for industrial applications that require network redundacy.

The UC-8410 Series 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 cam be easily ported to the UC-8410 Series platform by using a common compiler, without needing to modify the code. This makes the UC-8410 an optimal solution for use with industrial applicatios, but with minmal cost and effort.

In addition to the standard model, a -40 to 75°C wide temperature model is also available for harsh industrial environments.

Appearance

Front View



Hardware Specifications

Computer

CPU: Intel XScale IXP435, 533 MHz

OS (pre-installed): Linux

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

SRAM: 256 KB, battery backup

Flash:

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

32 MB NAND Flash onboard to store data Expansion Bus: PCI/104 onboard

USB: USB 2.0 compliant hosts x 2, type A connector

Storage

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

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

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 (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)

Isolation: 3 KV optical isolation

I FDs

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

Dimensions: 200 x 37 x 120 mm (7.87 x 1.46 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

Anti-shock: 20 g @ IEC-68-2-27, half sine wave, 11 ms

Power Requirements

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

Power Consumption: 15 W • 310 mA @ 48 VDC • 625 mA @ 24 VDC

• 1350 mA @ 12 VDC

Standards and Certifications

Safety: UL 60950-1, EN 60950-1, CCC (GB9254, GB17625.1) EMC: EN 55022 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): 171,369 hrs

Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warrantv

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

0S: 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.

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/
- GNU C/C++ cross-compiler
- GNU C library
- GDB source-level debugging server

Software Protection: Encryption tool for user executable files (based on patented Moxa technology)

Windows Embedded CE 6.0

OS: Windows Embedded CE 6.0

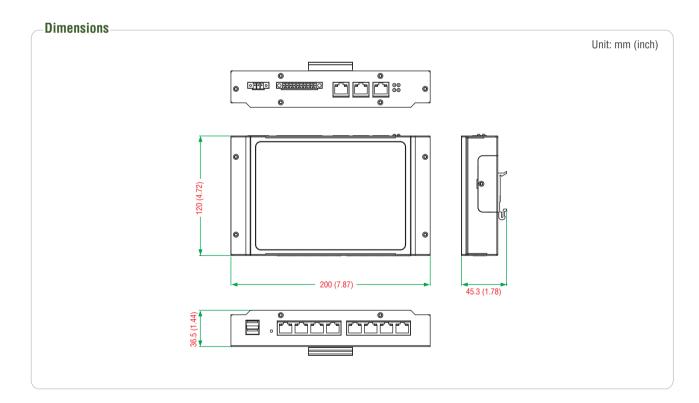
File System: FAT

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 Laver (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-8410-LX: RISC-based industrial embedded computer with 8 serial ports, 4 DIs, 4 DOs, 3 LANs, CompactFlash, USB, Linux OS, -10 to 60°C operating temperature UC-8410-CE: RISC-based industrial embedded computer with 8 serial ports, 4 DIs, 4 DOs, 3 LANs, CompactFlash, USB, Windows CE 6.0 OS, -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 UC-8410-T-CE: RISC-based industrial embedded computer with 8 serial ports, 4 DIs, 4 DOs, 3 LANs, CompactFlash, USB, Windows CE 6.0 OS, -40 to 75°C operating temperature

Package Checklist -

- UC-8410 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
- Quick installation guide (printed)
- Warranty card