

# UC-7112/UC-7110

*Mini RISC-based Ready-to-Run Embedded Computer with 2 Serial Ports, Dual LANs, SD*

**Wide Temperature**



## Features

- MOXA ART ARM9 32-bit 192 MHz processor
- 32/16 MB RAM (about 12 MB of user programmable space)
- 16/8 MB Flash ROM (about 4 MB of user programmable space)
- Dual 10/100 Mbps Ethernet for network redundancy
- 2 software-selectable RS-232/422/485 ports
- Serial port speed from 50 bps to 921.6 Kbps, supporting ANY BAUDRATE
- SD socket for storage expansion supported
- Built-in RTC, Buzzer
- Built-in Linux Kernel 2.6 platform
- -40 to 75°C wide temperature models available



## Overview

UC-7112/UC-7110 Mini RISC-based Communication Platforms are ideal for your embedded applications. UC-7112/UC-7110 comes with two RS-232/422/485 serial ports and dual 10/100 Mbps Ethernet LAN ports to provide users with a versatile communication platform.

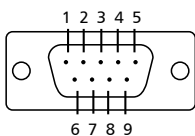
UC-7112/UC-7110 uses the ARM9 RISC CPU. Unlike the X86 CPU, which uses a CISC design, the ARM9's RISC design architecture and modern semiconductor technology provide UC-7112/UC-7110 with a powerful computing engine and communication functions, but without generating too much heat. The built-in 8 MB NOR Flash ROM and 16 MB SDRAM give you enough storage capacity, and an additional SD socket provides the user with flexible

storage expansion to run applications. The dual LAN ports built into the ARM9 make UC-7112/UC-7110 an ideal communication platform for some of the more simple data acquisition and protocol conversion applications, and the two RS-232/422/485 serial ports allow you to connect a variety of serial devices.

The pre-installed µClinux operating system provides an open software operating system for software program development. This means that software written for desktop PCs is easily ported to UC-7112/UC-7110 by using a GNU cross compiler, so that you will not need to spend time modifying existing software code. The operating system, device drivers, and your own software can all be stored in the UC-7112/UC-7110's Flash memory.

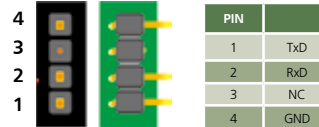
## Pin Assignment

### Male DB9

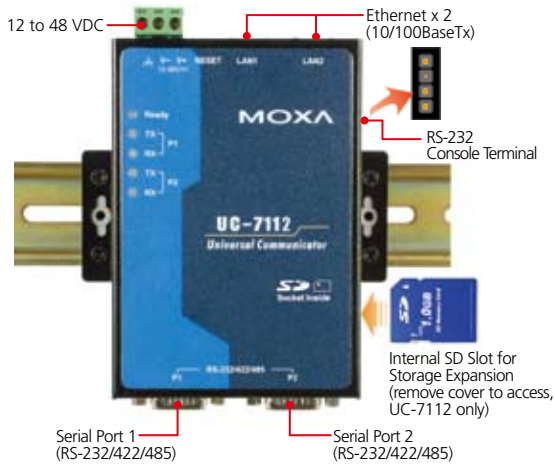


PIN	RS-232	RS-422	RS-485 (4-wire)	RS-485 (2-wire)
1	DCD	TxDA(-)	TxDA(-)	---
2	RxD	TxDB(+)	TxDB(+)	---
3	TxD	RxDB(+)	RxDB(+)	DataB(+)
4	DTR	RxDA(-)	RxDA(-)	DataA(-)
5	GND	GND	GND	GND
6	DSR	---	---	---
7	RTS	---	---	---
8	CTS	---	---	---

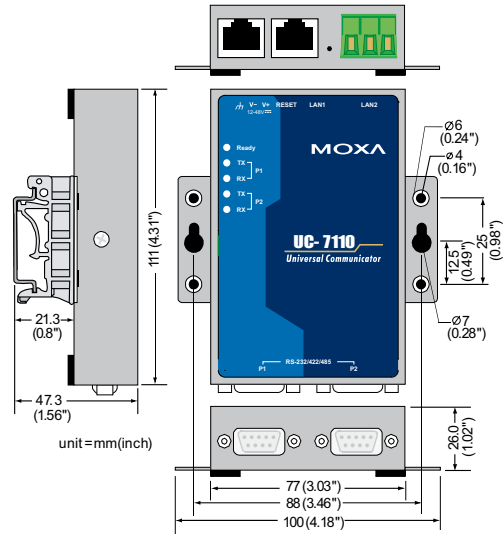
### Serial Console port



## Appearance



## Dimensions



## Hardware Specifications

### System

- CPU:** Moxa ART ARM9 32-bit RISC CPU, 192 MHz
- DRAM:** 16 MB/32 MB(Plus Version) onboard (12 MB for user programmable space)
- Flash:** 8 MB/16 MB (Plus Version) onboard (4 MB for user programmable space)
- Storage Expansion:** SD socket x 1 (UC-7112 only)
- Console Port:** RS-232, 3-wire (TxD, RxD, GND), pin-header
- Other:** RTC, buzzer, Watchdog Timer
- OS:** Built-in µClinux, Linux

### Network Communication

- LAN:** 10/100 Mbps x 2, RJ45
- Protection:** Built-in 1.5 KV magnetic isolation protection

### Serial Communication

- Serial Port:** RS-232/422/485 x 2, software-selectable, DB9
- Protection:** Built-in 15 KV ESD protection for all signals
- Data bits:** 5, 6, 7, 8
- Stop bits:** 1, 1.5, 2
- Parity:** None, Even, Odd, Space, Mark

- Flow Control:** RTS/CTS, XON/XOFF, RS-485 ADDC™
- Speed:** 50 bps to 921.6 Kbps, supports Any Baudrate

### LEDs

- System:** Ready x 1
- LAN:** 10M/Link x 2, 100M/Link x 2 (on connector)
- Serial:** TxD x 2, RxD x 2

### Power Requirements

- Power Input:** 12 to 48 VDC
- Power Consumption:** 340 mA @ 12 VDC, 4.5W

### Mechanical

- Dimensions (WxDxH):** 77 x 111 x 26 mm (3.03 x 4.37 x 1.02 in)
- Weight:** 190 g

**Construction Material:** Aluminum, 1 mm

**Mounting:** Wall-mounting, DIN-Rail

### Environmental

#### Operating Temperature:

- 10 to 60°C (14 to 140°F), 5 to 95% RH
- 40 to 75°C (-40 to 167°F) for -T models

#### Storage Temperature:

- 20 to 80°C (-4 to 176°F), 5 to 95% RH
- 40 to 85°C (-40 to 185°F) for -T models

### Regulatory Approvals

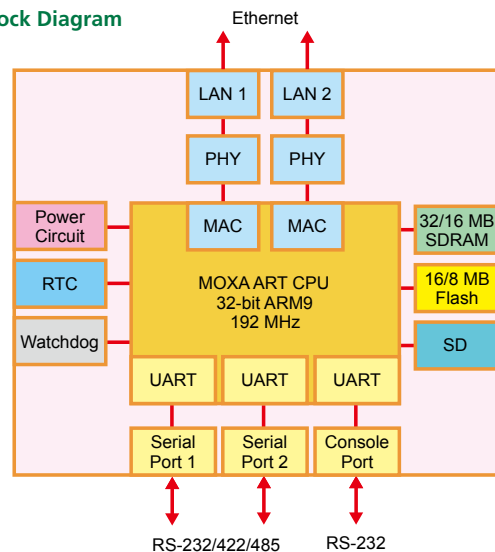
- EMC:** FCC Part 15, CISPR 22 Class A  
CE Class A: EN55022 Class A, EN61000-3-2 Class A, EN61000-3-3, EN55024

**Safety:** TÜV: IEC/EN60950

UL/cUL: UL60950, CAN/CSA-C22.2 No. 60950-00

**Warranty:** 5 years

### H/W Block Diagram



## Software Specifications

### µClinix

**Kernel Version:** 2.6.19

**Protocol Stacks:** TCP, UDP, IPv4, SNMP V1/V2c, ICMP, ARP, HTTP, CHAP, PAP, DHCP, NTP, NFS, SMTP, Telnet, FTP, PPP, PPPoE

**File System:** JFFS2 (on-board flash)

**System Utilities:** msh, busybox, tinylogin, telnet, ftp

**Supporting Services and Daemons:**

telnetd: Telnet Server daemon

ftpd: FTP server daemon

Boa: Web server daemon

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:

Arm-elf-gcc: C/C++ PC Cross Compiler

µClibc: POSIX Standard Library

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

**Device Drivers:**

UART, RTC, Buzzer, SD Card

### Linux (Plus Version)

**Kernel Version:** 2.6.9

**Boot Loader:** Redboot

**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

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:**

Watchdog Timer (WDT), UART, RTC, Buzzer, SD card

### All items include

- 1 UC-7112 or UC-7110
- Quick Installation Guide
- Document & Software CD
- Ethernet Cable: RJ45 to RJ45 cross-over cable, 100 cm
- Console Port Cable: CBL-4PINDB9F-150 4-pin pin-header to female DB9 cable, 150 cm
- Universal Power Adaptor (includes terminal block to power jack converter)
- Product Warranty Statement

### Optional Accessories

**DK35A:** DIN-Rail Mounting kit (35 mm)

## Ordering Information

### Standard Operating Temperature Models (-10 to 60°C)

#### UC-7110-LX

Mini RISC-based Ready-to-Run Embedded Computer with 2 Serial Ports, Dual LANs, µClinix OS

#### UC-7112-LX Plus **NEW**

Mini RISC-based Ready-to-Run Embedded Computer with 2 Serial Ports, Dual LANs, SD, Linux 2.6

#### UC-7112-LX

Mini RISC-based Ready-to-Run Embedded Computer with 2 Serial Ports, Dual LANs, SD, µClinix OS

### Wide Operating Temperature Models (-40 to 75°C)

#### UC-7110-T-LX

Mini RISC-based Ready-to-Run Embedded Computer with 2 Serial Ports, Dual LANs, µClinix OS, Wide Temperature