UC-8416/8418 Series

Arm-based wireless-enabled wall-mount industrial computers with 16 serial ports, 3 LANs, up to 2 CAN ports, and up to 12 DI/DO

Features and Benefits

• Intel XScale IXP435 533 MHz processor

• 8 RS-232/422/485 serial ports

• 2 CAN ports (UC-8418)

• 8 unmanaged-switch ports (UC-8416)

• 12 digital input and 12 digital output channels (UC-8418)

• 3 10/100 Mbps Ethernet ports

• 2 USB 2.0 hosts for mass storage devices

• Supports IPv6 function (Linux model only)

• DIN-rail or wall-mounting installation

• Robust, fanless design

• -40 to 75°C wide-temperature model available

• Ready-to-run Embedded Linux or Windows CE 6.0
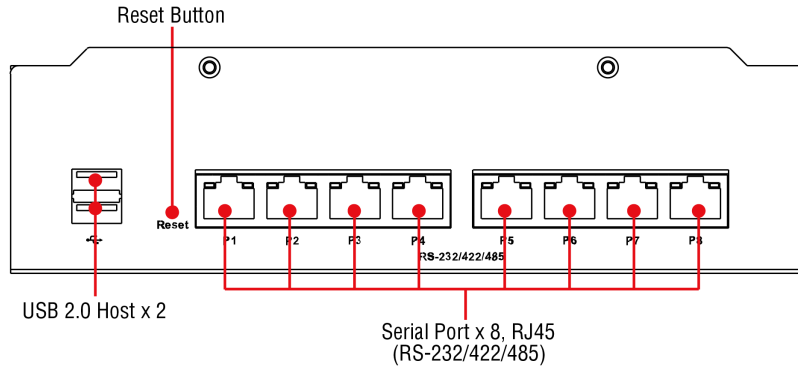
Certifications

Introduction

The UC-8416/8418 Series embedded computers come with 8 RS-232/422/485 serial ports, 3 Ethernet ports, 2 CAN ports, 8 Ethernet ports, 12 digital input channels, 12 digital output channels, a CompactFlash socket, and 2 USB 2.0 hosts.

The computers use the Intel XScale IXP435 533 MHz RISC CPU. This powerful computing engine supports several useful communication functions, but will not generate too much 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-8418, and the 32 MB NAND Flash can be used to provide additional data storage. Moreover, the 256 KB SRAM offers a better data retention mechanism for avoiding data loss. These computers come with various communication interfaces, such as serial ports, Ethernet ports, CAN ports, and digital input/output channels, making them ideal as a communication platform for industrial applications that require network and device communications.
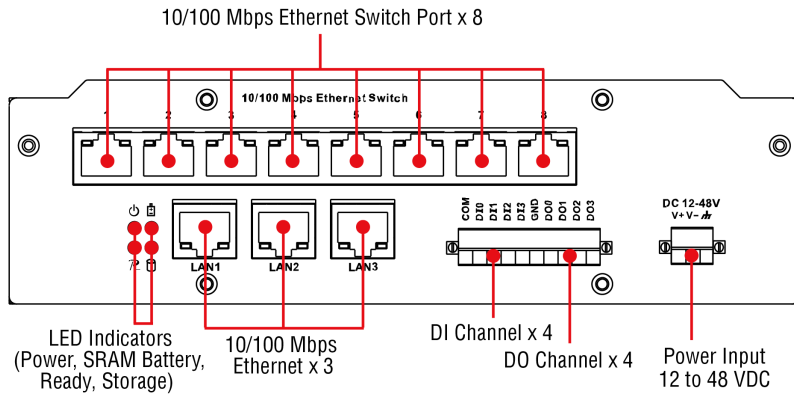
The UC-8416/8418 Series comes with the Linux 2.6 or Windows CE 6.0 platform preinstalled to provide an open software operating system for software program development. Software written for a desktop PC can be easily ported to the UC-8416/8418 Series platform by using a common compiler, without needing to modify the code, making these computers an optimal solution for use with industrial applications, but with minimal cost and effort. In addition to the standard models of the UC-8416/8418 Series,-40 to 75°C wide-temperature models are also available for harsh industrial environments.
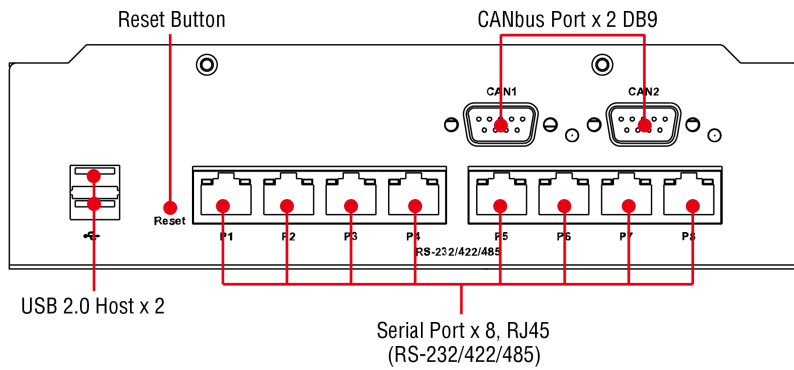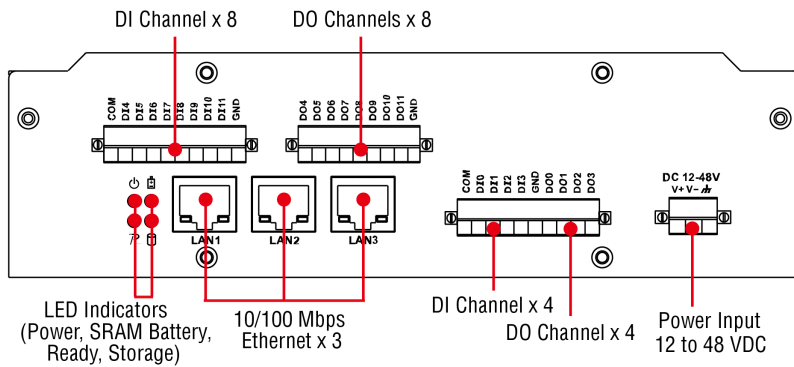
Appearance

Front View (UC-8416)

Reset Button

Reset

USB 2.0 Host x 2

P1 P2 P3 P4 P5 P6 P7 P8

RS-232/422/485

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

Rear View (UC-8416)

10/100 Mbps Ethernet Switch Port x 8

10/100 Mbps Ethernet Switch

LAN1 LAN2 LAN3

COM DI0 DI1 DI2 DI3 GND DO0 DO1 DO2 DO3

DC 12-48V
V+ V−

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

10/100 Mbps
Ethernet x 3

DI Channel x 4

DO Channel x 4

Power Input
12 to 48 VDC

Front View (UC-8418)

Reset Button

CANbus Port x 2 DB9

CAN1 CAN2

Reset

USB 2.0 Host x 2

P1 P2 P3 P4 P5 P6 P7 P8

RS-232/422/485

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

Rear View (UC-8418)

DI Channel x 8

DO Channels x 8

COM DI4 DI5 DI6 DI7 DI8 DI9 DI10 DI11 GND

DO4 DO5 DO6 DO7 DO8 DO9 DO10 DO11 GND

LAN1 LAN2 LAN3

COM DI0 DI1 DI2 DI3 GND DO0 DO1 DO2 DO3

DC 12-48V
V+ V−

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

10/100 Mbps
Ethernet x 3

DI Channel x 4

DO Channel x 4

Power Input
12 to 48 VDC

Specifications

Computer

CPU	Intel XScale IXP435 533 MHz processor
Supported OS	LX models: Linux 2.6.23 CE models: Windows Embedded CE 6.0
Storage Slot	CF slots x 1
Expansion Slots	PCI/104 slots x 1

Computer Interface

Ethernet Ports	All models: Auto-sensing 10/100 Mbps ports (RJ45 connector) x 3 UC-8416 Series: 10/100 Mbps unmanaged ports (RJ45 connector) x 8
Serial Ports	RS-232/422/485 ports x 8, software-selectable (RJ45)
USB 3.0	USB 2.0 hosts x 2, type-A connectors
Digital Input	UC-8416 Series: DIs x 4 UC-8418 Series: DIs x 12
Digital Output	UC-8416 Series: DOs x 4 UC-8418 Series: DOs x 12
Console Port	1 x 4-pin header to DB9 console port

Memory

Flash	16 MB NOR Flash 32 MB NAND Flash
SRAM	256 KB
DRAM	256 MB

Input/Output Interface

Buttons	Reset button

Digital Inputs

Channel-to-Channel Isolation	3k VDC
Connector	Screw-fastened Euroblock terminal
Dry Contact	On: short to GND Off: open
I/O Mode	DI
Sensor Type	Wet Contact (NPN or PNP)
Wet Contact (DI to COM)	On: 10 to 30 VDC Off: 0 to 3 VDC
Connector	Screw-fastened Euroblock terminal

Digital Outputs

Connector	Screw-fastened Euroblock terminal
Current Rating	200 mA per channel
I/O Type	Sink
Voltage	12 to 48 VDC

Ethernet Interface

Magnetic Isolation Protection	N/A, 1.5 kV (built-in)

LED Indicators

System	Power x 1 System Ready x 1 Storage x 1 SRAM battery x 1
LAN	2 per port (10/100 Mbps)
Serial	2 per port (Tx, Rx)

Serial Interface

Baudrate	50 bps to 921.6 kbps
Connector	8-pin RJ45
Data Bits	5, 6, 7, 8
Flow Control	ADDC® (automatic data direction control) for RS-485, XON/XOFF
Isolation	N/A
Parity	None, Even, Odd, Space, Mark
Stop Bits	1, 1.5, 2

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

CAN Interface

Baudrate	50 bps to 921.6 kbps
Connector	DB9 male
Isolation	2 kV (built-in)
No. of Ports	2
Signals	CAN_L, CAN_H, CAN Signal GND
Protocols	CAN 2.0A, CAN 2.0B

Power Parameters

Input Current	310 mA @ 48 VDC 625 mA @ 24 VDC 1350 mA @ 12 VDC
Input Voltage	12 to 48 VDC
Power Connector	Terminal block (for DC models)
Power Consumption	15 W (max.)

Physical Characteristics

Housing	Metal
Dimensions	200 x 57 x 120 mm (7.87 x 2.24 x 4.72 in)
Weight	Product only: 1,000 g (2.22 lb)
Installation	Wall mounting, DIN-rail mounting

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)
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 55032/24
EMI	CISPR 32, FCC Part 15B Class B
Safety	EN 60950-1, UL 60950-1
Shock	IEC 60068-2-27
Vibration	IEC 60068-2-34

Declaration

Green Product	RoHS, CRoHS, WEEE

Warranty

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

Package Contents

Device	1 x UC-8416/8418 Series computer
Installation Kit	1 x DIN-rail kit 1 x wall-mounting kit
Cable	1 x 4-pin header to DB9 console port 1 x DB9 male to RJ45 8-pin 1 x terminal block to power jack converter
Power Supply	1 x power adapter, universal
Documentation	1 x quick installation guide 1 x document and software CD 1 x warranty card

Dimensions

Unit: mm (inch)
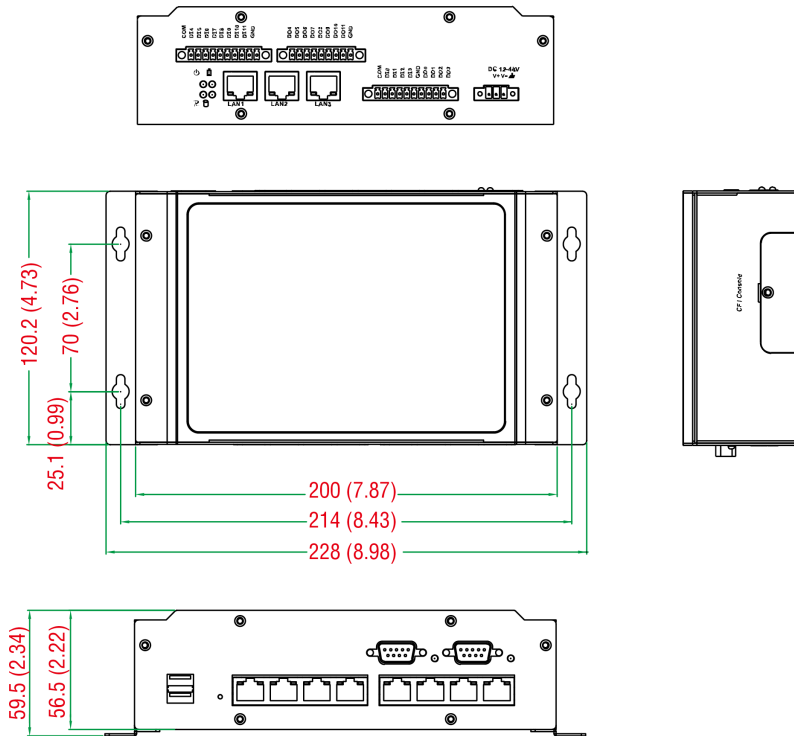
Ordering Information

Model Name	CPU	OS	DRAM	SRAM	NOR Flash	NAND Flash	PCI/ 104 Slots	CF Slot	USB	Ethernet Ports	Switch Ports	CAN Ports	Serial Ports	DIO Ports	Operating Temp.
UC-8416-LX	Intel Xscale IX-P435, 533 MHz	Linux 2.6.23	256 MB	256 KB	16 MB for OS	32 MB	1	1	2	3	8	0	8	4 x DI, 4 x DO	-10 to 60°C
UC-8416-CE	Intel Xscale IX-P435, 533 MHz	WinCE 6.0	256 MB	256 KB	16 MB for OS	32 MB	1	1	2	3	8	0	8	4 x DI, 4 x DO	-10 to 60°C
UC-8416-T-LX	Intel Xscale IX-P435, 533 MHz	Linux 2.6.23	256 MB	256 KB	16 MB for OS	32 MB	1	1	2	3	8	0	8	4 x DI, 4 x DO	-40 to 75°C
UC-8416-T-CE	Intel Xscale IX-P435, 533 MHz	WinCE 6.0	256 MB	256 KB	16 MB for OS	32 MB	1	1	2	3	8	0	8	4 x DI, 4 x DO	-40 to 75°C
UC-8418-LX	Intel Xscale IX-P435, 533 MHz	Linux 2.6.23	256 MB	256 KB	16 MB for OS	32 MB	1	1	2	3	0	2	8	12 x DI, 12 x DO	-10 to 60°C
UC-8418-CE	Intel Xscale IX-P435,	WinCE 6.0	256 MB	256 KB	16 MB for OS	32 MB	1	1	2	3	0	2	8	12 x DI, 12 x DO	-10 to 60°C

Model Name	CPU	OS	DRAM	SRAM	NOR Flash	NAND Flash	PCI/104 Slots	CF Slot	USB	Ethernet Ports	Switch Ports	CAN Ports	Serial Ports	DIO Ports	Operating Temp.
	533 MHz														
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