UNO Embedded Automation Computers

Open and Robust Computing Power for Industrial Automation Applications

- Facility Management
- Environmental Monitoring
- Building Automation
- Factory Automation
- Machine Automation
- Intelligent Transportation
- Fleet Management
- Power / Energy

ADVANTECH
*e*Automation

UNO

Designed for Versatility, Built to Empower

Advantech's UNO series of Embedded Automation Computers have been well proven through worldwide usage in versatile industrial applications, empowering system performance and reliability.

Power/Energy
UNO-2171

Facility Management
UNO-2182

Logistics
UNO-3072

Fleet Management
UNO-2176

Machine Automation
UNO-3074

Access Control
UNO-1019

Transportation
UNO-2059

Power Management
UNO-2050
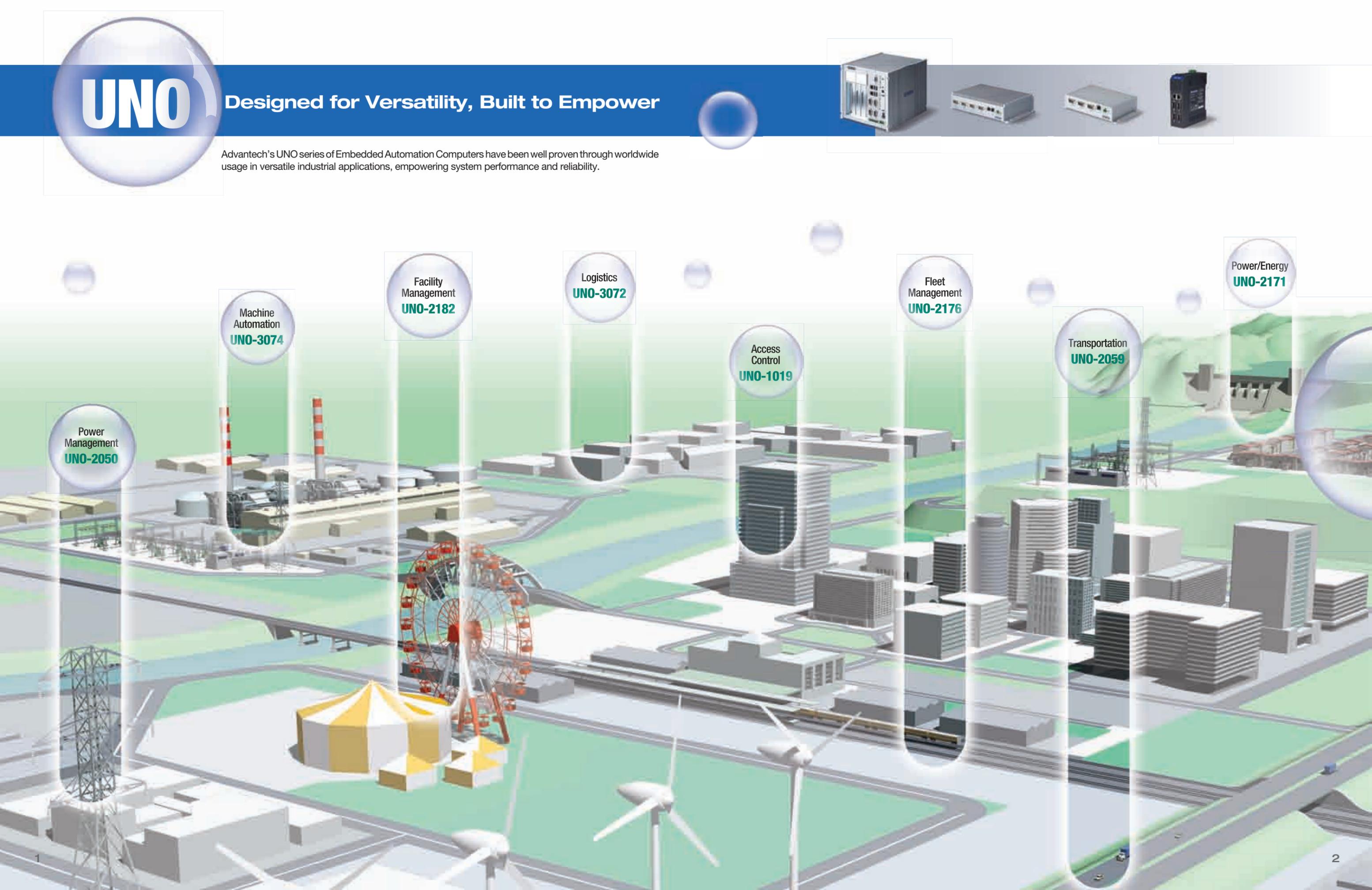
UNO More than an IPC

UNO: Open, Robust, and Fanless Computing Power

Advantech's UNO series of Embedded Automation Computers are designed to fulfill the needs of mission-critical automation applications. Their embedded design, industrial automation features and advanced computer technology deliver robustness, reliability and flexibility to satisfy customers who are looking for a rugged & compact computing platform with an industrial design and built-in I/O for diverse automation applications.

Fanless Design

Reliable Module Design

Wide Operating Temperature

Flexible Mounting

Compact Size

Open Operating System

Computing Power
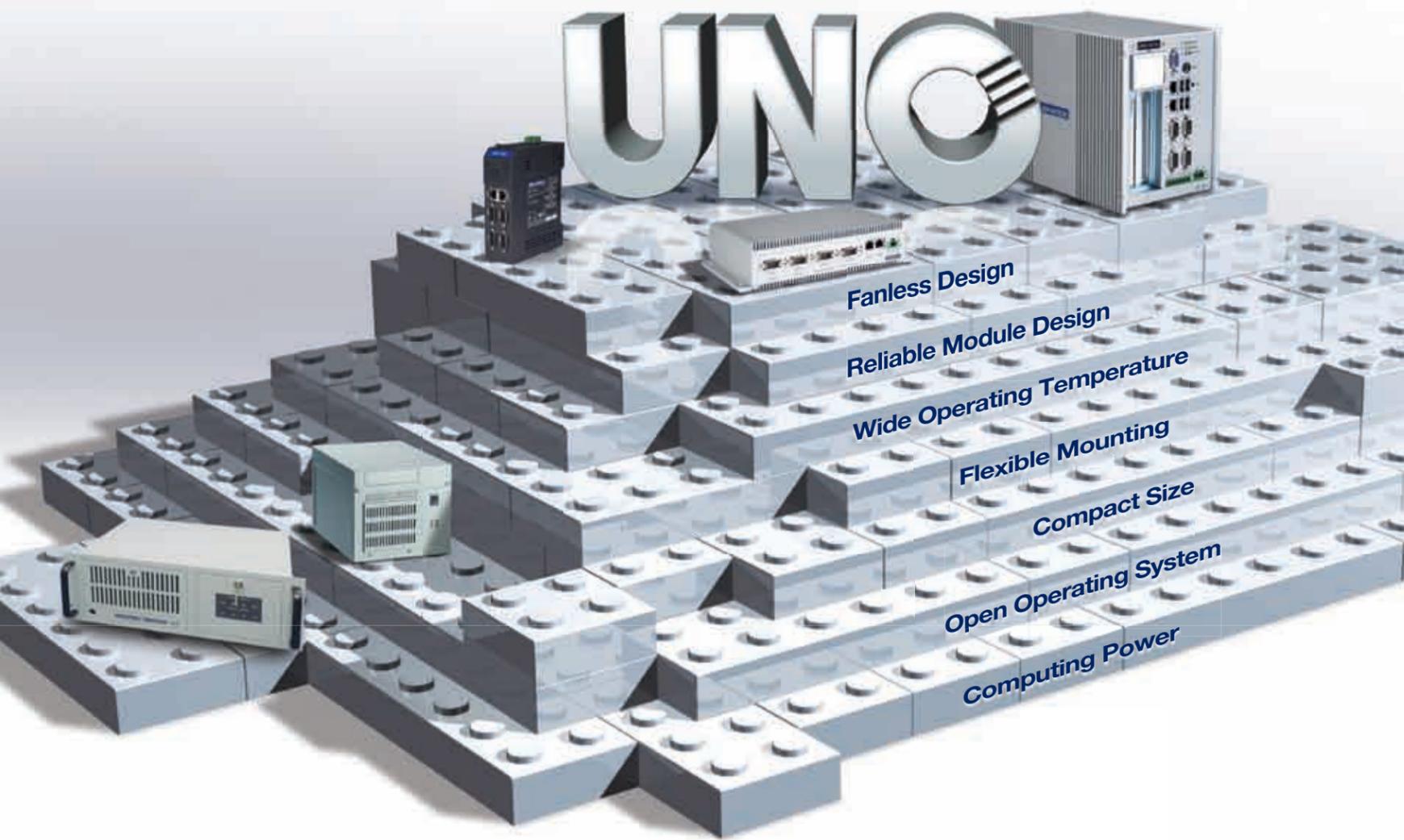
UNO Complete Product Lines

UNO-1000 Series

DIN-rail, Fanless Box PC's—
DIN-rail Mounted Fanless PC's to Expand the Power of Control Systems

Advantech's UNO-1000 Series are compact and DIN-rail mounted fanless industrial PC's. They feature a RISC-based processor with a wide operating temperature (up to 70° C), and are suitable as communication controllers or in protocol converter applications in mission-critical environments.

UNO-2000 Series

Compact, Fanless Box PC's—
Compact, Application-Ready Platforms to Fulfill Diverse Applications

Advantech's UNO-2000 series are fanless industrial PC's with DIN-rail and Wallmount options. They feature an AMD GX2-400 processor, dual LANs, and RS-232/422/485, and more. This series is highly suitable for gateway, and data server applications.

UNO-2100 Series

High Performance, Fanless Box PC's with PC/104 Expansion—
Scalable, Low Power Consuming Platforms to Deliver High-performance Computing and Communications

Advantech's UNO-2100 series are fanless wallmounted industrial PC's with PC/104 expansion. They feature a wide computing power range (from Celeron M 1GHz to Core 2 Duo 1.5GHz), and their PC/104 expansion capability allows users to add any 3rd party I/O module for wide range of applications.

UNO-3000 Series

Fanless Box PC's with PCI Expansion—
Front Accessible, High Performance Platforms featuring 2 or 4 PCI-slot Expansion

Advantech's UNO-3000 series are fanless wallmounted front access industrial PC's with PCI-bus expansion. They feature wide computing power ranging from Celeron M 1GHz to Core 2 Duo 1.5GHz. Their PCI-bus expansion capability allows users to add any 3rd party I/O module for wide range of applications.

Robust Industrial Design

Advantech's UNO series of Embedded Automation Computers are designed for the harsh working environments of factory floors. Their embedded design without moving parts and industrial-grade features makes the UNO series the best choice for automation applications.

Fanless Design

The UNO series are robust computers without rotating parts, such as a CPU fan, system fan, power supply fan or HDD. This concept significantly increases reliability, extends MTTR, and extremely reduces maintenance efforts. Therefore, you don't need to worry about a CPU cooler or HDD failure issue anymore, even in dusty environments.

No Internal Cabling

Unlike general BOX PC designs where cables are used for wiring between connectors and CPU boards, connectors on the UNO series are soldered directly on the PCB. Therefore, there is no internal cabling inside UNO chassis. This makes UNO much more reliable than general BOX PC's in harsh environments.
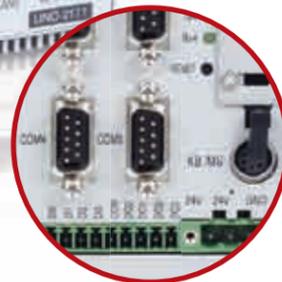
Industrial-grade Power

UNO's are designed to accept wide PC power input (ex. 9~36VDC) in factory floors. In addition, UNO also features power reversal protection that prevents system damage when power inputs are reversed.

Industrial Proven Design

High Tolerance to Vibration and Shock

UNO series is designed with high tolerance to shock (up to 50G) and vibration (up to 2G) for harsh environments, such as vehicle, transportation and fleet applications.

Tailor-made Thermal Design for Onboard CPU and RAM

To optimize thermal performance, every UNO is equipped with a tailor-made thermal design to serve its onboard CPU and RAM, and goes through a complete thermal test procedure in order to guarantee best quality for users' critical applications.

Battery-backup Memory

To keep critical data alive when system power is lost, each UNO is equipped with onboard battery-backup memory. Onboard battery supplies power to keep memory operating all the time. In addition, battery-backup memory can also act as temporary data buffer that helps reduce CF's access times dramatically.

Wide Operating Temperature Range

UNO series supports a wide operating temperature through selecting low-voltage CPU's, industrial-grade components, as well as sophisticated thermal design (up to 70° C) operating temperature that meets critical industrial-grade applications.

Compact Design
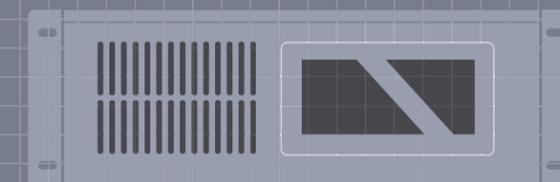
19" 4U Rack Chassis
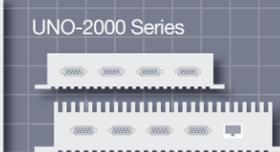
UNO-2000 Series

UNO-1000 Series

UNO-2100 Series
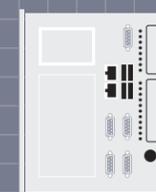
UNO-3000 Series

Building Blocks for Your System

Advantech's Configure-To-Order Services (CTOS) allows you to configure an application-ready UNO system through a web-based configuration tool in a few steps. In UNO CTOS Services, you can choose I/O boards, select storage device in different sizes and appropriate operation system in seconds without worrying about compatibility issues or assembly efforts. Please contact your local sales representatives for details.
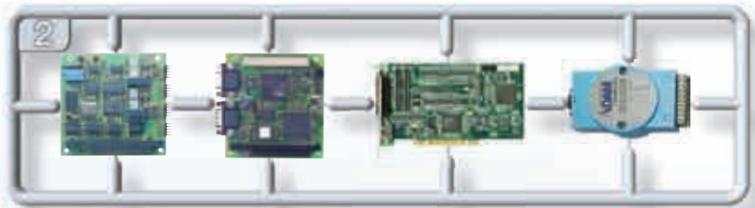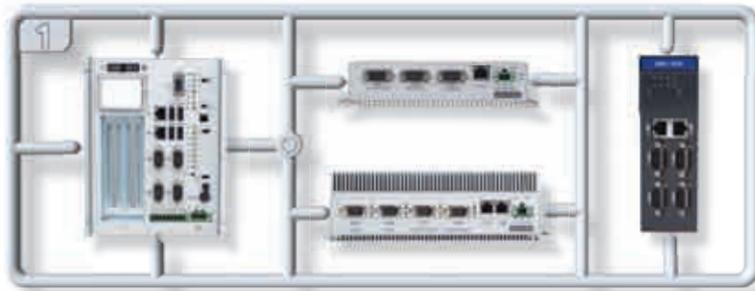
UNO-2000 + ADAM I/O Modules

UNO-2000 + PC/104 Modules

UNO-2100 + PC/104 Modules

UNO-3000 + PCI Cards

Operating System and Utilities

Embedded Operating System Support

In addition to Windows 2000/XP, Windows XP Embedded, Windows CE and Embedded Linux are supported to meet needs of real-time & compact-sized OS.

Multi-Language Support

UNO XP Embedded OS supports 9 languages including English, Traditional / Simplified Chinese, Japanese, Spanish, German, Russian, French and Korean.

Real-time Performance

Windows CE .NET provides users cycle times of 1 ms that meets or even exceeds 95% of hard real-time applications.

EWF Function Protects XPe

Windows XP Embedded OS provides users Enhanced Write Filter (EWF) function to write-protect one or more partitions on UNO systems.

Remote Management Service – Advantech's DiagAnywhere Utility

UNO's Embedded XP / CE OS' includes Advantech's "DiagAnywhere" remote maintenance software. This allows users to achieve remote maintenance tasks of up to 16 UNO systems in single display over Internet including remote monitor and control, remote screen snapshot and recording and file upload / download. This great tool helps you eliminate on-site maintenance efforts greatly.

UNO-2100 Series Introduction & Features

High Performance, Fanless Box PC's with PC/104 Expansion

- Wide Computing Power (up to Core 2 Duo 1.5GHz)
- Wide Operating Temperature (Up to 65°C)
- Wide DC Power Input from 10 to 53VDC
- PC/104, PC/104+ and PCI-104 Expansion
- Advantech FPM Series Integration
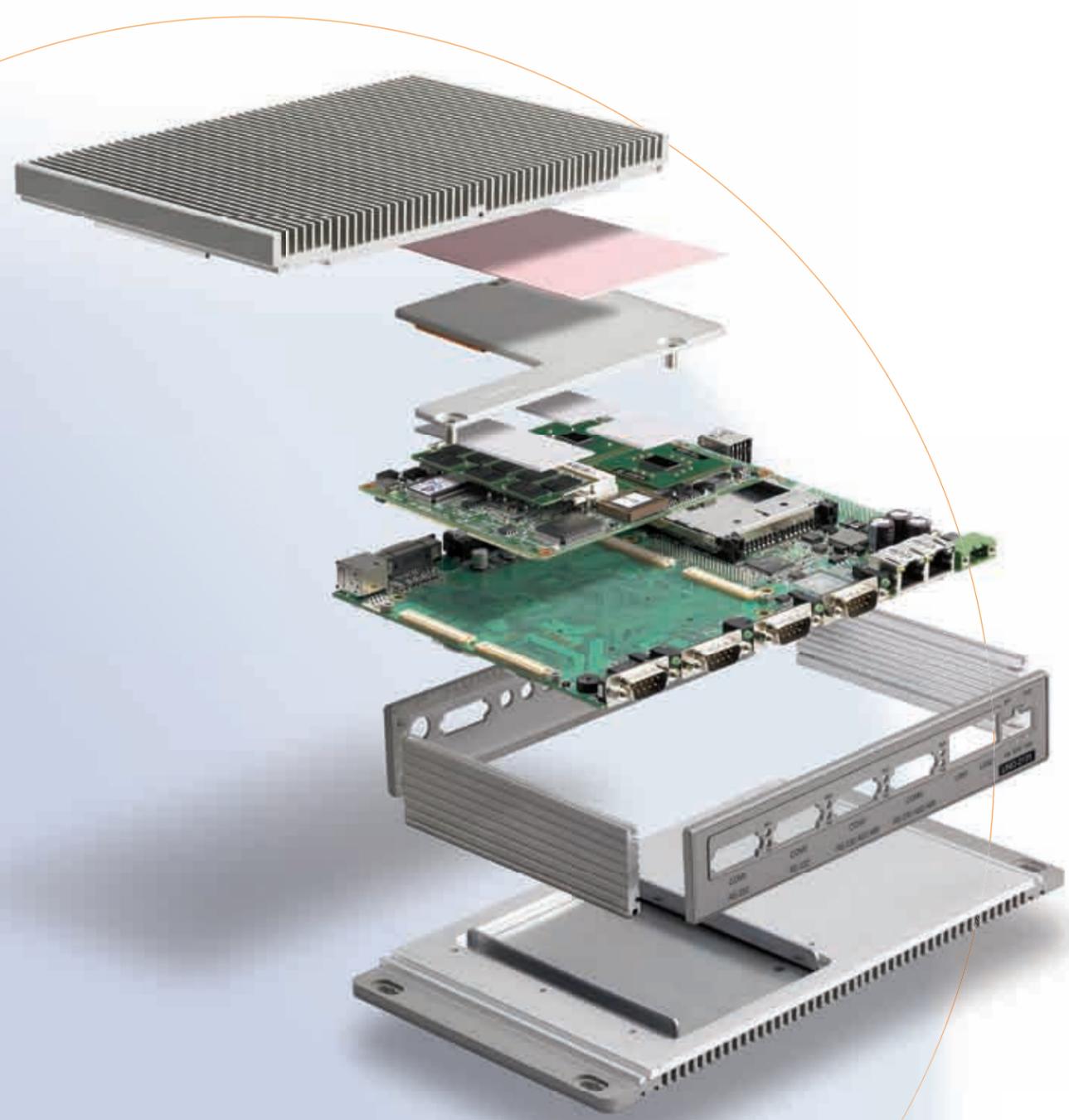
UNO-2160/2170 — Intel Celeron M UNO with PC/104 Expansion

Dual LAN | **Quad Serial** | **PCMCIA**

1. LAN x 2
2. RS-232/422/485 x 2
3. RS-232 x 2
4. KB / MS
5. VGA
6. Printer
7. PCMCIA
8. USB x 2
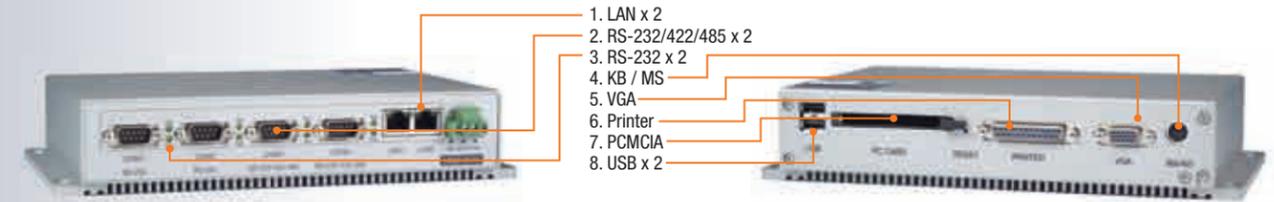
UNO-2171 — Intel Pentium M UNO with PC/104+ Expansion

Audio | **Quad Serial** | **PCMCIA**

1. LAN x 2
2. RS-232/422/485 x 2
3. RS-232 x 2
4. KB / MS
5. VGA
6. Audio
7. PCMCIA
8. USB x 2
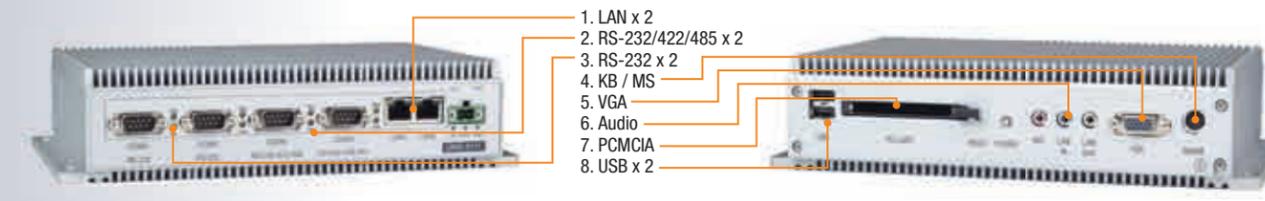
UNO-2172/2182 — Intel Core 2 Duo UNO with PCI-104 Expansion

Dual GbE | **DVI-I** | **SATA**

1. GigaLAN x 2
2. RS-232/422/485 x 2
3. RS-232 x 2
4. DVI-I
5. SATA 1.0
6. Audio
7. PCMCIA
8. USB x 2
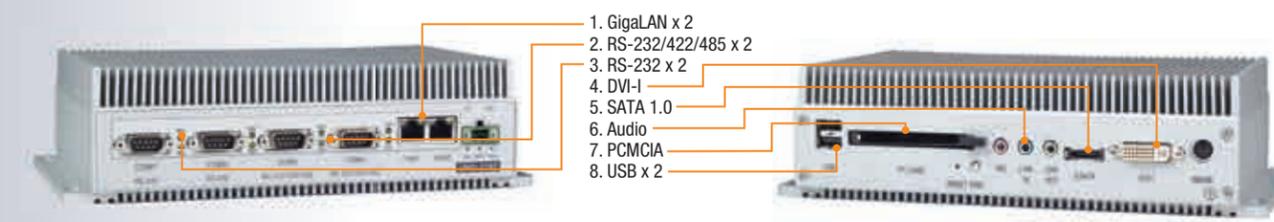
UNO-2176 — Intel Pentium M UNO with Isolated I/O

Dual LAN | **Six Serial** | **DI/O**

1. LAN x 2
2. Iso. RS-232/422/485 x 2
3. RS-232 x 2
4. USB x 2
5. VGA
6. KB / MS
7. Isolated RS-232/422/485 x 2
8. Isolated DI/O x 16
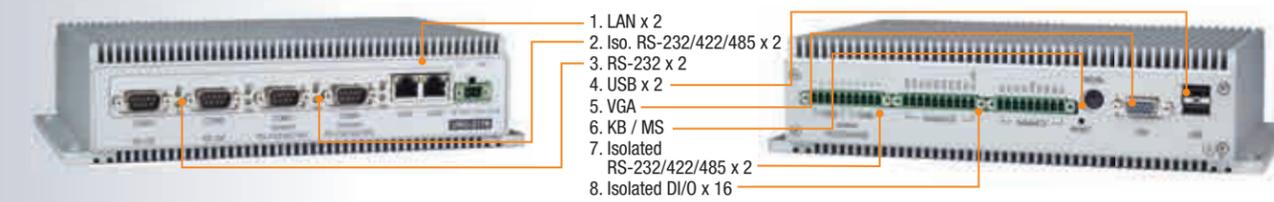
UNO-2000 Series Introduction & Features

Compact, Fanless Box PC's

- AMD GX2-533 Low-Power Consuming CPU
- Onboard RS-232/422/485, CANBus and Direct I/O
- Wide DC Power Input, from 10 to 48VDC
- Compact and Small Footprint Supports DIN-rail / Wallmount
- Advantech FPM Series and ADAM I/O Integration

55°C FPM ADAM

Compact Design

UNO-2000 series is designed compact (7.5"
x 4.2" x 1.4"), saving space in working areas.
Moreover, their DIN-rail and Wallmount design
provides easy installation.
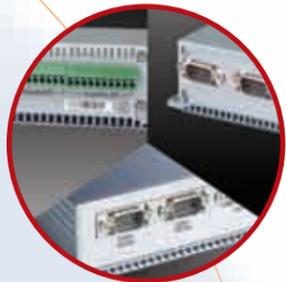
Diverse Onboard I/O

Offers diverse onboard I/O configurations from
isolated digital I/O lines, RS-232/422/485 to
CANbus. It's ideal solution for gateway, protocol
converter and data server applications.

UNO-2050E — AMD GX2 UNO with Isolated I/O

Dual LAN | Quad Serial | DI/O

1. KB / MS
2. VGA
3. RS-232 x 2
4. Iso. DI/O x 16
5. Iso. RS-232/422/485 x 2
6. LAN x 2
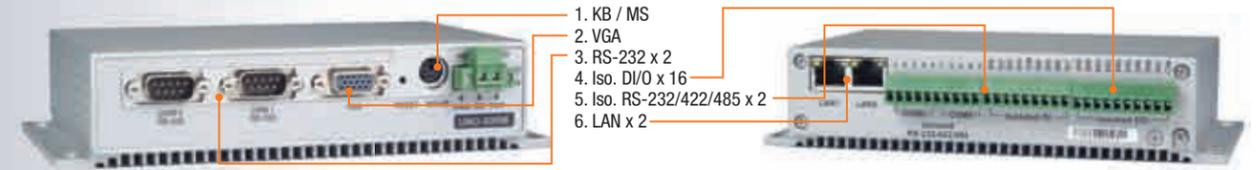
UNO-2052E — AMD GX2 UNO with Isolated CANbus

Dual CAN | LAN | Serial

1. VGA
2. RS-232 x 1
3. USB x 1
4. LAN x 1
5. Isolated CANBus x 2
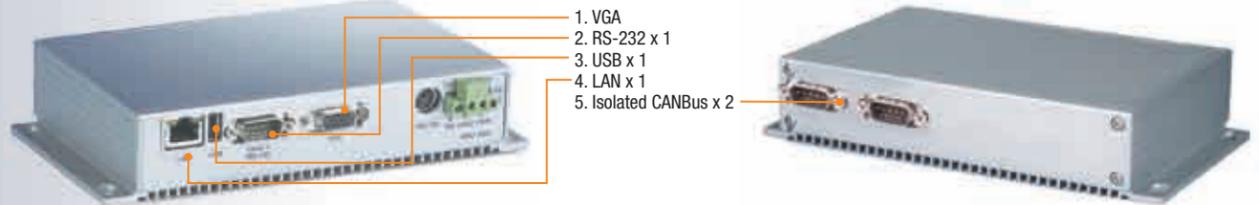
UNO-2053E — AMD GX2 UNO with Dual LAN

Dual LAN | PCMCIA | Audio

1. KB / MS
2. VGA
3. RS-232 x 2
4. USB x 2
5. PCMCIA
6. Audio
7. LAN x 2
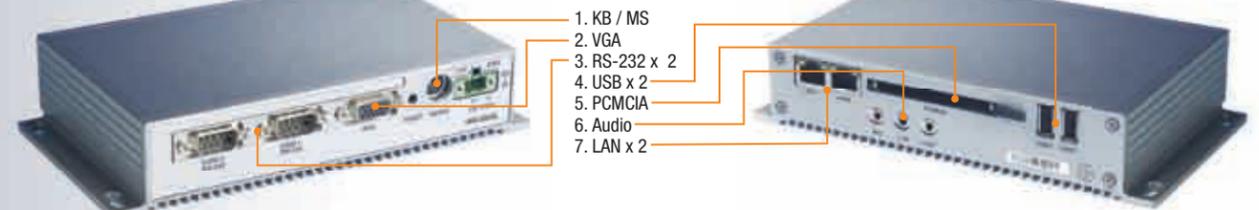
UNO-2059E — AMD GX2 UNO with RS-232/422/485

Quad Serial | PCMCIA | LAN

1. LAN x 1
2. RS-232/485 x 2
3. RS-232/422/485 x 1
4. RS-232/422/485 x 1
5. PCMCIA
6. VGA
7. KB / MS
8. USB x 2
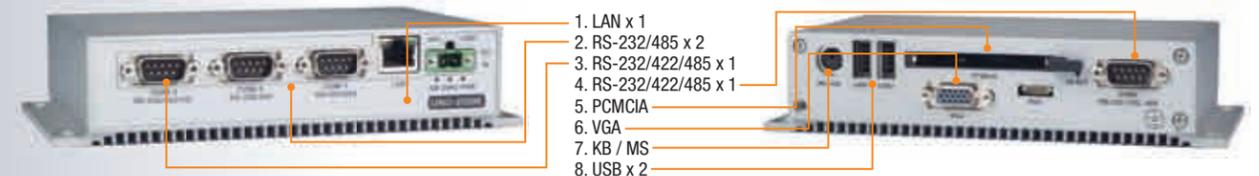
UNO-2000 Series Selection Guide

Model Name	UNO-2050E	UNO-2052E	UNO-2053E	UNO-2059E
CPU	GX2-400 MHz			
Onboard RAM	256 MB DDR SDRAM			
Battery-Backup RAM	-			
VGA/Mouse/Keyboard	Yes			
Audio	-	-	Yes	-
Serial Ports	2 x RS-232 2 x Isolated RS-232/422/485	2 x CAN 1 x RS-232	2 x RS-232	2 x RS-232/485 2 x RS-232/422/485
Ethernet Ports	2 x 10/100Base-T	1 x 10/100Base-T	2 x 10/100Base-T	1 x 10/100Base-T
USB Ports	-	One	Two	Two
PC Card Slots	-	-	One	One
Printer Ports	-	-	-	-
PC/104 Expansion	-	-	-	-
PCI Expansion	-	-	-	-
Onboard I/O	8-ch isolated DI 8-ch isolated DO	-	-	-
Watchdog Timer	Yes			
CompactFlash Slots	One internal			
2.5" HDD Expansion	Option			
Operating Systems	Windows XP Embedded, Windows CE 5.0, Windows 2000/XP, Linux			
Programming Runtime Library	Yes			
Software Development Kit	Yes			
Activesync	Yes			
Web server/ Email service	Yes			
Modem Dial-in (RAS)/ Dial-up Function	Yes			
Mounting	DIN-rail/Wall			
Anti-Vibration	2G w/CF, 1G w/HDD @ IEC 68 section 2-6, sine, 12~300 Hz, 1 Oct./min, 1hr/axis.			
Anti-Shock	20 G w/CF @ DIN IEC 68 section 2-27, half sine, 11ms 50 G w/CF @ Wall/Panel 68 section 2-27, half sine, 11 ms			
Power Input Range	9 ~ 36 VDC			10 ~ 48 VDC
Operating Temperature	-10 ~ 55° C @ 5 ~ 85% RH			
Relative Humidity	95% @ 40° C (non-condensing)			
Power Consumption Typical	15 W			
Power Requirement	Min. 24 W, +24 V @ 1 A power input			
Dimensions (W x D x H)	188.8 x 106.5 x 35.5 mm (7.5" x 4.2" x 1.4")			
Weight	0.8 kg			

Ordering Information

UNO-2050E-IDA0E	GX2 400M, 256MB RAM UNO-2050E
UNO-2052E-IDA0E	GX2 400M, 256MB RAM UNO-2052E
UNO-2053E-IDA0E	GX2 400M, 256MB RAM UNO-2053E
UNO-2059E-IDA0E	GX2 400M, 256MB RAM UNO-2059E
UNO-HD20-AE	UNO-2000 HDD Expansion Kit
UNO-FPM21-AE	UNO & FPM Integration Kit
UNO-ADAM42-AE	UNO-2000 & ADAM I/O Integration Kit

UNO-2100 Series Selection Guide

Model	UNO-2160	UNO-2170	UNO-2171	UNO-2172	UNO-2176	UNO-2182
CPU	Celeron 400 MHz	Celeron M 1 GHz	Celeron M 1.0 GHz, Pentium M 1.4	Celeron M 1.5 GHz, Pentium M 1.6 GHz	Celeron M 1.0 GHz, Pentium M 1.4 GHz	Core 2 Duo 1.5 GHz
Onboard RAM	256 MB SDRAM	512 MB DDR SDRAM	512 MB/1 GB DDR SDRAM	1GB DDR2 SDRAM	512 MB DDR DRAM	1 GB DDR2 SDRAM
Battery-Backup RAM	512 KB		512 KB	512 KB	512 KB	512 KB
VGA/Mouse/ Keyboard	Yes	Yes	Yes	DVI-I	Yes	DVI-I
Audio	-	-	Yes	Yes	-	Yes
Serial Ports	2 x RS-232 2 x RS-232/422/485		2 × RS-232, 2 x RS-232/422/485 with DB9 connectors	2 × RS-232, 2 x RS-232/422/485 with DB9 connectors	2 × RS-232, 2 x Isolated RS-232/422/485 with DB9 connectors, 2 x Isolated RS-232/422/485 with 5-pin screw terminal	2 × RS-232, 2 x RS-232/422/485 with DB9 connectors
Ethernet Ports	2 x 10/100Base-T		2 x 10/100Base-T	2 x 10/100/1000 Base-T	2 x 10/100Base-T	2 x 10/100/1000 Base-T
USB Ports	Two	Two	Two	Two	Two	Two
PC Card Slots	One	One	One	One	-	One
Printer Ports	One	One	-			
PC/104 Expansion	PC/104	PC/104	PC/104+	PCI -104	PC/104	PCI-104
PCI Expansion	-	-	-			
Onboard I/O	-	-	-	-	8-ch Isolated DI 8-ch Isolated DO	-
Watchdog Timer	Yes		Yes			
CompactFlash Slots	One internal		Two internal	One internal	Two internal	One internal
2.5" HDD Expansion	Yes		Yes	Yes	Yes	Yes
Operating Systems	Windows XP Embedded, Windows CE 5.0, Windows 2000/XP, Linux					
Programming Runtime Library	Yes					
Software Development Kit	Yes					
Activesync	Yes					
Web server/ Email service	Yes					
Modem Dial-in (RAS)/ Dial-up Function	Yes					
Mounting	Wal					
Anti-Vibration	2G w/CF, 0.5G w/HDD @ IEC 68 section 2-64, sine,5 ~ 500 Hz, 1 Oct./min, 1hr/axis.		2G w/CF, 1G w/HDD (for X and Y Axis), 1G w/HDD @ IEC 68 section 2-64, sine, 5 ~ 500 Hz, 1 Oct./min, 1hr/axis			
Anti-Shock	20 G w/HDD @ IEC 68 section 2-27, half sine, 11 ms, 50 G w/CF @ IEC 68 section 2-27, half sine, 11 ms					
Power Input Range	9 ~ 36 VDC	9 ~ 36 VDC	10 ~ 53 VDC	9 ~ 36 VDC	9 ~ 36 VDC	9 ~ 36 VDC
Operating Temperature	-20 ~ 50° C @ 5 ~ 85% RH	-20 ~ 50° C @ 5 ~ 85% RH	-20 ~ 65° C @ 5 ~ 85% RH	-20 ~ 50° C @ 5 ~ 85% RH	-20 ~ 65° C @ 5 ~ 85% RH	-20~ 60° C @ 5 ~ 85% RH
Relative Humidity	95% @ 40° C (non-condensing)					
Power Consumption Typical	22 W	24 W	24 W	45W	24 W	35 W
Power Requirement	Min. 48 W, +24 V @ 2 A power input		Min. 48 W, +24 V @ 2 A power input			
Dimensions (W x D x H)	255 x 152 x 50 mm (10" x 6.0" x 2.0")	255 x 152 x 59 mm (10" x 6.0" x 2.3")	255 x 152 x 69 mm (10" x 6.0" x 2.7")	255 x 152 x 59 mm (10" x 6.0" x 2.3")	255 x 152 x 69 mm (10" x 6.0" x 2.7")	
Weight	1.6 kg		2.4 kg			

Ordering Information

UNO-2160-JDA0E	C-M 400M, 256MB RAM UNO-2160
UNO-2170-C11E	C-M 1G, 512MB RAM UNO-2170
UNO-2171-C11E	C-M 1G, 512MB RAM UNO-2171
UNO-2171-P11E	P-M 1.4G, 512MB RAM UNO-2171
UNO-2171-P12E	P-M 1.4G, 1GB RAM UNO-2171
UNO-2172-C11E	C-M 1G, 512MB RAM UNO-2172
UNO-2172-C22E	C-M 1.5G, 1GB RAM UNO-2172
UNO-2172-P22E	P-M 1.6G, 1GB RAM UNO-2172
UNO-2176-C11E	C-M 1G, 512MB RAM UNO-2176
UNO-2176-P11E	P-M 1.4G, 512MB RAM UNO-2176
UNO-2182-D12E	Core 2 Duo 1.5G, 1GB RAM UNO-2182
UNO-PCM22-AE	2 x PC/104 Expansion Kit
UNO-FPM21-AE	UNO & FPM Integration Kit

UNO-3000 Series Introduction & Features

## Fanless Box PC's with PCI Expansion

- Wide Computing Power (up to Core 2 Duo 1.5GHz)
- Front Accessible Design
- Dual Power Inputs to Secure Operation When Power Fails
- 512KB Battery-backup SRAM to Secure Critical Data
- Two / Four PCI-slot Expansion

Ruggedized Design
Unlike traditional IPC's, UNO-3000's CPU board, I/O board and backplane are well organized. No any cabling or moving parts are present, guaranteeing system resilience in harsh environments.
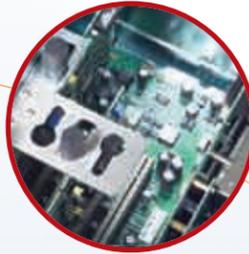
Front Accessible Design
To help easy wiring and setup, all I/O lines are located on front panel in UNO-3000 series. In addition, you also only need to remove the upper cover for storage device and PCI boards installation inside UNO.
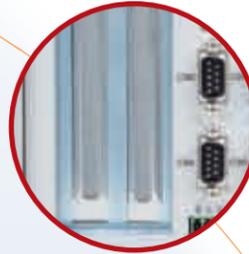
Anti-Shock / Vibration Design
To meet anti-shock / vibration requirements in harsh environments, damping rubber is equipped on HDD disk bay. Also, we provide rubber cylinders to make sure tight connection between PCI boards with backplane.

Dual Power Inputs
UNO-3000 supports dual power inputs at 9 ~ 36VDC range. Once primary power fails, it automatically switches to secondary power simultaneously assuring continuous operation.

Rich Onboard I/O and Indicators
In MA applications, onboard I/Os and indicators are required for fast alarm handling and status monitoring. In UNO-3000 series, rich serial and direct I/Os are equipped.
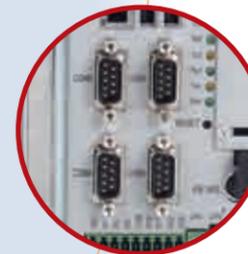
UNO-3072L

2 PCI	Quad Serial	2 LAN	4 USB
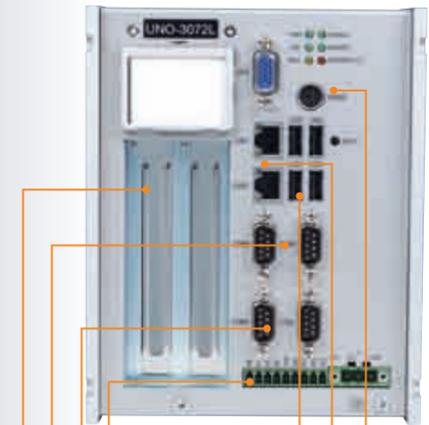
1. USB x 4
2. LAN x 2
3. KB / MS
4. Iso. DI/O x 8
5. RS-232/422/485 x 2
6. RS-232 x 2
7. PCI x 2

UNO-3072/3074

4 PCI	PCMCIA	8 DI/O	Dual CF
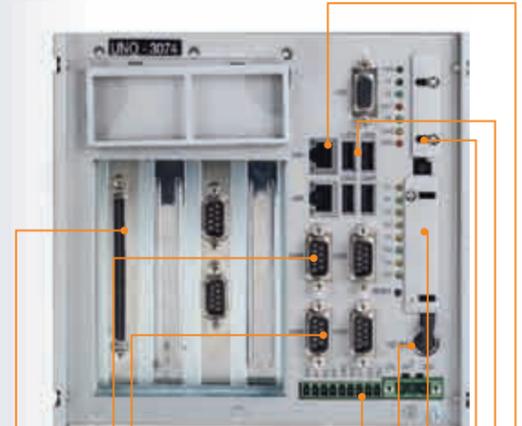
1. KB / MS
2. PCMCIA
3. External CF
4. USB x 4
5. LAN x 2
6. Iso. DI/O x 8
7. RS-232/422/485 x 2
8. RS-232 x 2
9. PCI x 2 or 4

UNO-3000 Product Selection Guide

Name	UNO-3072L	UNO-3072	UNO-3074
CPU	Celeron M 1.0 GHz, Celeron M 1.5 GHz	Pentium M 1.4 GHz	Celeron M 1.0 GHz, Pentium M 1.4/1.8 GHz
Onboard RAM	512 MB DDR SDRAM	512 MB DDR SDRAM	512 MB / 1GB DDR SDRAM
Battery-Backup RAM	-	512 KB	
VGA/Mouse/Keyboard	Yes		
Audio	-	-	-
Serial Ports	2 x RS-232, 2 x RS-232/422/485		
Ethernet Ports	2 x 10/100Base-T		
USB Ports	Four		
PC Card Slots	-	One	One
Printer Ports	-	-	-
PC/104 Expansion	-		
PCI Expansion	Two		Four
Onboard I/O	4-ch isolated DI, 4-ch isolated DO		
Watchdog Timer	Yes		
CompactFlash Slots	One internal	One internal, One external	
2.5" HDD Expansion	Yes		
Operating Systems	Windows XP Embedded, Windows CE 5.0, Windows 2000/XP, Linux		
Programming Runtime Library	Yes		
Software Development Kit	Yes		
Activesync	Yes		
Web server/ Email service	Yes		
Modem Dial-in (RAS)/ Dial-up Function	Yes		
Mounting	Wall/Panel/Stand		
Anti-Vibration	2G w/CF, 1G w/HDD @ IEC 68 section 2-64, sine, 5 ~ 500 Hz, 1 Oct./min, 1hr/axis		
Anti-Shock	50G w/CF, 20G w/HDD@ IEC 68 section 2-27, halfsine, 11ms		
Power Input Range	16 ~ 36 VDC		20 ~ 36 VDC
Operating Temperature	-20 ~ 60° C @ 5 ~ 85% RH	-20 ~ 55° C @ 5 ~ 85% RH	
Relative Humidity	95% @ 40° C	95% @ 40° C (non-condensing)	
Power Consumption Typical	24 W (Typical, no PCI cards)		
Power Requirement	Min. 48 W, +24 V @ 2 A power input		Min. 96 W, +24 V @ 4 A power input
Dimensions (W x D x H)	140 x 237 x 177 mm (5.5" x 9.3" x 7.0")		180 x 237 x 177 mm (7.1" x 9.3" x 7.0")
Weight	4.2 kg	4.4 kg	5.0 kg

Ordering Information

UNO-3072L-C11E	C-M 1G, 512MB RAM UNO-3072L
UNO-3072L-C21E	C-M 1.5G, 512MB RAM UNO-3072L
UNO-3072-P11E	P-M 1.4G, 512MB RAM UNO-3072
UNO-3074-C11E	C-M 1G, 512MB RAM UNO-3074
UNO-3074-P11E	P-M 1.4G, 512MB RAM UNO-3074
UNO-3074-P32E	P-M 1.8G, 1GB RAM UNO-3074
UNO-WM72-AE	Wallmount Kit for UNO-3072L-C11E/3072-P11E
UNO-PM70-AE	Panel-mount Kit
UNO-SM70-AE	Stand-mount Kit

Desktop   **Panelmount**   **Wallmount**

UNO-1000 Series Introduction & Features
DIN-rail, Fanless Box PC's

- Low-voltage XScale PXA255 200MHz CPU
- Wide Operating Temperature up to 70°C
- Wide DC Power Input from 10 to 30VDC
- Compact Size with DIN-rail Mounting Design
- 16MB Flash Memory with Built-in Windows CE OS

UNO-1019 is a DIN-rail fanless box PC, designed to handle communication gateway and protocol converter applications on the factory floor. Built rugged, its extra-low power consumption RISC-based architecture supports operating temperatures up to 70° C. Furthermore, its compact size with DIN-rail mounting makes it easily to be installed inside control cabinet. With built-in flash memory and Windows CE OS, UNO-1019 is ready to go, right out of the box.

Dual LAN | **Quad Serial** | **Quad DI/O** | **CF**

Specifications:

CPU	Intel XScale PXA255 200MHz
Memory	64MB SDRAM
Storage	Onboard 16 MB Flash Memory
OS	Windows CE .NET 4.2 (Pre-installed on flash)
Serial Ports	2 x RS-232, 2 x RS-232/422/485
Ethernet Ports	2 x 10/100 Base-T
Dimensions	46 x 162 x 126 mm (1.8" x 6.4" x 5")
Power input	10 ~ 30 VDC, AT

Ordering Information:

UNO-1019ACE-A1E   Intel XScale PXA255, 64MB RAM UNO-1019

Front panel   Top panel

1. External CF
2. LAN x 2
3. RS-232 x 2
4. RS-232/422/485 x 2
5. Isolated DI/O x 4

162

46   126

Bottom panel
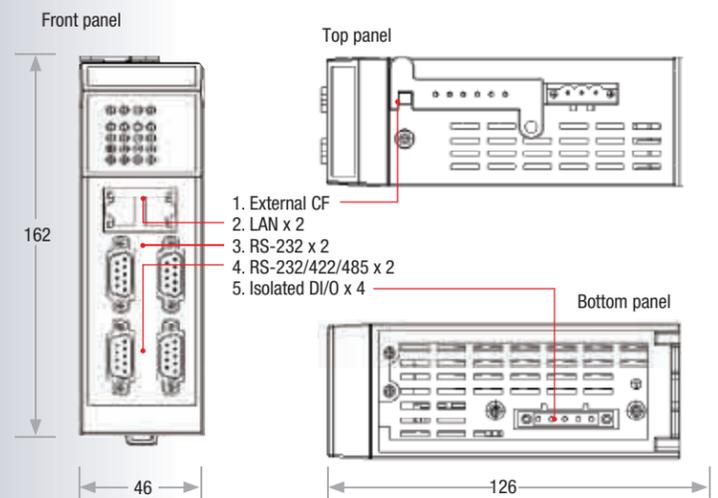
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