UC-8410 Series

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

-40°C 75°C

> 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
> 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
> 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.

CCC · RoHS · CE · FC · c UL us LISTED

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Embedded Computers for Communication > UC-8410 Series

: 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. Moreover, the 256 KB SRAM offers a better data retention mechanism for avoiding data loss.
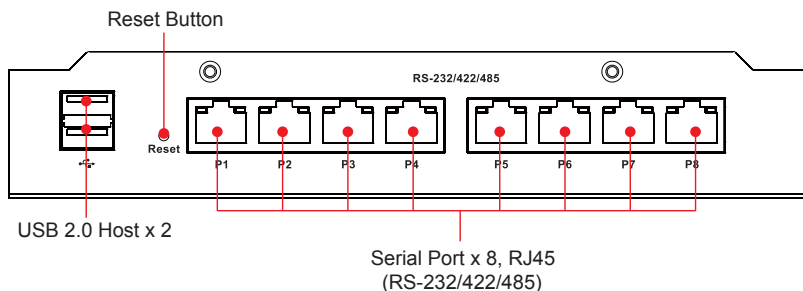
The UC-8410 computers support RS-232/422/485 serial ports, digital I/O channels, and has 3 LAN ports, making them ideal as
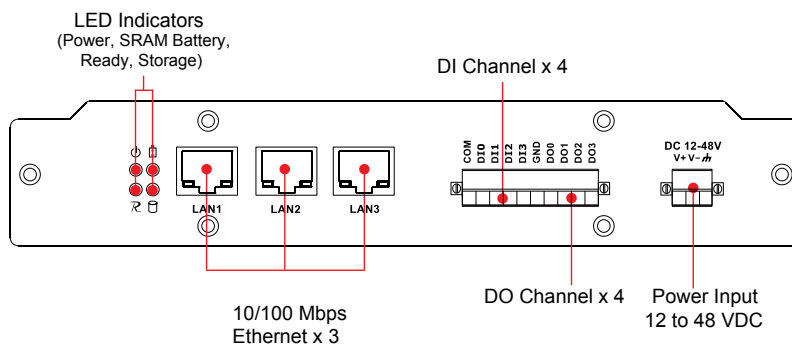
communication platforms for industrial applications that require network redundancy.

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

Reset Button

USB 2.0 Host x 2

Serial Port x 8, RJ45
(RS-232/422/485)

LED Indicators
(Power, SRAM Battery,
Ready, Storage)

DI Channel x 4

10/100 Mbps
Ethernet x 3

DO Channel x 4   Power Input
12 to 48 VDC

: 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

USB: USB 2.0 full speed x 2 (OHCI)

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 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 (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

LEDs
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 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 (GB9254, GB 17625.1), LVD
(EN60950)

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

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

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

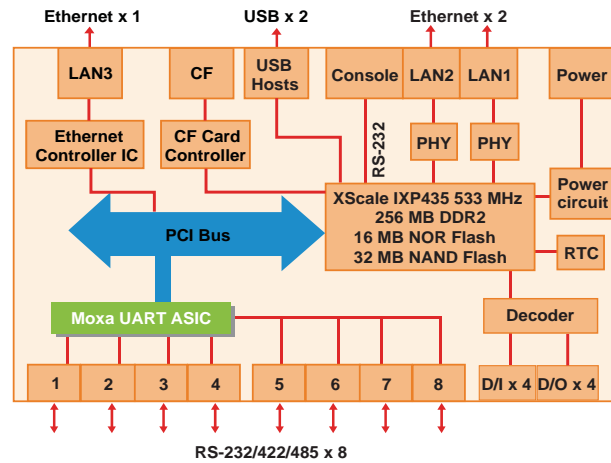**snmpd:** snmpd agent daemon

openssl: open SSL

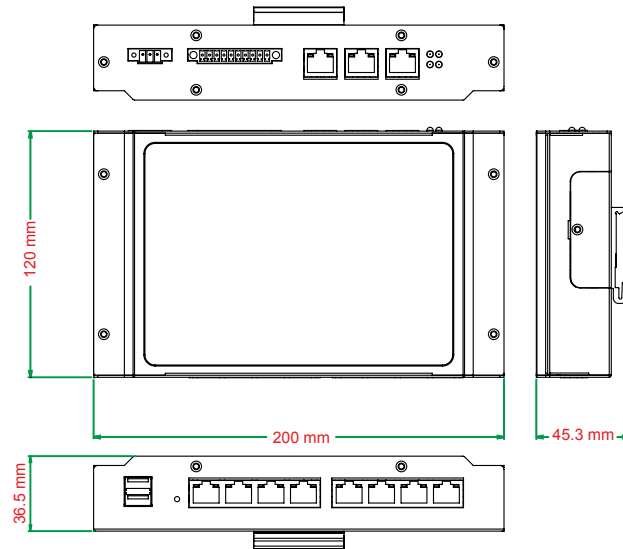**Application Development Software:** Moxa Linux API device control

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

H/W Block Diagram

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 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

Package Checklist

- UC-8410 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 (includes power jack converter)
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

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