UC-8410A Series

Arm Cortex-A7 dual-core 1 GHz IIoT gateway with 1 expansion slot for a wireless module, 3 LAN ports, 8 serial ports, 4 DIs, 4 DOs

Features and Benefits

- Freescale LS1021A Cortex-A7 1 GHz dual-core processor
- 1 GB DDR3 SDRAM
- 8 RS-232/422/485 serial ports
- 3 10/100/1000 Mbps Ethernet ports
- Wireless-enabled with PCIe mini slot
- 2 USB 2.0 hosts for mass storage devices
- Wall-mounting installation
- Robust, fanless design
- -40 to 75°C wide-temperature model available
- Long-term Linux support until 2027; includes bug fixes and security patches

Certifications

Introduction

The UC-8410A Series embedded computers support a rich collection of communication interfaces, including 8 RS-232/422/485 serial ports, 3 Ethernet ports, 1 PCIe mini slot for a wireless module, 4 digital input channels, 4 digital output channels, 1 mSATA slot, and 2 USB 2.0 hosts.
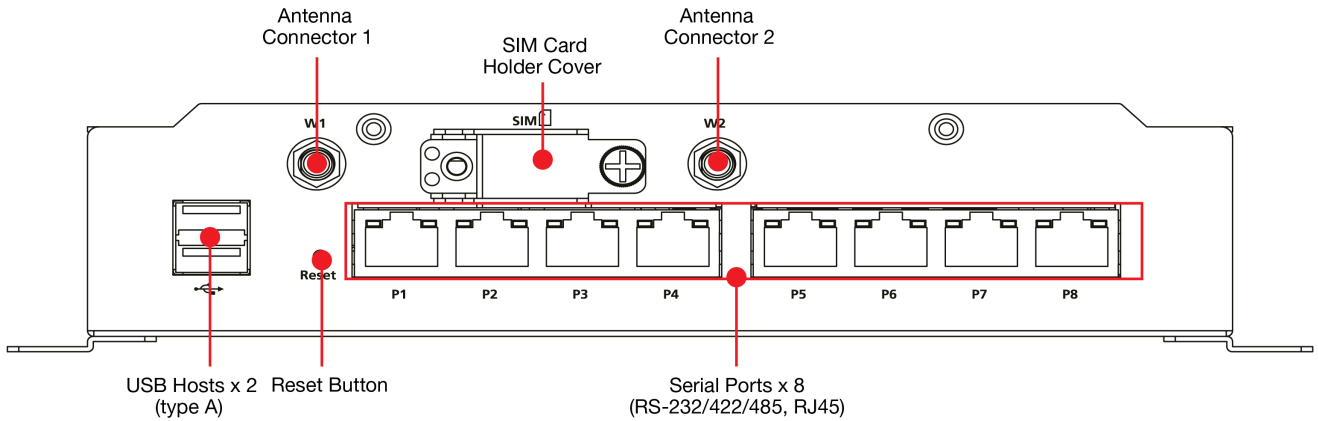
The UC-8410A computer uses the Freescale Cortex-A7 dual-core 1 GHz RISC CPU. This powerful computing engine supports several useful communications functions, without generating too much heat. The built-in 8 GB eMMC card and 1 GB DDR3 SDRAM give you enough memory to run your application software, and the mSATA slot provides the flexibility of adding additional data storage.

The UC-8410A computers come with a variety of communication interfaces, including serial ports, Ethernet ports, wireless communication slot, and digital input/output channels, making them ideal as communication platforms for industrial applications that require network and device communications.
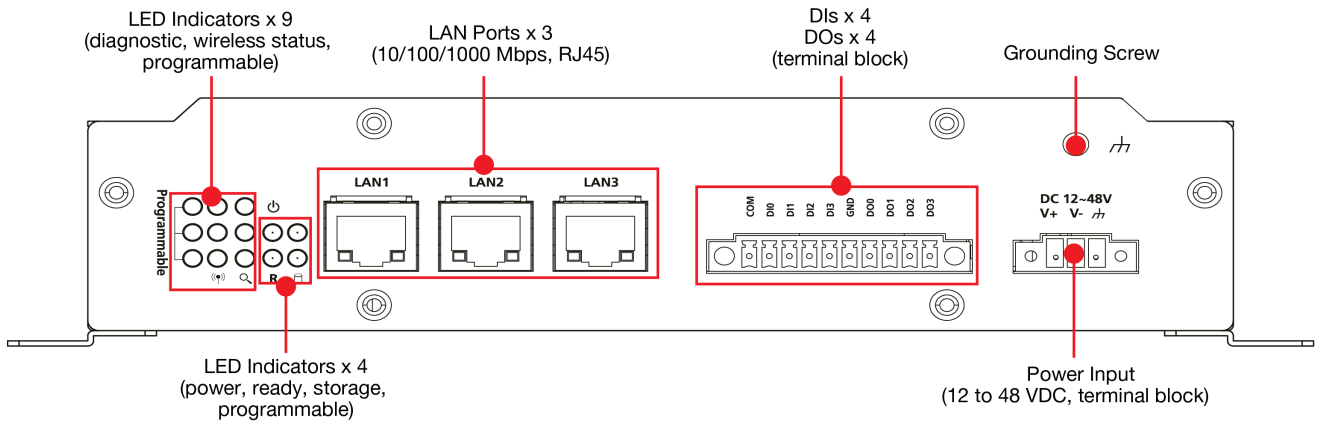
The UC-8410A Series comes with Linux Debian 8 preinstalled to provide an open software operating system for software program development. This makes the UC-8410A computer an optimal solution for use with industrial applications, but at minimal cost and effort. In addition to the standard model of the UC-8410A, a -40 to 75°C wide-temperature model is available for harsh industrial environments.
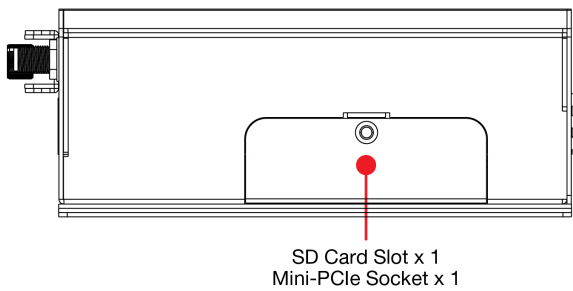
Appearance

Front View

Antenna Connector 1

SIM Card Holder Cover

Antenna Connector 2

W1

SIM

W2

USB Hosts x 2 (type A)   Reset Button

P1   P2   P3   P4   P5   P6   P7   P8

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

Rear View

LED Indicators x 9 (diagnostic, wireless status, programmable)

LAN Ports x 3 (10/100/1000 Mbps, RJ45)

DIs x 4 DOs x 4 (terminal block)

Grounding Screw

Programmable

LAN1   LAN2   LAN3

COM DI0 DI1 DI2 DI3 GND DO0 DO1 DO2 DO3

DC 12~48V V+ V-

LED Indicators x 4 (power, ready, storage, programmable)

Power Input (12 to 48 VDC, terminal block)

Left View

SD Card Slot x 1 Mini-PCIe Socket x 1

Specifications

Computer

CPU	Armv7 Cortex-A7 dual-core 1 GHz
System Memory Pre-installed	1 GB DDR3L
Storage Pre-installed	8 GB eMMC

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Storage Slot	SD slots x 1 mSATA slots x 1, internal mini-PCIe socket
Supported OS	Linux Debian 8 (Linux kernel v4.1), 2022 EOL Moxa Industrial Linux 1 (Debian 9, kernel 4.4), 2027 EOL See www.moxa.com/MIL

Computer Interface

Ethernet Ports	Auto-sensing 10/100/1000 Mbps ports (RJ45 connector) x 3
Serial Ports	RS-232/422/485 ports x 8, software selectable (RJ45)
USB 2.0	USB 2.0 hosts x 2, type-A connectors
Digital Input	DIs x 4
Digital Output	DOs x 4
Expansion Slots	UC-8410A-LX Series: 1
Cellular Antenna Connector	UC-8410A-LX Series: 2
Number of SIMs	UC-8410A-LX Series: 1
SIM Format	UC-8410A-LX Series: Mini
Console Port	1 x 4-pin header to DB9 console port

Ethernet Interface

Magnetic Isolation Protection	1.5 kV (built-in)

Serial Interface

Baudrate	50 bps to 115.2 kbps
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 RTS Toggle (RS-232 only)

Serial Signals

RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422	Tx+, Tx-, Rx+, Rx-, GND
RS-485-2w	Data+, Data-, GND
RS-485-4w	Tx+, Tx-, Rx+, Rx-, GND

Digital Inputs

Channel-to-Channel Isolation	3000 VDC
Connector	Screw-fastened Euroblock terminal
Dry Contact	On: short to GND Off: open

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Sensor Type	Dry contact Wet contact (NPN or PNP)
Wet Contact (DI to COM)	On: 10 to 30 VDC Off: 0 to 3 VDC

Digital Outputs

Connector	Screw-fastened Euroblock terminal
Current Rating	200 mA per channel
I/O Type	Sink
Voltage	Open-drain to 30 VDC

LED Indicators

System	Power x 1 System ready x 1 Storage x 1 Programmable x 10
LAN	2 per port (10/100/1000 Mbps)
Serial	2 per port (Tx, Rx)

Power Parameters

Input Current	1.57A @ 12 VAC max.
Input Voltage	12 to 48 VDC
Power Consumption	19 W (max.)
Power Connector	Terminal block (for DC models)

Physical Characteristics

Dimensions	200 x 120 x 48.6 mm (7.87 x 4.72 x 1.91 in)
Weight	1,000 g (2.21 lb)
Housing	Metal
IP Rating	IP30
Installation	Wall mounting (standard)

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) Wide Temp. Models with LTE/Wi-Fi: -40 to 70°C (-40 to 158°F)
Storage Temperature (package included)	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)

Standards and Certifications

EMC	EN 55032/35
EMI	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 0.5 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 0.5 kV; Signal: 1 kV

	IEC 61000-4-6 CS: 3 V IEC 61000-4-8 PFMF
Safety	UL/IEC 60950-1 & 62368-1
Shock	IEC 60068-2-27
Vibration	IEC 60068-2-64

Declaration

Green Product	RoHS, CRoHS, WEEE

Warranty

Warranty Period	5 years
Details	See www.moxa.com/warranty

Package Contents

Device	1 x UC-8410A Series computer
Installation Kit	1 x terminal block, 3-pin 1 x wall-mounting kit
Cable	1 x 4-pin header to DB9 console cable 1 x terminal block to power jack converter
Documentation	1 x quick installation guide 1 x warranty card

Dimensions

Unit: mm (inch)
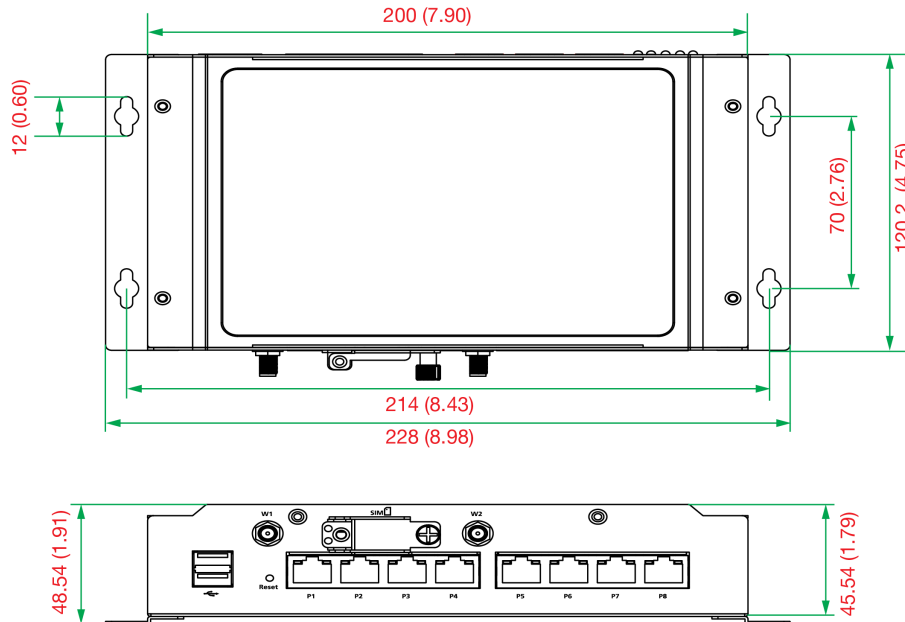
Ordering Information

Model Name	CPU	OS	mPCIe Slot for Wireless Module	SIM Slots	Operating Temp.
UC-8410A-LX	Armv7 Cortex-A7 dual-core 1 GHz	Debian 8	✓	1	-10 to 60°C
UC-8410A-LX (deb9)	Armv7 Cortex-A7 dual-core 1 GHz	Moxa Industrial Linux (Debian 9)	✓	1	-10 to 60°C
UC-8410A-T-LX	Armv7 Cortex-A7 dual-core 1 GHz	Debian 8	✓	1	-40 to 75°C -40 to 70°C (with Wi-Fi)
UC-8410A-T-LX (deb9)	Armv7 Cortex-A7 dual-core 1 GHz	Moxa Industrial Linux (Debian 9)	✓	1	-40 to 75°C -40 to 70°C (with LTE/Wi-Fi)
UC-8410A-NW-LX	Armv7 Cortex-A7 dual-core 1 GHz	Debian 8	–	–	-10 to 60°C
UC-8410A-NW-LX (deb9)	Armv7 Cortex-A7 dual-core 1 GHz	Moxa Industrial Linux (Debian 9)	–	–	-10 to 60°C
UC-8410A-NW-T-LX	Armv7 Cortex-A7 dual-core 1 GHz	Debian 8	–	–	-40 to 75°C
UC-8410A-NW-T-LX (deb9)	Armv7 Cortex-A7 dual-core 1 GHz	Moxa Industrial Linux (Debian 9)	–	–	-40 to 75°C

Accessories (sold separately)

Antennas

ANT-WDB-ARM-02	2.4/5 GHz, omni-directional rubber duck antenna, 2 dBi, RP-SMA (male)
ANT-LTE-OSM-03-3m BK	700-2700 MHz, multi-band antenna, specifically designed for 2G, 3G, and 4G applications, 3 m cable
ANT-LTE-OSM-06-3m BK MIMO	Multiband antenna with screw-fastened mounting option for 700-2700/2400-2500/5150-5850 MHz frequencies
ANT-LTE-ASM-04 BK	704-960/1710-2620 MHz, LTE omni-directional stick antenna, 4.5 dBi
ANT-LTE-ASM-05 BK	704-960/1710-2620 MHz, LTE stick antenna, 5 dBi

Cables

CBL-F9DPF1x4-BK-100	Console cable with 4-pin connector, 1 m

Cellular Wireless Modules

UC-8410A LTE-CAT4-EU	Telit LE910C4-EU LTE Cat. 4 mini card with 2 M2.5 screws for the EMEA region, compatible with UC-8410A hardware rev. 2.1.0 and higher
UC-8410A LTE-CAT4-AP	Telit LE910C4-AP LTE Cat. 4 mini card with 2 M2.5 screws for the APAC region, compatible with UC-8410A hardware rev. 2.1.0 and higher

Wi-Fi Wireless Modules

Wi-Fi-BGN(252NI)	Wi-Fi module, 2 antennas with cable and connector, 2 black screws, 2 lock washers, 2 nuts, 1 thermal pad

DIN-Rail Mounting Kits

UC-8410A DIN-rail Kit	DIN-rail kit with 6 M3 screws (also included in the UC-8410A Series package)

Power Adapters

PWR-24250-DT-S1	Power adapter, 90 to 264 VAC, 24 VDC, 2.5 A DC load

Power Cords

PWC-C13CN-3B-183	Power cord with three-prong China (CN) plug, 1.83 m
PWC-C13AU-3B-183	Power cord with Australian (AU) plug, 1.83 m
PWC-C13JP-3B-183	Power cord with Japan (JP) plug, 7A/125V, 1.83 m

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PWC-C13UK-3B-183	Power cord with United Kingdom (UK) plug, 1.83 m
PWC-C13US-3B-183	Power cord with United States (US) plug, 1.83 m
PWC-C13EU-3B-183	Power cord with Continental Europe (EU) plug, 1.83 m