UC-7420/UC-7410

RISC-based Ready-to-Run Embedded Computer with 8 Serial Ports, Dual LANs, USB, PCMCIA, CompactFlash

Features

- › **Intel XScale IXP-422/425, 266/533 MHz processor**
- › **128 MB RAM on-board, 32 MB flash disk**
- › **8 RS-232/422/485 serial ports**
- › **Dual 10/100 Mbps Ethernet for network redundancy**
- › **USB 2.0 Host**
- › **CompactFlash socket for storage expansion**
- › **PCMCIA supports WLAN, GPRS, UMTS, HSDPA**
- › **LCM display and keypad for HMI**
- › **Ready-to-run Linux / WinCE 5.0 platform**
- › **DIN-rail or wall-mount installation**
- › **Robust, fanless design**

Microsoft **Windows CE 5.0** RoHS CE FC c UL us LISTED TÜV Rheinland Product Safety BAUART GEPRÜFT TYPE APPROVED
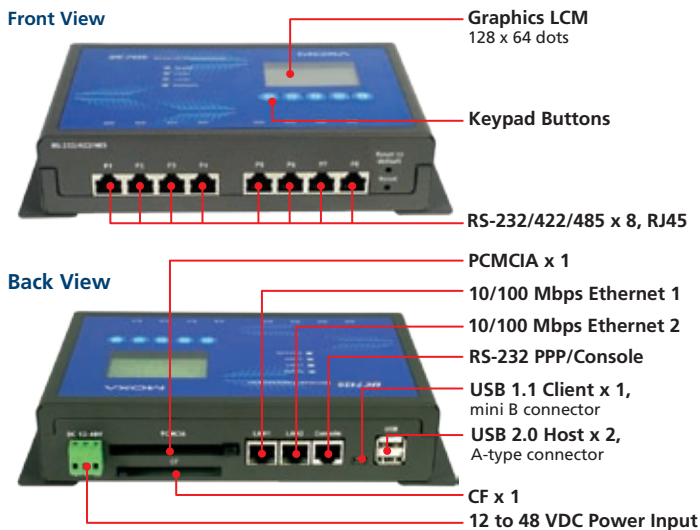
⁞ Overview

UC-7420/UC-7410 products are RISC-based ready-to-run embedded computers for your embedded applications. The UC-7420/UC-7410 embedded computers feature eight

RS-232/422/485 serial ports, a PCMCIA interface for wireless LAN communication, CompactFlash, and USB ports for mass storage disk expansion, making UC-7420/7410 ideal for your embedded applications.

The pre-installed Linux/WinCE OS provides an open, standard software operating system for your software program
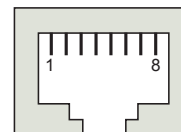
development. This means that software written for a desktop PC can be easily ported to the UC-7420/UC-7410 platform by using an open, common development tool, without needing to modify the software code. All the software you develop for your own applications can be stored on the UC-7420/UC-7410's Flash memory. Using the UC-7420/UC-7410, you can easily build a control system with a distributed architecture, based on embedded technologies.
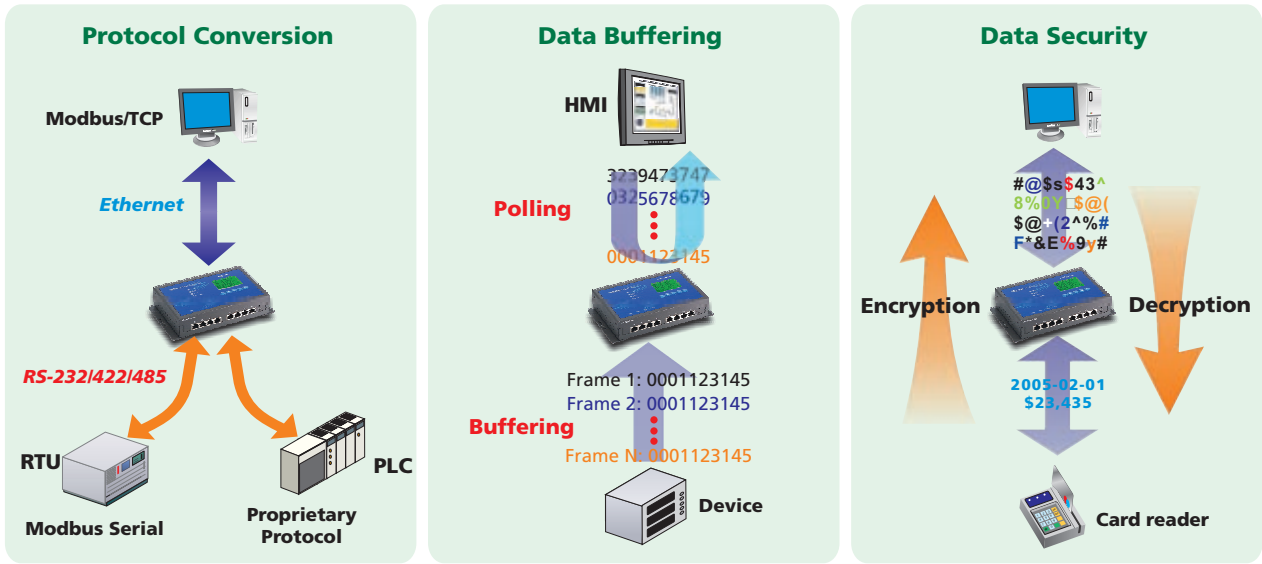
⁞ UC-7420 Appearance

Front View

- Graphics LCM
  128 x 64 dots
- Keypad Buttons
- RS-232/422/485 x 8, RJ45

Back View

- PCMCIA x 1
- 10/100 Mbps Ethernet 1
- 10/100 Mbps Ethernet 2
- RS-232 PPP/Console
- USB 1.1 Client x 1,
  mini B connector
- USB 2.0 Host x 2,
  A-type connector
- CF x 1
- 12 to 48 VDC Power Input

⁞ Pin Assignment

Serial Port, RJ45 Connector

1 8

PIN	RS-232	RS-422	RS-485
1	DSR	---	---
2	RTS	TxD+	---
3	GND	GND	GND
4	TxD	TxD-	---
5	RxD	RxD+	Data+
6	DCD	RxD-	Data-
7	CTS	---	---
8	DTR	---	---

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UC-7420/UC-7410

Protocol Conversion

Modbus/TCP

Ethernet

RS-232/422/485

RTU

Modbus Serial

PLC

Proprietary Protocol

Data Buffering

HMI

Polling

3339473747
0325678679
...
0001123145

Buffering

Frame 1: 0001123145
Frame 2: 0001123145
...
Frame N: 0001123145

Device

Data Security

#@s43^
8%0Y_$@(
$@+(2^%#
F*&E%9y#

Encryption   Decryption

2005-02-01
$23,435

Card reader

⋮ Hardware Specifications

System

CPU: Intel XScale IXP-425 533 MHz (Plus Version)

Intel XScale IXP-422 266 MHz

DRAM: 128 MB onboard (256 MB for ODM)

Flash: 32 MB onboard

PCMCIA: Cardbus card and 16-bit PCMCIA 2.1/ JEIDA 4.2 card (UC-7420 only)

Storage Expansion: CompactFlash x 1 with full function (UC-7420 only)

USB: USB 2.0 Host x 2 (UC-7420 only), USB 1.1 Client x 1

LCM: 128 x 64 dot Graphics Mode

Keypad: 5 membrane buttons

Console Port: RS-232 x 1, RJ45, supports PPP

OS: Built-in Embedded Linux or Windows CE 5.0

Other: RTC, buzzer, Watchdog Timer

Network Communication

LAN: 10/100 Mbps x 2, RJ45

Protection: Built-in 1.5 KV magnetic isolation protection

Serial Communication

Serial Ports: RS-232/422/485 x 8, software-selectable, RJ45

Protection: Built-in 15 KV ESD protection for all signals

Data bits: 5, 6, 7, 8

Stop bit(s): 1, 1.5, 2

Parity: None, Even, Odd, Space, Mark

Flow Control: RTS/CTS, XON/XOFF, RS-485 ADDC^{TM}

Speed: 50 bps to 921.6 Kbps, supports Any Baudrate

LEDs

System: Ready x 1, Console x 1
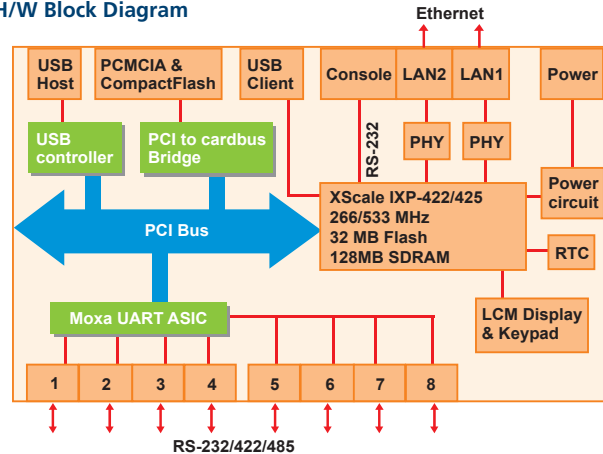
LAN: 10M/100M x 2

Serial: TxD/RxD x 8

Power Requirements

Power Input: 12 to 48 VDC

Power Consumption: 890 mA @ 12 VDC, 12W (UC-7420), 830 mA @ 12 VDC, 10W (UC-7410)

H/W Block Diagram

Ethernet

| USB Host | PCMCIA & CompactFlash | USB Client | Console | LAN2 | LAN1 | Power |

USB controller | PCI to cardbus Bridge

PCI Bus

RS-232 | PHY | PHY

XScale IXP-422/425 266/533 MHz 32 MB Flash 128MB SDRAM

Power circuit

RTC

Moxa UART ASIC

LCM Display & Keypad

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

RS-232/422/485

Mechanical

Dimensions (WxDxH): 197 x 125 x 44 mm (7.8 x 4.9 x 1.7 in)

Weight: 875 g (UC-7420), 810 g (UC-7410)

Construction Material: SECC sheet metal, 1 mm

Mounting: Wall-mounting, DIN-Rail

Environment

Operating Temperature: -10 to 60°C (14 to 140°F), 5 to 95% RH

Storage Temperature: -20 to 80°C (-4 to 176°F), 5 to 95% RH

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

Regulatory Approvals

EMC:

FCC: Part 15 Subpart B, CISPR 22 Class A

CE: EN55022 Class A, EN61000-3-2 Class A, EN61000-3-3, EN55024

Safety:

TÜV: EN60950-1

UL/cUL: UL60950-1, CSA C22.2 No. 60950-1-03

Warranty: 5 years

: Software Specifications

Linux

Kernel Version: 2.6.10 (Plus Version)
2.4.18

Protocol Stacks: TCP, UDP, IPv4, SNMP V1/V3, ICMP, IGMP, ARP, HTTP, CHAP, PAP, SSH 1.0/ 2.0, SSL, DHCP, NTP, NFS, SMTP, Telnet, FTP, PPP, PPPoE

File System: JFFS2 (on-board flash)

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

Supporting Services and Daemons:

telnetd: Telnet Server daemon

ftpd: FTP server daemon

sshd: Secure shell server

Apache: Web server daemon, supports PHP and XML

MySQL: Database Server and Client

OpenVPN: Virtual private network service manager

iptables: Firewall service manager

pppd: dial in/out over serial port daemon & PPPoE

snmpd: snmpd agent daemon

inetd: TCP server manager program

Application Development Environment:

MOXA Linux API Library

Linux Tool Chain: Gcc, Glibc, GDB

Windows Tool Chain: Gcc, Glibc, Insight (Windows-based source level debug utility)

UC Finder: UC's LAN IP broadcast search utility for Windows and Linux

Device Drivers:

PCMCIA CardBus (supports 802.11b/g wireless LAN Card), CF Card, Watchdog Timer (WDT), UART, RTC, Buzzer, LCM, Keypad

MOXA 2G NPort Real TTY Driver

Windows CE 5.0

Protocol Stacks: TCP, UDP, IPv4, SNMP, ICMP, IGMP, ARP, HTTP, CHAP, PAP, SSL, DHCP, SNTP, SMTP, Telnet, FTP, PPP

File Systems: TFAT (on-board flash)

System Utilities: Windows command shell, telnet, ftp, web-based administration manager

Supporting Services and Daemons

Telnet Server: Allows remote administration through a standard telnet client

FTP Server: Used for transferring files to and from remote computer systems via a network.

Web Server (httpd): WinCE IIS, offer ASP, ISAPI Secure Socket Layer support, SSL 2, SSL 3, and Transport Layer Security (TLS/SSL 3.1) public key-based protocols, and Web Administration ISAPI Extensions.

Dial-up Networking Service: RAS client API and PPP, support Extensible Authentication Protocol (EAP) and RAS scripting

Application Development Environment:

MOXA WinCE 5.0 SDK

C Libraries and Run-times

Component Services (COM and DCOM)

Microsoft Foundation Classes (MFC)

Microsoft® .NET Compact Framework

XML, including DOM, XQL, XPATH, XSLT, SAX2

SOAP Toolkit

Winsock 2.2

Device Drivers:

PCMCIA CardBus, CF Card, USB (supports USB flash disk), Watchdog Timer (WDT) API, UART, RTC, Buzzer, LCM, Keypad

: Ordering Information

UC-7410-LX Plus `NEW`
RISC-based Ready-to-Run Embedded Computer with IXP-425, 8 Serial Ports, Dual LANs, Linux 2.6
UC-7410-LX
RISC-based Ready-to-Run Embedded Computer with IXP-422, 8 Serial Ports, Dual LANs, Linux 2.4
UC-7410-CE
RISC-based Ready-to-Run Embedded Computer with IXP-422, 8 Serial Ports, Dual LANs, WinCE 5.0
UC-7420-LX Plus `NEW`
RISC-based Ready-to-Run Embedded Computer with IXP-425, 8 Serial Ports, Dual LANs, USB, PCMCIA, CompactFlash, Linux 2.6
UC-7420-LX
RISC-based Ready-to-Run Embedded Computer with IXP-422, 8 Serial Ports, Dual LANs, USB, PCMCIA, CompactFlash, Linux 2.4
UC-7420-CE
RISC-based Ready-to-Run Embedded Computer with IXP-422, 8 Serial Ports, Dual LANs, USB, PCMCIA, CompactFlash, WinCE 5.0

All items include

- 1 UC-7420 or UC-7410
- Quick Installation Guide
- Wall-mounting Kit
- DIN-Rail Mounting Kit
- Document & Software CD
- Ethernet Cable: RJ45 to RJ45 cross-over cable, 100 cm

- Console Port Cable: CBL-RJ45F9-150 8-pin RJ45 to female DB9 cable, 150 cm
- Serial Port Cable: CBL-RJ45M9-150 8-pin RJ45 to male DB9 cable, 150 cm
- Universal Power Adaptor (includes terminal block to power jack converter)
- Product Warranty Statement

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