UC-7408 Series

RISC-based data acquisition computers with 8 serial ports, 8 DI/DO channels, dual LANs, PCMCIA, CompactFlash

- Intel XScale IXP422/425, 266/533 MHz processor
- 128 MB RAM on-board, 32 MB flash disk
- 8 RS-232/422/485 serial ports
- 8-ch digital input and 8-ch digital output (TTL Signal)
- Dual 10/100 Mbps Ethernet for network redundancy
- CompactFlash socket for storage expansion
- PCMCIA supporting WLAN, GPRS, UMTS, HSDPA
- Ready-to-run Linux or WinCE 5.0 platform
- DIN-rail or wallmount installation
- Robust, fanless design
- -40 to 75°C wide temperature models 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-7408 data acquisition embedded computers feature 8 RS-232/422/485 serial ports, an 8-ch digital input and 8-ch digital output, dual 10/100 Mbps ports, a PCMCIA interface for wireless LAN communication, and CompactFlash slot for mass storage disk expansion.

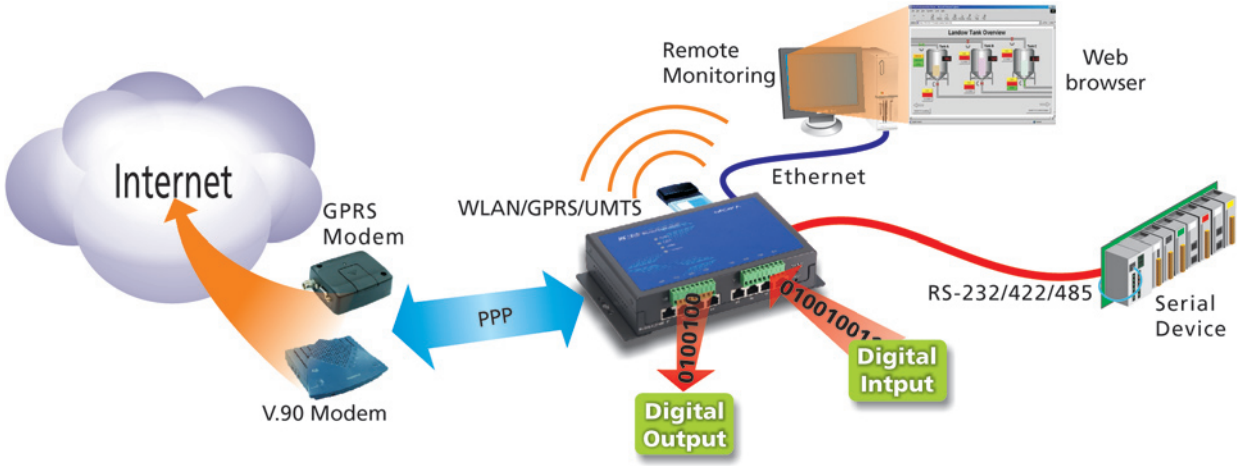
The digital I/O feature of the UC-7408 series provides users with the convenience of connecting digital devices to a front-end embedded computer. The UC-7408 can be used for on/off event handling by reading the state change of the digital input signal. In addition, output signals from external digital devices can be imported through the UC-7408's digital input channels, and the UC-7408 can be programmed to take immediate action when it detects a change in the state of the signal.

The digital output channels on the UC-7408 can connect to devices and trigger digital output signals to control external digital devices. With the digital I/O feature, Moxa's embedded computers support both data acquisition and protocol conversion through the RS-232/422/485 serial ports, and simple I/O control with the digital I/O signals.

UC-7408 embedded computers come pre-installed with either the open standard Linux OS, or the more common WinCE OS. Software written for a desktop PC can be easily ported to the UC-7408 platform by using a common compiler, without needing to modify the code, and the software you develop for your own applications can be stored in the UC-7408's flash memory.

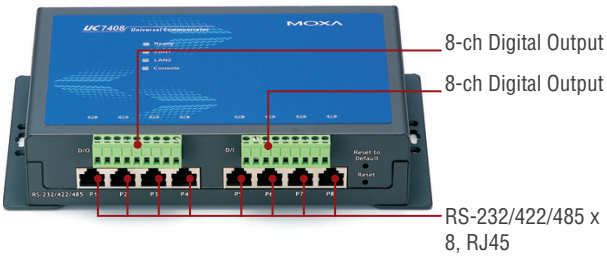
In addition to the standard model, a wide temperature (-40 to 75°C) model of the UC-7408 is available for use in harsh industrial environments.

Typical Application

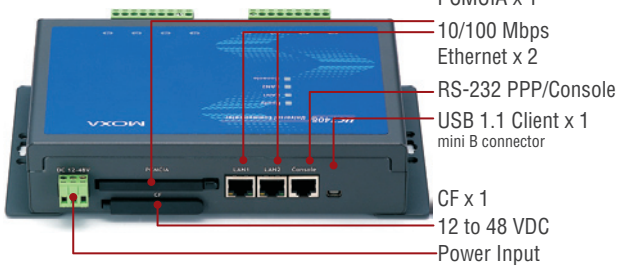


Appearance

Front View



Rear View



Hardware Specifications

Computer

CPU:
UC-7408: Intel XScale IXP422 266 MHz
UC-7408 Plus: Intel XScale IXP425 533 MHz

OS (pre-installed): Embedded Linux or Windows CE 5.0

DRAM: 128 MB onboard (256 MB for ODM)

Flash: 32 MB onboard

PCMCIA: Cardbus card and 16-bit PCMCIA 2.1 or JEIDA 4.2 card

Storage Expansion: CompactFlash socket

Ethernet Interface

LAN: 2 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 (all signals), RJ45 connector, supports PPP

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: 8

Input Voltage:
• Logic 0: 0-0.8 V
• Logic 1: 2.0-5.5 V

-24 mA

Digital Output

Output Channels: 8

Output Current: 24 mA

Output Voltage:
• Logic 0: 0-0.55 V
• Logic 1: 2.5-3.3 V

LEDs

System: OS Ready, Console (TxD/RxD)

LAN: 10M/100M x 2

Serial: TxD x 8, RxD x 8

Physical Characteristics

Housing: SECC sheet metal (1 mm)

Weight: 870 g

Dimensions: 197 x 44 x 125 mm (7.76 x 1.73 x 4.92 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: -20 to 80°C (-4 to 176°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

Power Consumption: 7.6 W
• 315 mA @ 24 VDC
• 628 mA @ 12 VDC

Regulatory Approvals

EMC: CE (EN55022 Class A, EN61000-3-2 Class A, EN61000-3-3, EN55024), FCC (Part 15 Subpart B, CISPR 22 Class A)

Safety: UL/cUL (UL60950-1, CSA C22.2 No. 60950-1-03), TÜV (EN60950-1)

Reliability

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

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

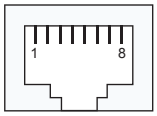
Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

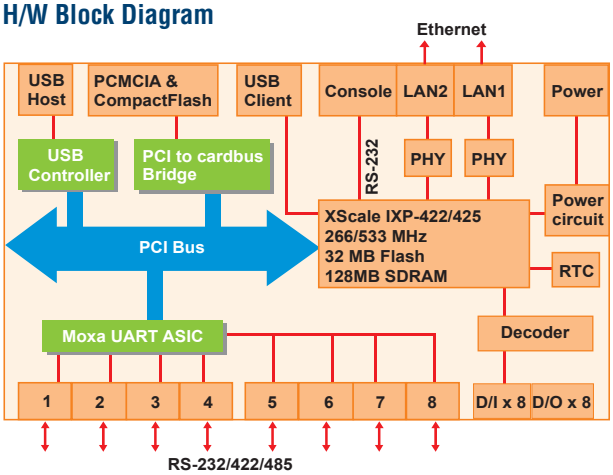
Pin Assignment

8-pin RJ45



PIN	RS-232	RS-422/RS-485-4w	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	---	---

H/W Block Diagram



Software Specifications

Linux

Kernel Version: 2.4.18 or 2.6.10 (Plus version)

Protocol Stack: TCP, UDP, IPv4, SNMP V1, 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

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

iptables: Firewall service manager

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

snmpd: snmpd agent daemon

inetd: TCP server manager program

Application Development Software:
- Moxa Linux API Library for device control
- Linux Tool Chain: Gcc, Glibc, GDB

Windows Embedded CE 5.0

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

File System: FAT (on-board flash)

Protocol Stack: TCP, UDP, IPv4, SNMP V2, ICMP, IGMP, ARP, HTTP, CHAP, PAP, SSL, DHCP, SNTP, SMTP, Telnet, FTP, PPP

Telnet Server: Allows remote administration through a standard telnet client.

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

Web Server (httpd): WinCE IIS, including 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, supporting 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 2.0 SP2
- XML, including DOM, XQL, XPATH, XSLT, SAX2
- SOAP Toolkit
- Winsock 2.2

Ordering Information

Available Models

UC-7408-LX: RISC-based IXP422 embedded computer with 8 serial ports, 8 DI channels, 8 DO channels, dual LANs, PCMCIA, CompactFlash, Linux 2.4, -10 to 60°C operating temperature

UC-7408-LX Plus: RISC-based IXP425 embedded computer with 8 serial ports, 8 DI channels, 8 DO channels, dual LANs, PCMCIA, CompactFlash, USB, Linux 2.6, -10 to 60°C operating temperature

UC-7408-CE: RISC-based IXP422 embedded computer with 8 serial ports, 8 DI channels, 8 DO channels, dual LANs, PCMCIA, CompactFlash, WinCE 5.0, -10 to 60°C operating temperature

UC-7408-T-LX: RISC-based IXP422 embedded computer with 8 serial ports, 8 DI channels, 8 DO channels, dual LANs, PCMCIA, CompactFlash, Linux 2.4, -40 to 75°C operating temperature

UC-7408-T-LX Plus: RISC-based IXP425 embedded computer with 8 serial ports, 8 DI channels, 8 DO channels, dual LANs, PCMCIA, CompactFlash, USB, Linux 2.6, -40 to 75°C operating temperature

UC-7408-T-CE: RISC-based IXP422 embedded computer with 8 serial ports, 8 DI channels, 8 DO channels, dual LANs, PCMCIA, CompactFlash, WinCE 5.0, -40 to 75°C operating temperature

Package Checklist

- UC-7408 embedded computer
- Wall mounting kit
- DIN-Rail mounting kit
- Ethernet cable: RJ45 to RJ45 cross-over cable, 100 cm
- CBL-RJ45F9-150: 8-pin RJ45 to DB9 female console port cable, 150 cm
- Universal power adaptor (including terminal block to power jack converter)
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card