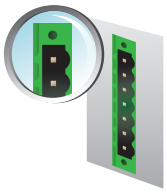
5 Automation Computers and Controllers

Advantech Control Cabinet PC

Diverse Form Factors for Different Mounting Scenarios in Cabinet Applications

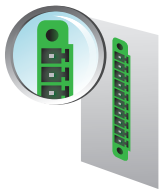
Advantech's UNO-1000/3000 series of embedded control cabinet PCs are high-performance, fanless systems with multiple extensions and a ruggedized chassis. With iDoor technology, they also support automation feature extensions such as Fieldbus communication, Wi-Fi/3G, Digital I/O, and PoE. Versatile mounting options via DIN-rail, wall, enclosure, and panel mounts ensure easy installation for indicated market segments. The mounting options as control cabinet PCs make them particularly suitable for IoT gateway, motion, and vision applications.

Features and Benefits



Dual Power Input

Support for dual power input with a wide range of operating voltages provides a fail-safe mechanism to reduce downtime due to maintenance by providing an alternative power input source. Furthermore, remote power-on assists with working units going back online without the need to open the cabinet.



Built-In Digital I/O

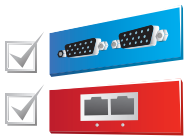
Built-in digital I/O for simple I/O control, status detection, lighting control, and event triggering saves on additional costs and the need for extra devices.

Multiple Expansion Options

UNO modules support the latest range of expansion interfaces including PCIe for high-density I/O applications, iDoor for Fieldbus modules, and PCI for motion cards, with easy installation captive thumb screws.

Dual Digital Display

Flexible display options provide resolutions of up to 4K/2K to deliver outstanding image quality.



Dual iDoor Expansion

Advantech's iDoor technology provides simple, flexible, and reliable expandability in high-density systems with versatile color identification and multiple functions.

IEC-61010 Compliance

UNO-3382G/ 3384G conform to the UL/ IEC-61010 standard and support book mounting methods, making them suitable for installation in harsh industrial environments.

Easy Maintenance

Captive Thumb Screws

Operators can work efficiently with captive thumb screws, which are superior for swapping HDD, CFast, and PCI/PCI equipment and for maintaining storage and expansion devices.

Hot-Swappable RTC Battery

Removable RTC battery saves time and costs by avoiding the need to disassemble working units and shutting down the whole operation.

Hot-Swappable Storage

Hot-swappable HDD/SSD technology allows operators to deploy software or collect control data easily so that they can maintain working units without interruption.

Versatile Mounting with Easy Installation

DIN-Rail Mount

UNO-1000 series can be painlessly installed on rails with the sophisticated DIN rail kit at the rear and R-angle design at the front.

Wall Mount

Easy pull-out operation is an extremely convenient and makes these units suitable for all but the heaviest of installations.

Book Mount

The UNO-3300 is an open and universal automation solution that saves space and allows quick installation in control cabinets.

Enclosure Mount

The UNO-3400 series are designed for easy, quick installation in control cabinets. This series utilizes place-and-click snap connectors in further consideration of user activity in order to simplify installation procedures.

Control Cabinet PCs

NEW

Model Name	UNO-1251G	UNO-1252G	UNO-1372G-J
Certification	CE, FCC, UL, CCC, BSMI	CE, FCC, UL, CCC, BSMI	CE, FCC, UL, CCC, BSMI
CPU	ARM Cortex A8	Intel® Quark X1001	Intel® Celeron J1900 2.0 GHz
Onboard RAM	Onboard 256 MB DDR2	Onboard 512 MB DDR3L	Built-in 4 GB DDR3L
Battery-Backup RAM	FRAM 128 KB	-	-
Display	-	-	HDMI, DP
Audio	-	-	-
Digital I/O Serial Port	1 x RS-485 1 x RS-422/485 1 x RS-232 1 x CAN	Isolated 4-ch digital I/O Isolated 1 x RS-232/485 1 x RS-232	Isolated 4-ch digital I/O Isolated 4 x RS-232/422/485
Ethernet Ports	2 x RJ45, 10/100 Mbps	2 x RJ45, 10/100 Mbps	2 x RJ45, 10/100/1000 Mbps
USB Ports	1 x USB2.0	1 x USB 2.0 1 x USB Client	1 x USB3.0 3 x USB2.0
PCIe/PCI Expansion	1 x mPCIe (USB signal)	2 x mPCIe (1 x only PCIe signal)	2 x mPCIe
Watchdog Timer	-	-	✓
CompactFlash Slots	-	-	-
Storage	1 x 1 GB microSD card (built-in) 1 x microSD card slot	1 x 1 GB microSD card (built-in)	1 x mSATA (shared with mPCIe slot) 1 x 2.5" HDD bay
SIM Card slot	1 (micro)	1 (micro)	1 (micro)
Default OS	WEC7	Ycoto Linux	-
Operating Systems	WEC7, Embedded Linux	Ycoto Linux	Win10, WES7P, WEC7, AdvLinuxTU
TPM	-	TPM 1.2 by iDOOR	TPM 2.0 onboard
Mounting	DIN rail	DIN rail	DIN rail
Power Input Range	10 ~ 36 V_{DC}	10 ~ 36 V_{DC}	10 ~ 36 V_{DC}
Operating Temp.	-20 ~ 60°C	-20 ~ 60°C	-20 ~ 60°C
Power Consumption Typical	5 W	10 W	19 W
Dimensions(WxDxH)	50 x 90 x 100 mm (1.97" x 3.54" x 3.94")	63 x 105 x 100 mm (2.48" x 4.13" x 3.94")	65 x 105 x 150mm (2.6" x 4.1" x 5.9")
Weight	0.4 kg	0.6 kg	1 kg

NEW



UNO-1372G-E	UNO-1372GH	UNO-1483G
CE, FCC, UL, CCC, BSMI	CE, FCC, UL, CCC, BSMI, CID2	CE, FCC, UL, CCC, BSMI
Intel® ATOM E3845 1.91 GHz	Intel® ATOM E3845 1.91 GHz	Intel® Core i3-4010U
Built-in 4 GB DDR3L	Built-in 4 GB DDR3L	Built-in 8 GB DDR3L
-	-	-
VGA, HDMI	VGA, HDMI	VGA/DP
Line out	Line out	Line out
Isolated 4-ch digital I/O 1 x RS-422/485 1 x RS-232	Isolated 4-ch digital I/O 1 x RS-422/485 1 x RS-232	Isolated 4-ch digital I/O 1 x RS-232 2 x RS-422/485
3 x RJ45, 10/100/1000 Mbps	3 x RJ45, 10/100/1000 Mbps	4 x RJ45, 10/100/1000 Mbps
1 x USB3.0 2 x USB2.0	1 x USB3.0 2 x USB2.0	2 x USB2.0 2 x USB3.0
2 x mPCIe	2 x mPCIe	2 x mPCIe 1 x PCIe x1
✓	✓	✓
-	-	-
1 x mSATA,1 x 2.5” HDD bay	1 x mSATA,1 x 2.5” HDD bay	1 x mSATA, 1 x 2.5” HDD bay
2 (Standard)	2 (Standard)	1 (Standard, support by project)
-	-	-
Win10, WES7P, WEC7, AdvLinux	Win10, WES7P, WEC7, AdvLinux	Win10, WES7P, AdvLinux
TPM 1.2 by iDOOR	TPM 1.2 by iDOOR	TPM 1.2 by iDOOR
DIN rail, wall mount	DIN rail, wall mount	DIN rail, wall mount
10 ~ 36 V_{DC}	10 ~ 36 V_{DC}	10 ~ 36 V_{DC}
-20 ~ 60°C	-20 ~ 60°C	-20 ~ 60°C
24 W	24 W	40 W
85 x 139 x 152 mm (3.3" x 5.5" x 6.0")	85 x 139 x 152 mm (3.3" x 5.5" x 6.0")	106 x 139 x 198 mm (4.2" x 5.8" x 7.8")
1.6 kg	1.6 kg	2.4 kg

Control Cabinet PCs

NEW

Model Name	UNO-3083G/3085G UNO-3073G/3075G UNO-3073GL	UNO-3283G/UNO-3285G/UNO-3285C
CPU	UNO-3073GL: Intel Celeron® 807UE 1 GHz UNO-3073G: Intel Celeron® 847 1.1 GHz UNO-3083G/3085G: Intel Core i7 3555 LE 2.5 GHz or -2655LE 2.2 GHz	Intel® 6th Gen. Quad Core™ i7-6822EQ 2.0 GHz i5-6440EQ 2.7 GHz i5-6442EQ 1.9 GHz i3-6102E 1.9 GHz
Onboard RAM	4 GB DDR3	UNO-3283G: 8 GB DDR4
Battery-Backup RAM	-	-
Display	DVI-I, HDMI	DVI-I, HDMI
Audio	Mic in, line out	Built-in line in/out + mic, I/O via iDoor
Serial Ports	2 x RS-232/422/485 2 x RS-232 (optional)	2 x RS-232/422/485
Ethernet Ports	2 x 10/100/1000BASE-T RJ-45 ports Supports AMT (UNO-3083G/3085G only)	2 x 10/100/1000BASE-T RJ-45 (supports IEEE1588)
USB Ports	4 x USB3.0 5 x USB2.0 (1 x internal)	6 x USB 3.0
PCIe/PCI Expansion	UNO-3073G/UNO-3073GL/3083G: 3 slots 3085G: 5 slots	UNO-3283G: 1 x PCIe x16 + 1 x PCI (Optional: 2 x PCIe x8) UNO-3285G/UNO-3285C: 2 x PCIe x8 + 2 x PCI (Optional: 4 x PCI)
Watchdog Timer	✓	✓
CFast Slot	Two internal	One internal
2.5" HDD Expansion	2 x SATA, supports RAID 0/1 (except UNO-3073GL)	2 x SATA, supports RAID 0/1
Operating Systems	Windows XP/7/8, WES7, WES-2009, Linux	WIN7/8, WES7, WES10, Linux
Mounting	Wall/Stand/Panel	Wall/Stand/Enclosure
Anti-Vibration	-	4g w/SSD
Anti-Shock	50g w/CF 20g w/HDD	50g w/SSD
Power Input Range	9 ~ 36 V_{DC}	10 ~ 36 V_{DC}
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)
Power Consumption Typical	UNO-3073GL: 25 W (typical) UNO-3073G: 35 W (typical) UNO-3083G/3085G: 45 W (typical)	90 W (typical)
Dimensions(WxDxH)	UNO-3083G/3073G/GL: 148 x 238 x 177 mm (5.8" x 9.3" x 7.0") UNO-3085G: 193 x 238 x 177 mm (7.6" x 9.3" x 7.0")	UNO-3283G: 142 x 238 x 177 mm (5.6" x 9.4" x 7") UNO-3285G: 182 x 238 x 177 mm (7.2" x 9.4" x 7") UNO-3285C: 197 x 238 x 177 mm (7.9" x 9.4" x 7")
Weight	UNO-3083G/3073G/GL: 4.5 kg UNO-3085G: 5.0 kg	UNO-3283G/ UNO-3285G: 4.0 kg UNO-3285C: 4.7 kg

Model Name	UNO-3382G/3384G	UNO-3483G
CPU	Intel® Core™ i7-4650U 1.7 GHz Intel® Celeron® 2980U 1.6 GHz	Intel® Core™ i7-3612QE
Onboard RAM	8 GB DDR3L (Core i version) 4 GB DDR3L (Celeron version)	8 GB DDR3/DDR3L
Battery-Backup RAM	Onboard MRAM 512 KB	-
Display	HDMI, DP	VGA, HDMI
Audio	Built-in line in/out + mic, I/O via iDoor	Mic in, line out (pin header)
Serial Ports	1x RS-232/422/485	1 x RS-232, 1 x RS-232/422/485 with DB9 connection (pin header)
Ethernet Ports	2 x 10/100/1000BASE-T RJ-45 (supports IEEE1588)	2 x 10/100/1000BASE-T RJ-45 (supports IEEE1588)
USB Ports	2 x USB 2.0 2 x USB 3.0	2 x USB 2.0 2 x USB 3.0
PCIe/PCI Expansion	UNO-3382G: 2 x mini PCIe UNO-3384G: 2 x mini PCIe, 1 x PCIe x4 + 1 x PCI	1 x PCIe x4, 3 x mini PCIe (2 x full, 1 x half)
Watchdog Timer	✓	✓
CompactFlash Slots	One internal	-
2.5" HDD Expansion	2 x SATA, supports RAID 0/1	2 x SATA, supports RAID 0/1
Operating Systems	Windows7/8, WES7, Windows 10 IoT Enterprise LTSB, Linux	Windows 7/8, WES7, WES-2009, Linux
Mounting	Book Mount	Enclosure Mount
Anti-Vibration	2g w/SSD	2g w/SSD
Anti-Shock	50g w/SSD	50g w/SSD
Power Input Range	24 V_{DC} ± 20%	12/24 V_{DC} ± 20%
Operating Temperature	0 ~ 55°C (32 ~ 131°F)	-20 ~ 60°C (-4 ~ 140°F)
Power Consumption Typical	45 W	50 W
Dimensions(WxDxH)	UNO-3382G: 65.2 x 254 x 207 mm (2.57" x 10" x 8.15") UNO-3384G: 103.2 x 254 x 207 mm (4.06" x 10" x 8.15")	305 x 82 x 225 mm (120.1" x 32.3" x 88.6")
Weight	UNO-3382G: 3.1 kg UNO-3384G: 3.9 kg	4.9 kg

Connecting Smart Factory Machines and Processes to Accelerate Industry 4.0

Modular Box Platform Satisfies All Industrial Needs

In the Industry 4.0 era, fanless and ruggedized properties are not the only criteria for industrial embedded computers. Advantech's industrial embedded computers offer flexible and expandable features, and our new UNO-2000 series are based on a new modular form factor. Integrated with iDoor expandability, the new UNO-2000 series is adapted for embedded automation applications. The UNO-2271G, which is the size of a standard SSD, is the world's smallest embedded computer; and at a size of only 7.9", the performance of the UNO-2484G has been optimized with TPM2.0 for cyber security. Both of these units can be easily integrated with Advantech WebAccess, which helps bridge the gap between IT and OT.

The new UNO-2000 series also provides the time-to-market customized service, and the modularized design makes these units suitable for vertical markets. This design enables customers to introduce additional functionality and create more possibilities in different markets and applications by having a more flexible and manageable configuration approach to progress into the Industry 4.0 era.

Bridging the Gap Between IT and OT

New Innovative Design

Modular Platform Design

Universal (general applications), domain-specific (vertical application), and customized (by project base) UNO board-to-board connectors are suitable for all factory applications.

Wide-Range Power Input (10 ~ 36 V)

Wide-range power input ensures normal operation in unstable power environments.

iDoor Expansion with 100+ Combinations

More than 100+ combinations of iDoor technology enable UNO modules to meet the needs of every vertical application scenario.

Cable-Less Design

Cable-less design for internal space saving, enhanced MTBF, reliability of signal transition, and cost efficiency for assembly.

Friendly Assembly Design

User friendly screw design simplifies assembly for 2nd stack and iDoor modules.

Time-to-Market

Easy to configure and modular design shortens assembly times and time-to-market.

Dual Swappable SSD/HDD

Dual storage supports RAID 0/1 and external removable drive design makes for easier maintenance for data switching.

Rubber Stopper Design with Captive Screws

Modular boxes utilize a captive screw design to prevent screw loss during assembly and rubber stoppers to provide better system stability.

Lockable I/O Design

Fully lockable I/O ensures the system works properly and safely in high-vibration environments.

Versatile Mounting

Variety of mounting methods -VESA, DIN rail, pole, and stand mount.

Industrial IoT Gateways

NEW

NEW

NEW

Model Name	UNO-2271G	UNO-2372G	UNO-2484G
CPU	Intel® Atom™ E3815, 1.46 GHz (E3825 support by project)	Intel® Atom™ J1900, 2.41 GHz	Intel® Core i7-6600U, 2.6 GHz/i7-7600U, 2.8 GHz Intel® Core i5-6300U, 2.4 GHz/i5-7300U, 2.6 GHz Intel® Core i3-6100U, 2.3 GHz/i3-7100U, 2.4 GHz
Onboard RAM	4 GB DDR3L	4 GB DDR3L	8 GB DDR4
Battery-Backup RAM	-	-	-
Display	1 x HDMI	1 x DP, 1 x HDMI	1 x DP, 1 x HDMI
Audio	-	Line out	Line out
Serial Ports	UNO-2271G-E23AE: 2 x RS-232/422/485	4 x RS-232/422/485	4 x RS-232/422/485
Ethernet Ports	2 x RJ45, 10/100/1000Mbps	2 x RJ45, 10/100/1000Mbps	4 x RJ45, 10/100/1000Mbps
USB Ports	UNO-2271G-E21AE and E23AE: 1 x USB 3.0 UNO-2271G-E22AE: 3 x USB 2.0 and 1 x USB 3.0	1 x USB 3.0, 3 x USB 2.0	4 x USB 3.0
Hardware Security	-	UNO-2372G-J021AE: TPM2.0	TPM2.0
mPCIe Expansion	1 x Full-size mPCIe slot	2 x Full-size mPCIe slots	Single stack version: 1 x Full-size mPCIe slots Double stack version: 4 x Full-size mPCIe slots
PCIe/PCI Expansion	-	-	-
Watchdog Timer	✓	✓	✓
Onboard Storage	32 GB eMMC	-	-
Storage Expansion	-	1 x mSATA shared with mPCIe slot 1 x 2.5" HDD/SDD bay	1 x mSATA shared with mPCIe slot 1 x 2.5" HDD/SDD bay
Operating Systems	Windows 7/10, Advantech Linux	Windows 7/10, Advantech Linux	Windows 7/10, Advantech Linux
Mounting	Stand, wall, VESA (△), DIN rail (△), pole (△)	Stand, wall, VESA (△), DIN rail (△)	Stand, wall, VESA (△), DIN rail (△)
Anti-Vibration	$2g_{rms}$ w/mSATA	$2g_{rms}$ w/mSATA, $0.7g_{rms}$ w/HDD	$2g_{rms}$ w/mSATA, $0.7g_{rms}$ w/HDD
Anti-Shock	50g w/mSATA	50g w/mSATA	50g w/mSATA
Power Input Range	10 ~ 30 V_{DC}	10 ~ 36 V_{DC}	10 ~ 36 V_{DC}
Operating Temperature	0 ~ 50°C (32 ~ 122°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)
Power Consumption Typical	12 W	30 W	55 W
Power Requirements	24 W	42 W	95.2 W
Dimensions (W x D x H)	UNO-2271G-E21AE: 100 x 70 x 30 mm (3.9" x 2.8" x 1.2"), UNO-2271G-E22AE and E23AE: 100 x 70 x 65 mm (3.9" x 2.8" x 2.6")	Single stack version: 150 x 105 x 35 mm (5.8" x 4.2" x 1.4") Double stack version: 150 x 105 x 65 mm (5.8" x 4.2" x 2.6")	Single stack version: 200 x 140 x 40 mm (7.8" x 5.6" x 1.6") Double stack version: 200 x 140 x 70 mm (7.8" x 5.6" x 2.8")
Weight	UNO-2271G-E21AE: 0.5 kg (1.1 lb) UNO-2271G-E22AE and E23AE: 0.6 kg (1.2 lb)	Single stack: 0.8 kg (1.76 lb) Double stack: 1.0 kg (2.2 lb)	Single stack: 1.4 kg (3.09 lb) Double stack: 1.6 kg (3.53 lb)




Model Name	UNO-2272G	UNO-2362G	UNO-2473G	UNO-2483G
CPU	Intel® Atom™ N2800, 1.86 GHz Intel® Celeron™ J1900, 2.0 GHz	AMD® G-series T40E, 1.0 GHz	Intel® Atom™ E3845, 1.91 GHz Intel® Celeron™ J1900, 2.0 GHz	Intel® Core™ i7-4650U, 1.7 GHz Intel® Core™ i3-4010U, 1.7 GHz Intel® Celeron® 2980U, 1.6 GHz
Onboard RAM	2 GB DDR3L	2 GB DDR3	4 GB DDR3L	4/8 GB DDR3L
Battery-Backup RAM	-	-	-	-
Display	2272G-N2AE: 1 x VGA 2272G-J2AE: 1 x HDMI	1 x DP, 1 x HDMI	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI
Audio	Line out	-	Line in/out	Line in/out
Serial Ports	UNO-2272G-N2AE: 1 x RS-232 UNO-2272G-J2AE: 1 x RS-232/422/485	1 x RS-232, 1 x RS-485	UNO-2473G-E3AE: 2 x RS-232, 2 x RS-433/485 UNO-2473G-J3AE: 2 x RS-232, 2 x RS-232/433/485	2 x RS-232, 2 x RS-422/485
Ethernet Ports	1 x RJ45, 10/100/1000 Mbps	2 x RJ45, 10/100/1000 Mbps	UNO-2473G-E3AE: 4 x RJ45, 10/100/1000 Mbps UNO-2473G-J3AE: 2 x RJ45, 10/100/1000 Mbps	4 x RJ45, 10/100/1000 Mbps
USB Ports	UNO-2272G-N2AE: 3 x USB 2.0 UNO-2272G-J2AE: 2 x USB 2.0 and 1 x USB 3.0	4 x USB 2.0	UNO-2473G-E3AE: 3 x USB 2.0, 1 x USB 3.0 UNO-2473G-J3AE: 4 x USB 2.0, 1 x USB 3.0	2 x USB 2.0, 2 x USB 3.0
Hardware Security	-	-	-	-
mPCIe Expansion	UNO-2272G-N2AE: 1 x Full-size mPCIe slot, 1 x Half-size mPCIe slot UNO-2272G-J2AE: 2 x Full-size mPCIe slot	1 x Full-size mPCIe slot	UNO-2473G-E3AE: 3 x Full-size mPCIe slot UNO-2473G-J3AE: 1 x Full-size mPCIe slot	2 x Full-size mPCIe slot
PCIe/PCI Expansion	-	-	-	-
Watchdog Timer	✓	✓	✓	✓
Onboard Storage	-	-	-	-
Storage Expansion	UNO-2272G-N2AE: 1 x Full-size mSATA UNO-2272G-J2AE: 1 x Half-size mSATA	1 x mSATA slot 1 x 2.5" HDD/SDD bay	1 x mSATA slot 1 x 2.5" HDD/SDD bay	1 x mSATA slot 2 x 2.5" HDD/SDD bay
Operating Systems	UNO-2272G-N2AE: Windows 7, Advantech Linux UNO-2272G-J2AE: Windows 7/10, Advantech Linux	Windows XP/7, Advantech Linux	Windows 7/10, WEC7, Advantech Linux	Windows 7/10, WEC7, Advantech Linux
Mounting	Stand, wall, VESA (△), DIN rail (△)	Stand, wall, VESA (△), DIN rail (△)	Stand, wall, VESA (△), DIN rail (△)	Stand, wall, VESA (△), DIN rail (△)
Anti-Vibration	$2g_{rms}$ w/mSATA	$2g_{rms}$ w/mSATA, $0.7g_{rms}$ w/HDD	$2g_{rms}$ w/mSATA, $0.7g_{rms}$ w/HDD	$2g_{rms}$ w/mSATA, $0.7g_{rms}$ w/HDD
Anti-Shock	50g w/mSATA	50g w/mSATA	50g w/mSATA	50g w/mSATA
Power Input Range	$24V_{DC}$ ± 20%	$24V_{DC}$ ±15%	UNO-2473G-E3AE: $24V_{DC}$ ± 20% UNO-2473G-J3AE: $12/24V_{DC}$ ± 20%	$24V_{DC}$ ± 20%
Operating Temperature	UNO-2272G-N2AE: - 20 ~ 60°C (-4 ~ 140°F) UNO-2272G-J2AE: - 10 ~ 55°C (14 ~ 131°F)	- 10 ~ 60°C (14 ~ 140°F)	- 20 ~ 60°C (-4 ~ 140°F)	- 20 ~ 60°C (-4 ~ 140°F)
Power Consumption Typical	14 W	14 W	15 W	44 W
Power Requirements	45.3 W	47.3 W	68 W	87 W
Dimensions (W x D x H)	157 x 88 x 50 mm (6.2" x 3.5" x 2.0")	190 x 107 x 47 mm (7.5" x 4.2" x 1.8")	252 x 149 x 62 mm (9.9" x 5.9" x 2.4")	252 x 149 x 62 mm (9.9" x 5.9" x 2.4")
Weight	0.8 kg (1.76 lb)	1.0 kg (2.2 lb)	1.6 kg (3.5 lb)	1.6 kg (3.5 lb)

Advantech iDoor Technology

Leading Industrial PC Trends

Advantech's innovative iDoor Technology is a new modular way of adding flexible functionality to a wide range of devices. iDoor Technology gives system integrators the flexibility to choose functions they need without purchasing costly extra devices with functions that they are unlikely to ever use. By using standardized components and interfaces, system integrators can leverage current state-of-the-art technologies as well as up-and-coming IPC trends. For instance, as embedded operating systems improve and higher performance storage methods become widely available, IPC suppliers are able to seamlessly integrate them into product lines for their customers.

iDoor Technology

Simple, Flexible, Reliable

The optimized design simplifies the iDoor mechanism with I/O plate, I/O module, and mPCIe card designs, making it easier to assemble and install. The modular design makes iDoor highly flexible for any configuration. Advantech's rugged design and comprehensive testing ensure that iDoor is a reliable offering.

Easy Maintenance

In addition to the iDoor's design making it easy to install into many platform/chassis types, the iDoor also provides a standard cable for internal cable routing and management. With captive screws and locked USB, it is easy for users to maintain.

iDoor Technology

Supports Different Platforms

iDoor technology is not only designed to work exclusively with Advantech's products, but it also gives system integrators the ability to use iDoor modules in any IPC with a spare PCIe slot. With the extended plate and adapter solution, this technology is particularly suitable for IPC platforms. The flexible design makes iDoor fulfill any other third party applications.

Integration of Multiple Functions

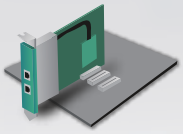
With the versatile functionality of iDoor, the system is suitable for a range of vertical applications. iDoor application modules include memory, storage, and external I/O modules; Fieldbus protocol modules (Ethernet/IP, Profibus, Profinet, EtherCAT, Powerlink, and so on); communication kits (WAN, MAN, LAN); and digital/analog I/O modules.

Fast Customization

The open-source nature of this technology allows system integrators to develop their own mPCIe card, their own exclusive iDoor functions, and even customized iDoor shell colors (e.g., including the company logo) to shape their brand image through color recognition. For those key accounts, they can integrate industry expertise in automation applications via iDoor technology.

iDoor I/O Plate with mPCIe Card

An iDoor module uses a mini PCIe slot on the motherboard. Most market requirements can be fulfilled by mPCIe card suppliers.



PCI/PCIe I/O Plate with mPCIe Card in PCIe Adapter Card

Some customers need more expansion but are limited by the number of available mPCIe slots. We provide a PCIe adapter that gives an additional mPCIe slot by connecting through an existing PCIe slot to maximize expansion capacity.

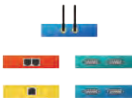
PCI/PCIe I/O Plate with mPCIe Card

For users who have a standard IPC on hand but require an expansion, we provide an optimization plate that can be utilized for expansion via the mPCIe interface.

Standard Interface

The standard dimensions of the 81 x 19.4 mm I/O plate with mPCIe interface are supported by the following models:

- Embedded DIN-Rail Controller: UNO-1000 series
- Embedded Automation PC: UNO-2000 series
- Embedded BOX IPC: UNO-3000 series
- Embedded Automation Panel: TPC series



Versatile Color Identification

For easy identification, iDoor uses a color convention that represents the primary colors of the logos for the key protocols that the modules are related to. For example, the red is the most obvious color for EtherCAT, and so the I/O plate is colored PANTONE 1795C, whereas a black plate is used for the POWERLINK logo.

iDoor Module Selection Guide

Industrial I/O & Peripheral

Model Name	PCM-2300MR	PCM-23C1CF	PCM-23U1DG	PCM-24R1TP	PCM-24U2U3	PCM-24R2PE	PCM-24R2GL	PCM-28P1AD	PCM-28P1BK	PCM-27J3AU
Description	MR4A16B, MRAM, 2 MB, mPCIe	1 CFast Slot with cover protection	USB slot w/ lock for USB dongle, half-size mPCIe	1-port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45	2-port USB 3.0, mPCIe, USB-A type	2-port Gigabit Ethernet, IEEE 802.3af (PoE)-compliant, mPCIe, RJ45	2-port Gigabit Ethernet, Intel® i350, mPCIe, RJ45	PCIe to mPCIe, 2-slot mPCIe, iDoor I/O plate expansion	iDoor PCIe I/O plate	3-port audio stereo, mPCIe, 3.5-mm jack

Model Name	PCM-24D2R4	PCM-24D2R2	PCM-24D4R4	PCM-24D4R2	PCM-27D24DI
Description	2-port Isolated RS-422/485, mPCIe, DB9	2-port Isolated RS-232, mPCIe, DB9	4-port non-isolated RS-422/485 mPCIe, DB37 cable	4-port non-isolated RS-232 mPCIe, DB37 cable	24-ch isolated digital I/O with counter mPCIe, DB37

Wireless Communication

Model Name	PCM-24S2WF	PCM-24S33G	PCM-24S34G
Description	Wi-Fi 802.11 a/b/g/n 2T2R w/Bluetooth 4.0, half-size mPCIe, antennas	3.75G HSPA/GPS, full-size mPCIe, front-accessible dual SIM card slots, 3G/GPS antennas	LTE/HSPA+/GPRS and GPS, full-size mPCIe, 4G/GPS antennas

Industrial Fieldbus

Model Name	PCM-26D2CA	PCM-26D1DB	PCM-26R2PN	PCM-26R2EC	PCM-26R2EI	PCM-26R2S3	PCM-26R2PL
Description	2-port isolated CANBus mPCIe, CANopen, DB9	1-port Hilscher netX100 FieldBus mPCIe, PROFIBUS, DB9	2-port Hilscher netX100 FieldBus mPCIe, PROFINET, RJ45	2-port Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45	2-port Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45	2-port Hilscher netX100 FieldBus mPCIe, Sercos III, RJ45	2-port Hilscher netX100 FieldBus mPCIe, POWERLINK, RJ45

Naming Convention

PCM- 2 6 D 2 C A

Category
- 23-Memory/storage/external I/O
- 24-Communication
- 25-Display
- 26-Fieldbus
- 27-Digital/analog I/O
- 28-Expansion kit

Connector
- R-RJ45
- D-DB9
- U-USB
- P-PCIe/mPCIe
- C-CFast
- S-SMA/DFP/SD
- H-HDMI/DP
- J-Phone jack

Port
- 0-No connector
- 1-One connector
- 2-Two connectors
- 4-Four connectors

Function
- BK-Bracket
- DB-PROFIBUS
- PN-PROFINET
- EI-Ethernet/IP
- EC-EtherCAT
- S3-SERCOS III
- CA-CANopen
- PL-PowerLink
- WF-Wi-Fi/BT
- 3G-3G/GPS
- ZB-ZigBee
- AD-Adapter
- PE-PoE
- TP-Precision Time Protocol
- DC-Daisy-Chain
- MR-MRAM
- TM-TPM
- DI-Digital I/O
- AI-Analog I/O
- R4-Multi-drop RS-422/485
- R2-Single-ended RS-232
- ID-Intelligent displays
- U3-USB 3.0
- HD-HDMI
- 4G-LTE/GPS
- DG-Dongle
- GL-Gigabit LAN

iDoor Support Table

Model / Platform	Function	UNO-1252G	UNO-1483G	UNO-1372G-E	UNO-1372G-J	UNO-2271G-E2	UNO-2272G-N2
PCM-24D2R2-AE	Iso. RS-232	✓	✓	✓	-	✓	✓
PCM-24D2R4-AE	Iso. RS-422/485	✓	✓	✓	-	✓	✓
PCM-24D2R2-BE	Iso. RS-232	✓	✓	✓	✓	✓	✓
PCM-24D2R4-BE	Iso. RS-422/485	✓	✓	✓	✓	✓	✓
PCM-24D4R2-AE	Non-iso. RS-232	✓	✓	✓	-	✓	✓
PCM-24D4R4-AE	Non-iso. RS-422/485	✓	✓	✓	-	✓	✓
PCM-24D4R2-BE	Non-iso. RS-232	✓	✓	✓	✓	✓	✓
PCM-24D4R4-BE	Non-iso. RS-422/485	✓	✓	✓	✓	✓	✓
PCM-26D2CA	CANOpen	✓	✓	✓	✓	✓	✓
PCM-27D24DI	Iso. digital I/O	-	✓	✓	✓	✓	✓
PCM-24R1TP	GigaLAN IEEE1588	-	✓	✓	✓	✓	✓
PCM-2300MR	MRAM	-	✓	✓	✓	✓	✓
PCM-23C1CF	CFast	-	✓	✓	-	-	-
PCM-24R2GL	2-port GigaLAN	-	✓	✓	✓	✓	✓
PCM-23U1DG-BE	USB dongle w/mPCIe	-	✓	✓	✓	✓	✓
PCM-24R2PE	PoE	-	✓	✓	✓	-	✓
PCM-24S2WF-AE	Wi-Fi	✓	✓	✓	-	✓	✓
PCM-24S2WF-BE	M.2 Wi-Fi	✓	✓	✓	✓	✓	✓
PCM-24U2U3	USB 3.0	-	✓	✓	✓	-	✓
PCM-24S23G-AE	3G/GPS w/SMA BKT	✓	✓	✓	✓	✓	✓
PCM-24S33G-AE	3G/GPD w/dual SIM	✓	✓	✓	✓	✓	✓
PCM-24S34G	LTE/GPS	-	✓	✓	✓	-	-
PCM-2300TM	TPM	-	-	*	-	-	-
PCM-26D1DB	PROFIBUS	-	✓	✓	✓	✓	-
PCM-26R2PN	PROFINET	-	✓	✓	✓	✓	-
PCM-26R2EC	EtherCAT	-	✓	✓	✓	✓	-
PCM-26R2EI	EtherNet/IP	-	✓	✓	✓	✓	-
PCM-26R2S3	Sercos 3	-	✓	✓	✓	✓	-
PCM-26R2PL	POWERLINK	-	✓	✓	✓	✓	-
PCM-28P1AD	iDoor PCIe adpater card	-	✓	-	-	-	-
PCM-28P1BK	iDoor PCIe I/O plate	-	✓	-	-	-	-
PCM-27J3AU	Audio	-	✓	✓	✓	✓	-
PCM-29R1TX	iLink	-	✓	✓	✓	-	-

Model / Platform	Function	UNO-2272G-J2	UNO-2362G	UNO-2372G-E022AE	UNO-2473G-E3	UNO-2473G-J3	UNO-2483G
PCM-24D2R2-AE	Iso. RS-232	✓	✓	✓	✓	✓	✓
PCM-24D2R4-AE	Iso. RS-422/485	✓	✓	✓	✓	✓	✓
PCM-24D2R2-BE	Iso. RS-232	✓	✓	✓	✓	✓	✓
PCM-24D2R4-BE	Iso. RS-422/485	✓	✓	✓	✓	✓	✓
PCM-24D4R2-AE	Non-iso. RS-232	✓	✓	✓	✓	✓	✓
PCM-24D4R4-AE	Non-iso. RS-422/485	✓	✓	✓	✓	✓	✓
PCM-24D4R2-BE	Non-iso. RS-232	✓	✓	✓	✓	✓	✓
PCM-24D4R4-BE	Non-iso. RS-422/485	✓	✓	✓	✓	✓	✓
PCM-26D2CA	CANOpen	✓	✓	✓	✓	✓	✓
PCM-27D24DI	Iso. digital I/O	✓	✓	✓	✓	✓	✓
PCM-24R1TP	GigaLAN IEEE1588	✓	✓	✓	✓	✓	✓
PCM-2300MR	MRAM	✓	✓	✓	✓	✓	✓
PCM-23C1CF	CFast	-	✓	✓	✓	✓	✓
PCM-24R2GL	2-port GigaLAN	✓	-	✓	✓	✓	✓
PCM-23U1DG-BE	USB dongle w/mPCIe	✓	✓	✓	✓	✓	✓
PCM-24R2PE	PoE	✓	-	✓	✓	-	*
PCM-24S2WF-AE	Wi-Fi	✓	✓	-	✓	✓	✓
PCM-24S2WF-BE	M.2 Wi-Fi	✓	✓	✓	✓	✓	✓
PCM-24U2U3	USB 3.0	✓	-	✓	✓	✓	*
PCM-24S23G-AE	3G/GPS w/SMA BKT	✓	✓	✓	✓	✓	✓
PCM-24S33G-AE	3G/GPD w/dual SIM	✓	✓	✓	✓	✓	✓
PCM-24S34G	LTE/GPS	-	✓	✓	✓	✓	*
PCM-2300TM	TPM	-	-	-	✓	-	✓
PCM-26D1DB	PROFIBUS	-	-	✓	✓	✓	✓
PCM-26R2PN	PROFINET	-	-	✓	✓	✓	✓
PCM-26R2EC	EtherCAT	-	-	✓	✓	✓	✓
PCM-26R2EI	EtherNet/IP	-	-	✓	✓	✓	✓
PCM-26R2S3	Sercos 3	-	-	✓	✓	✓	✓
PCM-26R2PL	POWERLINK	-	-	✓	✓	✓	✓
PCM-28P1AD	iDoor PCIe adpater card	-	-	-	-	-	-
PCM-28P1BK	iDoor PCIe I/O plate	-	-	-	-	-	-
PCM-27J3AU	Audio	-	✓	✓	-	✓	-
PCM-29R1TX	iLink	✓	-	✓	✓	✓	✓

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iDoor Support Table

Model / Platform	Function	UNO-2484G-67x1AE	UNO-2484G-67x2AE	UNO-3283G	UNO-3382G/3384G	UNO-3483G	(TPC-1x82H/1282T)
PCM-24D2R2-AE	Iso. RS-232	-	✓	✓	✓	✓	✓
PCM-24D2R4-AE	Iso. RS-422/485	-	✓	✓	✓	✓	✓
PCM-24D2R2-BE	Iso. RS-232	-	✓	✓	✓	✓	✓
PCM-24D2R4-BE	Iso. RS-422/485	-	✓	✓	✓	✓	✓
PCM-24D4R2-AE	Non-iso. RS-232	-	✓	✓	✓	✓	✓
PCM-24D4R4-AE	Non-iso. RS-422/485	-	✓	✓	✓	✓	✓
PCM-24D4R2-BE	Non-iso. RS-232	-	✓	✓	✓	✓	✓
PCM-24D4R4-BE	Non-iso. RS-422/485	-	✓	✓	✓	✓	✓
PCM-26D2CA	CANOpen	-	✓	✓	✓	✓	✓
PCM-27D24DI	Iso. digital I/O	-	✓	✓	✓	✓	✓
PCM-24R1TP	GigaLAN IEEE1588	-	✓	✓	✓	✓	✓
PCM-2300MR	MRAM	✓	✓	✓	✓	✓	✓
PCM-23C1CF	CFast	-	**	-	-	✓	-
PCM-24R2GL	2-port GigaLAN	-	✓	✓	✓	✓	✓
PCM-23U1DG-BE	USB dongle w/mPCIe	-	✓	✓	✓	✓	✓
PCM-24R2PE	PoE	-	✓	✓	✓	✓	-
PCM-24S2WF-AE	Wi-Fi	✓	✓	✓	✓	✓	✓
PCM-24S2WF-BE	M.2 Wi-Fi	✓	✓	✓	✓	✓	✓
PCM-24U2U3	USB 3.0	-	✓	✓	✓	✓	-
PCM-24S23G-AE	3G/GPS w/SMA BKT	✓	✓	✓	✓	✓	✓
PCM-24S33G-AE	3G/GPD w/dual SIM	-	✓	✓	✓	✓	✓
PCM-24S34G	LTE/GPS	✓	✓	✓	-	-	-
PCM-2300TM	TPM	-	-	✓	-	✓	-
PCM-26D1DB	PROFIBUS	-	✓	✓	✓	✓	-
PCM-26R2PN	PROFINET	-	✓	✓	✓	✓	-
PCM-26R2EC	EtherCAT	-	✓	✓	✓	✓	-
PCM-26R2EI	EtherNet/IP	-	✓	✓	✓	✓	-
PCM-26R2S3	Sercos 3	-	✓	✓	✓	✓	-
PCM-26R2PL	POWERLINK	-	✓	✓	✓	✓	-
PCM-28P1AD	iDoor PCIe adpater card	-	-	✓	✓	✓	✓
PCM-28P1BK	iDoor PCIe I/O plate	-	-	✓	✓	✓	✓
PCM-27J3AU	Audio	-	✓	✓	✓	✓	✓
PCM-29R1TX	iLink	-	✓	*	*	*	-

Model / Platform	Function	(TPC-1581WP)	(TPC-1881WP)	(TPC-xx51WP)	(TPC-xx51T)	TPC-2xx1T/W	TPC-5XXXT/W	IPPC-5211WS
PCM-24D2R2-AE	Iso. RS-232	✓	✓	✓	✓	✓	✓	✓
PCM-24D2R4-AE	Iso. RS-422/485	✓	✓	✓	✓	✓	✓	✓
PCM-24D2R2-BE	Iso. RS-232	✓	✓	✓	✓	✓	✓	✓
PCM-24D2R4-BE	Iso. RS-422/485	✓	✓	✓	✓	✓	✓	✓
PCM-24D4R2-AE	Non-iso. RS-232	✓	✓	✓	✓	✓	✓	✓
PCM-24D4R4-AE	Non-iso. RS-422/485	✓	✓	✓	✓	✓	✓	✓
PCM-24D4R2-BE	Non-iso. RS-232	✓	✓	✓	✓	✓	✓	✓
PCM-24D4R4-BE	Non-iso. RS-422/485	✓	✓	✓	✓	✓	✓	✓
PCM-26D2CA	CANOpen	✓	✓	✓	✓	✓	✓	✓
PCM-27D24DI	Iso. digital I/O	✓	✓	✓	✓	✓	✓	✓
PCM-24R1TP	GigaLAN IEEE1588	✓	✓	✓	✓	✓	✓	✓
PCM-2300MR	MRAM	✓	✓	✓	✓	✓	✓	✓
PCM-23C1CF	CFast	-	-	**	**	-	✓	-
PCM-24R2GL	2-port GigaLAN	✓	✓	✓	✓	✓	✓	✓
PCM-23U1DG-BE	USB dongle w/mPCIe	✓	✓	✓	✓	✓	✓	✓
PCM-24R2PE	PoE	-	-	-	-	-	✓	-
PCM-24S2WF-AE	Wi-Fi	✓	✓	✓	✓	✓	✓	✓
PCM-24S2WF-BE	M.2 Wi-Fi	✓	✓	✓	✓	-	-	-
PCM-24U2U3	USB 3.0	**	**	-	**	-	✓	**
PCM-24S23G-AE	3G/GPS w/SMA BKT	✓	✓	✓	✓	✓	✓	✓
PCM-24S33G-AE	3G/GPD w/dual SIM	✓	✓	-	-	✓	-	-
PCM-24S34G	LTE/GPS	-	-	-	-	-	✓	-
PCM-2300TM	TPM	-	-	-	-	-	-	-
PCM-26D1DB	PROFIBUS	✓	✓	✓	✓	✓	✓	✓
PCM-26R2PN	PROFINET	✓	✓	✓	✓	✓	✓	✓
PCM-26R2EC	EtherCAT	✓	✓	✓	✓	✓	✓	✓
PCM-26R2EI	EtherNet/IP	✓	✓	✓	✓	✓	✓	✓
PCM-26R2S3	Sercos 3	✓	✓	✓	✓	✓	✓	✓
PCM-26R2PL	POWERLINK	✓	✓	✓	✓	✓	✓	✓
PCM-28P1AD	iDoor PCIe adpater card	-	-	-	-	-	-	-
PCM-28P1BK	iDoor PCIe I/O plate	-	-	-	-	-	-	-
PCM-27J3AU	Audio	✓	✓	✓	✓	✓	✓	✓
PCM-29R1TX	iLink	-	-	-	-	-		

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Modular IPCs

Overview

Advantech's modular IPCs are fan-based systems for high-performance computing applications where fanless, embedded systems are required for harsh work environments. Our next generation of IPCs feature a modular design for high expandability and flexible configuration. With this brilliant design, Advantech modular IPCs are suitable for a diverse range of industrial applications.

Micro Computer

The AiMC series of microcomputers is designed for machine automation applications such as system security, intelligent inspection, and PCBA. With PoE vision and a rich I/O interface, the AiMC series features high-performance computing with low power consumption, intelligent management capability, and extended product longevity.

Industrial Modularized Computer

Our compact modular IPCs support i-module expansion to satisfy many application requirements. Modular computers reduce lead times for CTOS due to their easy configuration. They can also be widely deployed for factory and machine automation.

Compact Fanless Computer

The AiMC-2000 fanless embedded microcomputer is an intelligent and application-specific system equipped with an Intel Celeron J1900 Quad Core processor and multiple I/O ports. The solid aluminum top cover and sealed chassis offers vibration, shock, and dust resistance, and its passive cooling provides quiet and reliable operation.

Modular IPCs

Model name		AiMC-3202	AiMC-3422	MIC-7900
Form Factor		Compact	Compact	Compact
Processor System	Chipset	H110	H110	-
	CPU	Intel® 6th/7th Gen Core™ i (LGA1151)	Intel® 6th/7th Gen Core™ i (LGA1151)	Intel® Xeon® D-1559/D-1539 BGA-type
	Core	Max. 4	Max. 4	Max. 12
	Cache	Max. 8 MB	Max. 8 MB	Max. 18 MB
	Memory	DDR4 1866/2133 MHz (non-ECC) Max. 32 GB	DDR4 1866/2133 MHz (non-ECC) Max. 32 GB	Dual DDR4 2400 MHz (supports ECC) Max. 32 GB
Graphic	Graphics Controller	Intel® HD Graphics	Intel® HD Graphics	ASPEED AST1400 with 256 MB VGA memory provides basic 2D VGA function
	VRAM	Shared system memory is subject to OS	Shared system memory is subject to OS	Shared system memory is subject to OS
Expansion	PCIe x16	AIMC-3202-00A1E 1 x PCIe x16, 1 x PCIe x4 AIMC-3202-01A1E 1 x PCIe x16, 1 x PCI	AIMC-3422-00A1E 1 x PCIe x16, 1 x PCIe x1, 2 x PCI AIMC-3422-01A1E 1 x PCIe x16, 3 x PCI	Supported via i-Module
	PCIe x8	-	-	
	PCIe x4	-	-	
	PCIe x1	-	-	
	PCI	-	-	
	Mini PCIe	-	-	1
Storage	Storage Bay	2 x 2.5" internal HDD bay	1 x 3.5" or 2 x 2.5" internal HDD bay	1 x 2.5" internal HDD/SSD bay
	M.2	-	-	22110 (2280 w/ bracket)
	mSATA	1	1	1
	CFast	-	-	1
	RAID	-	-	-
Ethernet	Ethernet Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN 1: Intel® I219V LAN 2: Intel® I211AT	LAN 1: Intel® I219V LAN 2: Intel® I211AT	4 x Intel® i210IT
Front I/O	Display	VGA+DVI-D	VGA	VGA
	LAN	2	2	4
	USB	3 x USB 3.0	1 x USB 3.0	4 x USB 3.0
	COM	2 x RS-232	2 x RS-232	2 x RS-232/422/485
	PS/2	1	1	-
	Audio	-	-	Line out/mic in
Rear I/O	Display	-	-	-
	LAN	-	-	-
	USB	-	2 x USB 2.0	-
	COM	-	-	-
	PS/2	-	-	-
	Audio	-	-	-
Watchdog Timer	Output	System reset	System reset	System reset
	Interval	Programmable 1 ~ 255 s/min	Programmable 1~ 255 s/min	Programmable 1~ 255 s/min
Power Supply	Output Wattage	250W	300W	-
	Input Range	100 ~ 240 V_{AC}	100 ~ 240 V_{AC}	9 ~ 36 V_{DC}
	Remote Power Switch	-	-	-
Cooling	System Fan	2 (6 cm/14.1 CFM)	1 (9 cm/53 CFM)	-
	Air Filter	Yes	Yes	-
Physical Characteristics	Dimensions (W x H x D)	232 x 90 x 232 mm (9.13" x 3.54" x 9.13")	150 x 222 x 270 mm (5.9" x 8.74" x 10.62")	73 x 192 x 230 mm (2.91" x 7.55" x 9.05")
	Weight	4.5 kg	5 kg	2.9 kg

✓ : supported, - : not supported, △ : optional

NEW NEW NEW




Model name		MIC-7500	MIC-7700	MIC-7300	MIC-7420
Form Factor		Compact	Compact	Compact	19" 2U Rack Mount
Processor System	Chipset	QM170	Q170/H110	-	QM170
	CPU	Intel 6th Gen Core i BGA-type	Intel® 6th/7th Gen Core™ i (LGA1151)	Intel® Celeron® N3350/ Atom™ x7-E3950 BGA-type	Intel 6th Gen Core i BGA-type
	Core	Max. 4	Max. 4	Max. 4	Max. 4
	Cache	Max. 8 MB	Max. 8 MB	2 MB	Max. 8 MB
	Memory	Dual DDR4 2400 MHz Max. 32 GB	Dual DDR4 2400 MHz Max. 32 GB	Dual DDR3L 1867 MHz Max. 8 GB	Dual DDR4 2400 MHz Onboard 8GB & 1 SODIMM slot Max. 24GB
Graphic	Graphics Controller	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics
	VRAM	Shared system memory is subject to OS	Shared system memory is subject to OS	Shared system memory is subject to OS	Shared system memory is subject to OS
Expansion	PCIe x16	Supported via i-Module	Supported via i-Module	-	-
	PCIe x8			-	-
	PCIe x4			-	2
	PCIe x1			Supported via i-Module	-
	PCI			Supported via i-Module	2
	Mini PCIe	2	2	1	1
Storage	Storage Bay	1 x 2.5" internal HDD/SSD bay	1 x 2.5" internal HDD/SSD bay	1 x 2.5" internal HDD/SSD bay	2 x 3.5" internal HDD bay
	M.2	-	-	-	1 M.2 (2260 M-key)
	mSATA	1	1	1	-
	CFast	1	1	-	-
	RAID	0/1/5/10	0/1/5/10 (Q SKU only)	-	0/1
Ethernet	Ethernet Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN 1: Intel i219LM LAN 2: Intel i210IT	LAN 1: MIC-7700Q: Intel i219LM/MIC_7700H: Inteo i219V LAN 2: Intel i210IT	2 x Intel® i210AT	LAN 1: Intel® i219LM LAN 2: Intel® i210IT
Front I/O	Display	VGA+DVI-D	VGA+DVI-D	VGA+DVI-D	-
	LAN	2	2	2	-
	USB	8 x USB 3.0	Q170: 8 x USB 3.0 H110: 4 x USB 3.0, 4 x USB 2.0	2 x USB 3.0 6 x USB 2.0	2 x USB 2.0
	COM	2 x RS-232/422/485 2 x RS-232	2 x RS-232/422/485 2 x RS-232	2 x RS-232/422/485 2 x RS-232	-
	PS/2	-	-	-	-
	Audio	Line out/mic in	Line out/mic in	Line out/mic in	-
Rear I/O	Display	-	-	-	DVI-I + DVI-D
	LAN	-	-	-	2
	USB	-	-	-	2 x USB 3.0 4 x USB 2.0
	COM	-	-	-	2 x RS-232/422/485
	PS/2	-	-	-	1
	Audio	-	-	-	Line out/mic in
Watchdog Timer	Output	System reset	System reset	System reset	System reset
	Interval	Programmable 1~ 255 s/min	Programmable 1~ 255 s/min	Programmable 1~ 255 s/min	Programmable 1~ 255 s/min
Power Supply	Output Wattage	-	-	-	150W
	Input Range	9 ~ 36 V_{DC}	9 ~ 36 V_{DC}	9 ~ 36 V_{DC}	100 ~ 240 V_{AC}
	Remote Power Switch	-	-	1	-
Cooling	System Fan	-	-	-	-
	Air Filter	-	-	-	-
Physical Characteristics	Dimensions (W x H x D)	73 x 192 x 230 mm (2.91" x 7.55" x 9.05")	77 x 192 x 230 mm (3.07" x 7.55" x 9.05")	73 x 192 x 230 mm (2.91" x 7.55" x 9.05")	427 x 88 x 325 mm (16.81" x 3.46" x 12.79")
	Weight	2.9 kg	2.9 kg	2.9 kg	10 kg

✓ : supported, - : not supported, △ : optional

i-Modules for MIC-7 Series

Compatible with MIC-7 Series Fanless Systems






i-Module		MIC-75M10	MIC-75M20	MIC-73M20	MIC-75M20-01	MIC-75M11	MIC-73M11
MIC-7900		1 x PCIe x16	1 x PCIe x16 1 x PCIe x4	-	2 x PCIe x8	1 x PCIe x16 1 x PCI	-
MIC-7500							
MIC-7700	MIC-7700Q						
	MIC-7700H				-		
MIC-7300		-	-	2 x PCIe x1	-	-	1 x PCIe x1 1 x PCI
MIC + i-Module Dimension (H x W x D)*		192 x 97 x 230 mm	192 x 123 x 230 mm				
System Fan (Optional)**		-	4 cm (98R1752000E)				




i-Module		MIC-75M13	MIC-73M13	MIC-75M40	MIC-75S20
MIC-7900		1 x PCIe x16 3 x PCI 2 x 2.5" HDD/SSD	-	1 x PCIe x8 3 x PCI 2 x 2.5" HDD/SSD	1 x PCIe x16 3 x PCI 2 x 2.5" HDD/SSD 2 x 2.5" hot Swap HDD/SSD
MIC-7500					
MIC-7700	MIC-7700Q				
	MIC-7700H			-	
MIC-7300		-	1 x PCIe x1 3 x PCI 2 x 2.5" HDD/SSD	-	-
MIC + i-Module Dimension (H x W x D)*		192 x 163 x 230 mm			
System Fan (Optional)**		8 cm (98R1751300E)			

*When an i-module is assembled with an MIC-7700, the total width will be increased by 4 mm.

**A fan must be added if expansion cards exceed 45 W of power consumption

Intelligent Inspection Systems

Advantech's AIIS series are closely aligned with machine automation applications such as automated optical inspection, wafer inspection, and alignment inspection, all of which rely heavily on machine vision. With PoE/USB 3.0 vision and a rich I/O interface, the AIIS series is characterized by high-performance computing with low power consumption as well as intelligent management and extended product longevity. Our AIIS series of machine vision controllers save on space and make installation economical and easy—perfect for vision inspection applications. With a powerful CPU and built-in PoE/USB 3.0 ports, the AIIS series enhances overall application value by delivering outstanding machine vision performance. With the latest Intel Core processors, this series delivers state-of-art computing and graphics performance.

AIIS Series Product Features

Mainstream Interface

- GigE Vision Compliant
- USB3 Vision Compliant

Outstanding Performance

- Speed and reliable transmission for image acquisition and analysis

High Interoperability

- Compliant with main vision camera partners

Compact Size

- Compact size with a rich I/O interface
- Space-saving and easy-to-install

Intelligent Inspection Systems



Model Name		AIIS-1200P	AIIS-1200U	AIIS-5410P
Form Factor		Compact	Compact	Compact
Processor System	Chipset	-	-	QM170
	CPU	Intel Braswell N3160/N3710 SoC	Intel Braswell N3160/N3710 SoC	Intel 6th Generation Core i7/i5 BGA1440 processor
	Core	4	4	4
	Cache	2 MB	2 MB	8MB
	Memory	DDR3L 1600 Onboard 8 GB	DDR3L 1600 Onboard 8 GB	Dual Channel DDR4 1866/2133 MHz (non-ECC) Max. 32 GB
Graphics	Graphics controller	Integrated Intel HD Graphics	Integrated Intel HD Graphics	Integrated Intel HD Graphics
	VRAM	Shared system memory is subject to OS	Shared system memory is subject to OS	Shared system memory is subject to OS
Expansion	PCIe x16	-	-	-
	PCIe x8	-	-	1
	PCIe x4	-	-	-
	PCIe x1	-	-	-
	PCI*	-	-	1 x riser card
	mini PCIe	1	1	1
Storage	HDD Bay	1 x internal 2.5" HDD bay	1 x internal 2.5" HDD bay	2 x internal 2.5" HDD bay
	mSATA	1	1	1
	CFast	-	-	1
	RAID	-	-	RAID 0/1
Ethernet	Ethernat interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	1 x Intel I210	1 x Intel I210	2 x Intel I210
Machine Vision Connector	Interface	2-ch PoE	2-ch USB 3.0	4-ch PoE
	Controller	Intel I210	Renesas uPD720202	Intel I210
Front I/O	Display	VGA	VGA	VGA + DVI-D
	LAN	1	1	2
	USB	2 x USB 3.0	2 x USB 3.0	8 x USB 3.0
	COM	1 x RS-232/422/485 1 x RS-232	1 x RS-232/422/485 1 x RS-232	-
	PS/2	-	-	-
	Audio	-	-	Line out/mic in
Rear I/O	Display	1 x DP	1 x DP	-
	LAN	-	-	-
	USB	2 x USB 3.0	2 x USB 3.0	-
	COM	-	-	2 x RS-232/422/485
	PS/2	-	-	-
	Audio	Line out/mic in	Line out/mic in	-
	Digital I/O	8 channels (isolated)	8 channels (isolated)	8 channels
Watchdog Timer Output	Output	System reset	System reset	System reset
	Interval	Programmable 1 ~ 255 s/min	Programmable 1 ~ 255 s/min	Programmable 1 ~ 255 s/min
Power Supply	Output Wattage	-	-	-
	Input Range	9 ~ 36 V_{DC}	9 ~ 36 V_{DC}	9 ~ 36 V_{DC}
	Remote Power Switch	1	1	1
Cooling	System Fan	-	-	-
	Air Filter	-	-	-
Physical Characteristics	Dimensions (W x H x D)	137 x 58 x 118 mm (5.39" x 2.28" x 4.65")	137 x 58 x 118 mm (5.39" x 2.28" x 4.65")	235 x 88 x 188 mm (9.25" x 3.46" x 7.4")
	Weight	1.1 kg	1.1 kg	2.9 kg

✓: supported, - : not supported, △: optional




Model Name		AIIS-3400P	AIIS-3400U	AIIS-3410P	AIIS-3410U
Form Factor		Compact	Compact	Compact	Compact
Processor System	Chipset	H110	H110	H110	H110
	CPU	Intel 6th/7th generation Core i CPU (LGA1151)	Intel 6th/7th generation Core i CPU (LGA1151)	Intel 6th/7th generation Core i CPU (LGA1151)	Intel 6th/7th generation Core i CPU (LGA1151)
	Core	Max.4	Max.4	Max.4	Max.4
	Cache	Max. 8 MB	Max. 8 MB	Max. 8 MB	Max. 8 MB
	Memory	Dual channel DDR4 1866/2133 MHz (non-ECC) Max. 32 GB	Dual channel DDR4 1866/2133 MHz (non-ECC) Max. 32 GB	Dual channel DDR4 1866/2133 MHz (non-ECC) Max. 32 GB	Dual channel DDR4 1866/2133 MHz (non-ECC) Max. 32 GB
Graphics	Graphics controller	Integrated Intel HD Graphics	Integrated Intel HD Graphics	Integrated Intel HD Graphics	Integrated Intel HD Graphics
	VRAM	Shared system memory is subject to OS	Shared system memory is subject to OS	Shared system memory is subject to OS	Shared system memory is subject to OS
Expansion	PCIe x16	-	-	-	-
	PCIe x8	-	-	1	1
	PCIe x4	-	-	-	-
	PCIe x1	-	-	-	-
	PCI*	-	-	1 x riser card (optional)	1 x riser card (optional)
	mini PCIe	-	-	1	1
Storage	HDD Bay	1 x internal 2.5" HDD bay	1 x internal 2.5" HDD bay	1 x internal 2.5" HDD bay	1 x internal 2.5" HDD bay
	mSATA	-	-	-	-
	CFast	1	1	1	1
	RAID	-	-	-	-
Ethernet	Ethernat interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN1: Intel i219LM LAN2: Intel i210	LAN1: Intel i219LM LAN2: Intel i210	LAN1: Intel i219LM LAN2: Intel i210	LAN1: Intel i219LM LAN2: Intel i210
Machine Vision Connector	Interface	4-ch PoE	4-ch USB	4-ch PoE	4-ch USB
	Controller	Intel I210	Renesas µPD720202	Intel I210	Renesas µPD720202
Front I/O	Display	VGA + DVI-D	VGA + DVI-D	VGA + DVI-D	VGA + DVI-D
	LAN	2	2	2	2
	USB	4 x USB 3.0	4 x USB 3.0	4 x USB 3.0	4 x USB 3.0
	COM	2 x RS-232/422/485	2 x RS-232/422/485	2 x RS-232/422/485	2 x RS-232/422/485
	PS/2	-	-	-	-
	Audio	Line in/line out/mic in	Line in/line out/mic in	Line in/line out/mic in	Line in/line out/mic in
Rear I/O	Display	-	-	-	-
	LAN	-	-	-	-
	USB	-	-	-	-
	COM	-	-	-	-
	PS/2	-	-	-	-
	Audio	-	-	-	-
	Digital I/O	8 Channels (isolated)	8 Channels (isolated)	8 Channels (isolated)	8 Channels (isolated)
Watchdog Timer Output	Output	System reset	System reset	System reset	System reset
	Interval	Programmable 1 ~ 255 s/min	Programmable 1 ~ 255 s/min	Programmable 1 ~ 255 s/min	Programmable 1 ~ 255 s/min
Power Supply	Output Wattage	-	-	-	-
	Input Range	19 ~ 24 V_{DC}	19 ~ 24 V_{DC}	19 ~ 24 V_{DC}	19 ~ 24 V_{DC}
	Remote Power Switch	1	1	1	1
Cooling	System Fan	1 (6cm / 27.7 CFM)	1 (6cm / 27.7 CFM)	1 (8cm / 57 CFM)	1 (8cm / 57 CFM)
	Air Filter	-	-	-	-
Physical Characteristics	Dimensions (W x H x D)	230 x 70 x 175 mm (9.06" x 2.76" x 6.89")	230 x 70 x 175 mm (9.06" x 2.76" x 6.89")	240 x 97 x 190 mm (9.45" x 3.82" x 7.48")	240 x 97 x 190 mm (9.45" x 3.82" x 7.48")
	Weight	1.8 kg	1.8 kg	2.4 kg	2.4 kg

✓: supported, - : not supported, △: optional

PCI Express Expansion Card

PCI Express USB 3.0 Expansion Card

Part Number		PCE-USB4	PCE-USB8
USB 3.0	Interface	PCI Express x4	
	Connector	4 x USB3.0	8 x USB3.0
	Host Bus	4-lane Gen 2 PCIe interface, compliant with PCI Express Base Specification, Revision 2.0	
	Controller	4 x Renesas µPD720202 host controllers	
	Data Transfer Rate	Super speed (5.0 Gbps)/high speed (480.0 Mbps)/full speed (12.0 Mbps)/low speed (1.5 Mbps)	
Environment	Temperature (Operating)	0 ~ 60°C (32 ~ 140°F)	
	Temperature (Storage)	-40 ~ 85°C (-40 ~ 185°F)	
	Certifications	CE/FCC, Class B	
	Dimensions	118 x 111 mm (4.64" x 4.37")	118 x 111 mm (4.64" x 4.37", dual layer)

PCI Express GbE Expansion Card

Part Number		PCE-GIGE2	PCE-GIGE4
GIGE	Interface	PCI Express x4	
	Connector	2 x RJ45 LAN ports	4 x RJ45 LAN ports
	Host Bus	4-lane Gen 2 PCIe interface, compliant with PCI Express Base Specification, Revision 2.0	
	Controller	4 x Intel i210 Ethernet Controller	
	Data Transfer Rate	10/100/1000 Mbps	
Environment	Temperature (Operating)	0 ~ 60°C (32 ~ 140°F)	
	Temperature (Storage)	-40 ~ 85°C (-40 ~ 185°F)	
	Certifications	CE/FCC, Class A	
	Dimensions	118 x 111 mm (4.64" x 4.37")	

Control IPC Overview

Introduction

Advantech offers PAC solutions designed for industrial automation applications that combine the openness and flexibility of PCs with the reliability of traditional automation controllers such as PLCs. Advantech's APAX series utilizing sophisticated thermal designs to ensure system stability. The APAX series support Windows CE, Windows 7/10, and Linux operating systems. Advantech's control IPCs are ideal platforms for implementation in diverse applications such as power/energy, transportation, machine automation, factory automation, building automation, facility management systems, environment monitoring, and more.

Real-Time Control IPC: APAX Series

APAX series are Ethernet-enabled controllers that allow users to deploy I/O modules in flexible expansion combinations such as direct stack or daisy-chain. The control performance and functionality of this series are better than not only PLCs but also most PC-based controllers. Features including versatile CPU modules, I/O modules designed as reliable as PLC I/Os, high-density I/Os with LEDs, hot-swap, and stackable functionality are delivered. Both C/C++, the .NET library, and IEC 61131-3 languages are provided as programming tools.

Advantech CODESYS

For traditional PLC controllers, the development environment will vary depending on the PLC supplier, and different PLCs are not compatible with each other. Advantech's control IPC adopts the international standard IEC 61131-3, which is based on PLCopen and was established to standardize multiple languages, sets of instructions, and different concepts in the field of automation systems. Therefore, programming languages that comply with the IEC 61131-3 standard, usually called SoftLogic software, enable users to leverage PLC-world typical programming interfaces. Additional benefits of our control IPC include portability between platforms and a shortened learning curve relative to traditional PLCs.

Advantech CODESYS

Advantech supports all kinds of CODESYS runtime, including RTE, SoftMotion, and CNC, which are based on the Windows Embedded 7 operation system. Its runtime supports not only SoftLogic control but also visualization, including both Target (local HMI) and Web (browser-based). CODESYS can help to make Advantech control IPCs gain real-time logic control and HMI with a single control platform. Advantech has also developed cloud connectivity plugin packages, including the WebAccess/SCADA support, ODBC database direct connection function blocks, and OPC/UA server support. These can help users establish upstream communication for Industry 4.0 applications.

Control IPC

- X86 system architecture
- Compact and DIN rail mount for control cabinets
- Front I/O access
- Flexible interface

Modular I/O

- Modular local I/O
- Local and remote I/O system
- Analog/digital I/O, counter/communication

Control IPC | Modular I/O | Open Platform | SoftLogic & HMI

Open Platform

- Based on Windows and Linux
- Web service
- Database connection
- Utility for I/O configuration
- API examples and documents
- Graphical interface

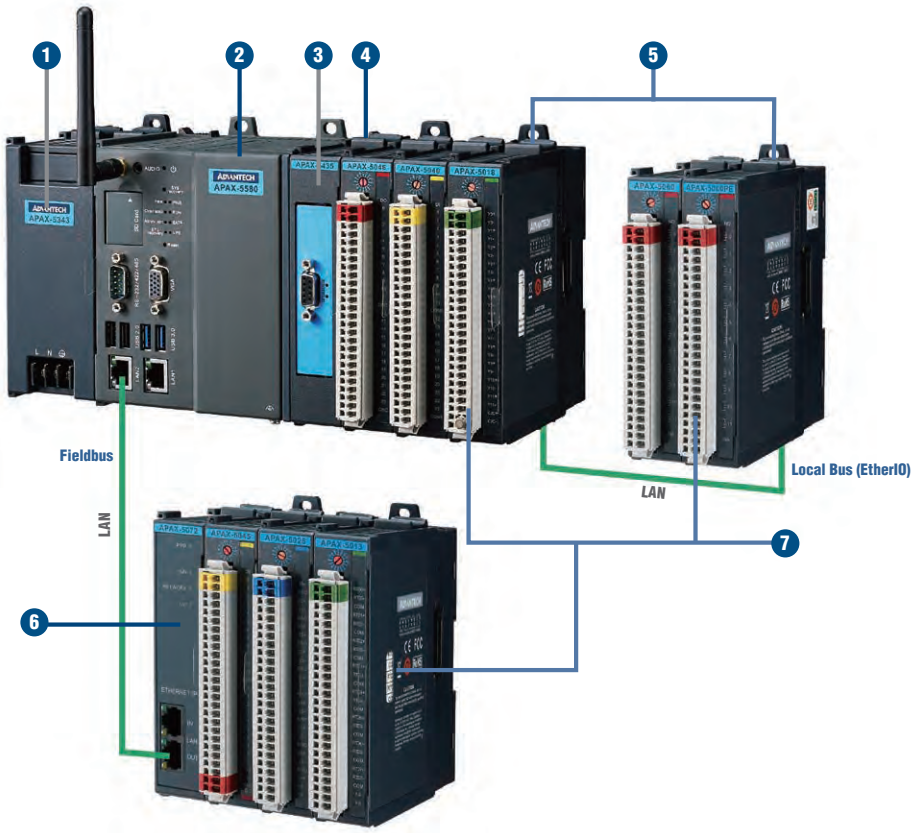
Windows Embedded | Linux | Windows 10 | Microsoft .net | WebAccess | LabVIEW

SoftLogic and HMI

- CODESYS V3 development system
- IEC-61131-3 development tool
- Object-oriented programming
- Integrated I/O configuration and target visualization
- HTML5 web visualization
- OPC server

CODESYS

APAX-5000 System



Power Supply Modules

- **APAX-5343** 115/230 V_{AC} power supply

Control Platform

- **APAX-5580** Intel® Core™ i7/i3/Celeron control IPC w/ 2 x GbE, 2 x mPCIe, VGA
- **APAX-5580CDS** High-performance SoftLogic PC-based controller, powered by CODESYS

PCI Express Interface Communication Modules

- **APAX-5430** SATA HDD module
- **APAX-5435** mPCIe module support for iDoor Fieldbus interface module
- **APAX-5490** 4-port RS-232/422/485 communication module

Expansion Backplane

- **APAX-5402** Expansion backplane (only for APAX-5580 and PCIe modules)
- **APAX-5402L** Expansion backplane for PCIe and EtherIO (APAX IO)

I/O Backplane

- **APAX-5001** 1-slot backplane module
- **APAX-5002** 2-slot backplane module
- **APAX-5002L** 2-slot backplane module

Fieldbus Coupler Modules

- **APAX-5070** Modbus/TCP communication coupler
- **APAX-5071** PROFINET communication coupler
- **APAX-5072** EtherNet/IP communication coupler

Analog I/O Modules

- **APAX-5013** 8-ch RTD module
- **APAX-5017** 12-ch analog input module
- **APAX-5017H** 12-ch high-speed analog input module
- **APAX-5018** 12-ch thermocouple input module
- **APAX-5028** 8-ch analog output module

Digital I/O Modules

- **APAX-5040** 24-ch digital input module
- **APAX-5045** 24-ch digital I/O module
- **APAX-5046** 24-ch digital output module
- **APAX-5046SO** 20-ch source-type digital output module
- **APAX-5060** 12-ch relay output module
- **APAX-5080** 4/8-ch high/low-speed counter module

Remote Serial Modules

- **APAX-5090** 4-port RS-232/422/485 virtual COM with APAX bus (EtherIO)

APAX Series Selection Guide

APAX Control Platform

NEW

Model		APAX-5580			APAX-5620
Description		APAX-5580 controller with Intel® Celeron® CPU	APAX-5580 controller with Intel® Core™ i3 CPU	APAX-5580 controller with Intel® Core™ i7 CPU	APAX-5620 controller
System Hardware	CPU	Intel® Celeron® 2980U ULT 1.6GHz Haswell Dual Core, 2 MB L2	Intel® Core™ i3-4010U ULT 1.7GHz Haswell Dual Core, 3 MB L2	Intel® Core™ i7-4650U ULT 1.7GHz Haswell Dual Core, 4 MB L2	Marvel XScale PXA270 520 MHz
	Memory	Onboard 4 GB		8 GB	-
	Storage	1 x mSATA, 1 x SD, 1 x SD (for OS backup)			1 x Type II CompactFlash card slot
	USB Ports	4 x USB ports (2 x USB 2.0, 2 x USB 3.0 compliant), 1 x internal USB			1 x USB 1.1
	VGA	1 x VGA, supports 1920 X 1080 @ 60 Hz 24 bpp			DB15 connector
	Audio	Line out			-
General	Dimensions (W x H x D)	128 x 106 x 110 mm			60 x 139 x 100 mm
	Power Consumption	28 W (typical), 72 W (max.) @ 24 V_{DC} ± 20%			5 W @ 24 V_{DC} (typical)
	Status Display	LEDs for power, battery, LAN (Active, Status), Tx/Rx, and HDD			-
Software	Control Software	C/C++ library and .NET class library for C and .NET programming environment, CODESYS IEC 61131-3 SoftLogic control software			C/C++ and .NET library KW Multiprog (development tool), KW ProConOS (runtime kernel) Support CPU Redundancy
	OS Support	Microsoft® Windows 7/8, Linux Kernel 3.X			Windows CE
Environment	Shock Protection	Operating, IEC 60068-2-27, 50g, half sine, 11 ms			-
	Vibration Protection	Operating, IEC 60068-2-64, $2g_{rms}$, random, 5 ~ 500 Hz, 1 hr/axis (mSATA)			-
Communications (Ethernet)	LAN Ports	2 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000BASE-T Fast Ethernet			2 x RJ-45 port, 10/100 Mbps
Communications (Serial)	COM Ports	1 x RS-232/422/485, DB9, 50 ~ 115.2 kbps			2 x isolated RS-485 (2-wire, isolated)

APAX Series Selection Guide

APAX Analog I/O Module





Model		APAX-5013	APAX-5017	APAX-5017H	APAX-5018	APAX-5028
Description		8-ch RTD module	12-ch analog input module	12-ch high-speed analog input module	12-ch thermocouple module	8-ch analog output module
General	Dimensions (W x H x D)	30 x 139 x 100 mm				
	Power Consumption	2.5 W @ 24 V_{DC} (typical)	4 W @ 24 V_{DC} (typical)	3.5 W @ 24 V_{DC} (typical)	3.5 W @ 24 V_{DC} (typical)	3.5 W @ 24 V_{DC} (typical)
Analog Input	Channels	8 (differential)	12 (differential)	12 (differential)	12 (differential)	-
	Input Type*	RTD (2-wire or 3-wire)	V, mV, mA	V, mV, mA	V, mV, mA, thermocouple	-
	Sampling Rates	10 sample/second (total)**	12 sample/second (total)**	1,000 sample/second (per channel)	12 sample/second (total)**	-
	Resolution	16-bit (accuracy: ±0.1% of scale range)	16-bit (accuracy: ±0.1% of scale range for voltage; ±0.2% of scale range for current)	16-bit (accuracy: ±0.1% of scale range for voltage; ±0.2% of scale range for current)	16-bit (accuracy: ±0.1% of scale range for voltage; ±0.2% of scale range for current)	-
	Input Impedance	>10 MΩ	>10 MΩ (voltage), 120 Ω (current)	2 MΩ (voltage), 120 Ω (current)	>1 MΩ (voltage), 120 Ω (current)	-
	Wire Burnout Detection	✓	✓ (4 ~ 20 mA only)	✓ (4 ~ 20 mA only)	✓ (4 ~ 20 mA and thermocouple)	-
Analog Output	Resolution	-	-	-	-	14-bit (accuracy: ±0.1% of scale range)
	Channels	-	-	-	-	8
	Output Type*	-	-	-	-	V, mA
	Slew Rate	-	-	-	-	0.7 V_{DC}/μs (per channel)
Environment	Operating Temperature	-10 ~ 60°C (when mounted vertically)				
	Storage Temperature	-40 ~ 70°C				
	Relative Humidity	5 ~ 95% (non-condensing)				

* Each channel can be configured with different type and range

** Sampling rate depends on used channel number.

Example: Using 6 channels on APAX-5017, sampling rate for each used channel will be 12/6 = 2 samples/second.

APAX Digital I/O Module

Model		APAX-5040	APAX-5045	APAX-5046/ APAX-5046SO	APAX-5060	APAX-5080
Description		24-ch digital input module	24-ch digital I/O module	24-ch/20-ch digital output module	12-ch relay module	4/8-ch counter module
General	Dimensions (W x H x D)	30 x 139 x 100 mm				
	Power Consumption	2 W @ 24 V_{DC} (typical)	2.5 W @ 24 V_{DC} (typical)	2.5 W @ 24 V_{DC} (typical)	2 W @ 24 V_{DC} (typical)	2.5 W @ 24 V_{DC} (typical)
	Status Display	LED per channel On: Logic level 1 Off: Logic level 0				
Digital Input	Channels	24	12	-	-	4 (sink)
	Input Voltage	Rated Value: 24 V_{DC}, For "0" signal: -5 ~ 5 V_{DC}, For "1" signal: 15 ~ 30 V_{DC} and -15 ~ 30 V_{DC}	Rated Value: 24 V_{DC}, For "0" signal: -5 ~ 5 V_{DC}, For "1" signal: 15 ~ 30 V_{DC} and -15 ~ 30 V_{DC}	-	-	For "0" signal: 0 ~ 3 V_{DC}, For "1" signal: 10 ~ 30 V_{DC}
	Type	Sink or source load	Sink or source load	-	-	-
Digital Output	Channels	-	12 (sink)	24 (sink)	-	4 (sink)
	Voltage Range	-	8 ~ 35 V_{DC}	8 ~ 35 V_{DC}	-	8 ~ 35 V_{DC}
	Rated Current Output	-	0.5 A (per channel, at signal "1")	0.5 A (per channel, at signal "1")	-	0.5 A (per channel)
Relay Output	Channels	-	-	-	12	-
Counter/ Frequency Input	Channels and Mode	-	-	-	-	8 (up and frequency mode), 4 (pulse/ direction, up/down, A/B phase mode)
	Counting Range	-	-	-	-	32-bit + 1-bit overflow
	Minimum Pulse Width	-	-	-	-	1 µs for high-freq. mode and other modes
	Counter Frequency	-	-	-	-	10 hz ~ 1 MHz for high-freq. mode and other modes
	Input Voltage	-	-	-	-	For "0" signal: 0 ~ 3 V_{DC}, for "1" signal: 10 ~ 30 V_{DC}
Environment	Operating Temperature	-10 ~ 60°C (when mounted vertically)				
	Storage Temperature	-40 ~ 70°C				
	Relative Humidity	5 ~ 95% (non-condensing)				

APAX Series Selection Guide

APAX Coupler Module

Model		APAX-5070	APAX-5071	APAX-5072
Description		Modbus/TCP communication coupler	PROFINET communication coupler	EtherNET/IP communication coupler
General	Dimensions (W x H x D)	30 x 139 x 100 mm		
	Power Consumption	2 W @ 5 V_{DC} (typical)		
	Connectors	2 x RJ-45 (2-ch switch, shared IP address)		
Communications	Protocols	Modbus/TCP	PROFINET RT	Ethernet/IP
	Data Transfer Rates	10/100 Mbps		
	Connected I/O Modules	32 (max.)*		
	Digital Signals	768 (max.)		
	Analog Signals	192 (max.)		
Environment	Operating Temperature	-10 ~ 60°C (mounted vertically)		
	Storage Temperature	-40 ~ 85°C		
	Relative Humidity	5 ~ 95% (non-condensing)		

*APAX digital I/O modules can use ID number 0 ~ 31, while AI/O modules and counter modules can only use ID numbers 0 ~ 15

APAX Communication Module

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Model		APAX-5435	APAX-5490	APAX-5090	APAX-5430
Description		mPCIe module for iDoor technology expansion	RS-232/422/485 module	4-port RS-232/422/485 virtual COM	SATA HDD module
General	Dimensions (W x H x D)	30 x 139 x 100 mm			
	Power Consumption	2.5 W @ 24 V_{DC} (typical)	2 W @ 5 V_{DC} (typical)	2 W @ 24 V_{DC} (typical)	2.5 W @ 5 V_{DC} (typical)
	Connectors	1 x 26-pin clamp-type terminal			
	Interface	mini PCI express 2.0 (Support iDoor), mSATA	RS-232/422/485	COM 1, COM 2: RS-232/422/485 COM 3, COM 4: RS-232/422/485 (change mode via switch)	SATA
Environment	Operating Temperature	-10 ~ 60°C (mounted vertically)			
	Storage Temperature	-40 ~ 70°C			
	Relative Humidity	5 ~ 95% (non-condensing)			

APAX-5000 Control IPC Support Table

Type		Control IPC		Coupler		
System		APAX-5580	APAX-5620	APAX-5070	APAX-5071	APAX-5072
Function	I/O Module	Intel® Core™ i7/i3/ Celeron Control IPC w/ 2 x GbE, 2 x mPCIe, VGA	PAC with Marvel XScale® CPU and CAN	Modbus/TCP Communication Coupler	PROFINET Communication Coupler	EtherNet/IP Communication Coupler
Analog I/O	APAX-5013	✓	✓	✓	✓	✓
	APAX-5017	✓	✓	✓	✓	✓
	APAX-5017H	✓	✓	✓	✓	✓
	APAX-5018	✓	✓	✓	✓	✓
	APAX-5028	✓	✓	✓	✓	✓
Digital I/O	APAX-5040	✓	✓	✓	✓	✓
	APAX-5045	✓	✓	✓	✓	✓
	APAX-5046	✓	✓	✓	✓	✓
	APAX-5060	✓	✓	✓	✓	✓
	APAX-5046SO	✓	✓	✓	✓	✓
	APAX-5080	✓	✓	✓	✓	✓
Communication	APAX-5490	✓	-	-	-	-
	APAX-5090	✓	-	-	-	-
	APAX-5435	✓	-	-	-	-
SATA	APAX-5430	✓	-	-	-	-
Backplane & Expansion	APAX-5001	✓	✓	✓	✓	✓
	APAX-5002	✓	✓	✓	✓	✓
	APAX-5002/L	✓	✓	✓	✓	✓
	APAX-5402	✓	-	-	-	-
Power Supply	APAX-5343	✓	-	-	-	-
	APAX-5342	✓	-	-	-	-
	APAX-5343E	-	✓	✓	✓	✓

WISE-PaaS/EdgeLink-Enabled Gateways

Take Machine to Intelligent (M2I) for the Next Business Success

In the Industrial IoT era, companies are seeking solutions that can help them to utilize data analytics to raise service levels, create better products, and reduce operational costs. The ideal first step is get assets digitalized. This means that increasingly more data need to be analyzed, and both the volume and diversity of such data from different equipment are also increasing.While from the perspectives of equipment manufacturers, owners, and maintainers need to have an easy and reliable way to collect equipment data from field sites, Advantech WISE-PaaS/EdgeLink provides a solution for Machine to Intelligent (M2I). Without frequent on-site maintenance and service trips incurring time and financial costs, users will be able to monitor critical assets, track equipment performance, receive alarm notifications in the event of a problem, and perform system management and configuration using handheld devices. Thus, costs can be substantially reduced and the field equipment and facilities can be better monitored and controlled.

Optimizing Efficiency with Connected Equipment

For industrial boilers, air compressors, chillers, power distribution cabinets and other equipment, Advantech WISE-PaaS/EdgeLink serves as a kernel of data acquisition, data storage, alarm, data reporting and other functions, maximizing equipment efficiency with reliable data.

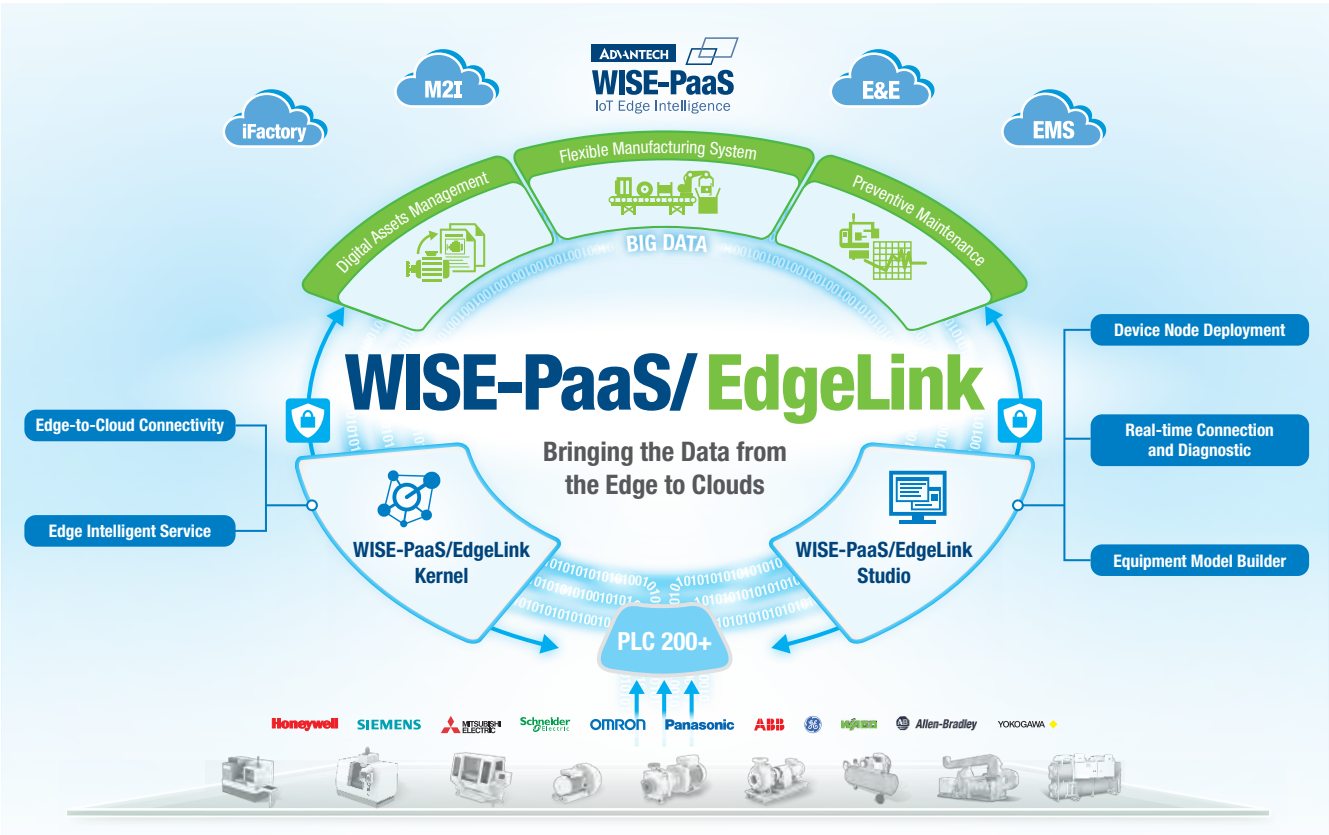
"Click-and-go" Cloud Access Deployment

Advantech WISE-PaaS/EdgeLink Studio offers a “click-and-go” functionality to send data to the Cloud. The acquired data can be easily and effortlessly report to the cloud for further analytic and visualized management reference.

Integrating Equipment Data into Middleware with Secured Data Conversion

In the IIoT Era, the requirement of connecting equipment becomes massive, more diverse and complex. Advantech WISE-PaaS/EdgeLink Studio supports data conversion that enables mass equipment such as PLCs, sensors, inverters and etc. directly integrated with SCADA, MES and ERP so that the equipment can be properly maintained and operated.

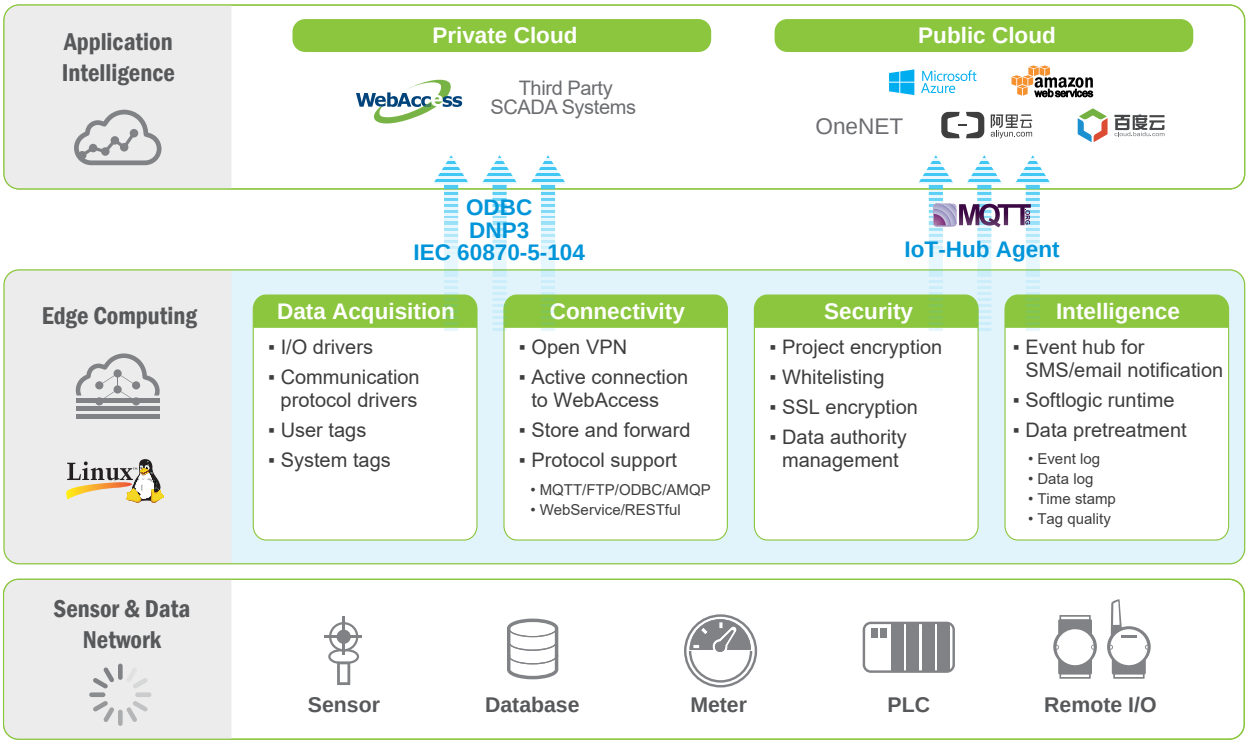
WISE-PaaS/EdgeLink Framework



Advantech WISE-PaaS/EdgeLink is equipped key functionalities for edge applications. The technology includes a runtime kernel and a user interface – "WISE-PaaS/EdgeLink Studio." With the integrated abilities of downlink to field equipment for data acquisition and uplink with connectivity, security, and intelligent functionalities, integrating field data and send them to the cloud becomes an easy task.

WISE-PaaS/EdgeLink Kernel

WISE-PaaS/EdgeLink Kernel Architecture



WISE-PaaS/EdgeLink Studio

Advantech WISE-PaaS/EdgeLink Studio is an advanced configuration tool that saves programming efforts and time for the users. It contains four major functionalities – Connectivity to handle uplink and downlink tasks, Equipment Model Builder that helps user to set for different equipment for different application in a snap, Cloud Agent that deals with the communication to public and private Cloud and Intelligent Service gives more advanced functionalities that ensure the data to be more secure and reliable.

Device Node Deployment

Connectivity

- Uplink to Supervisory System
- Downlink to Device or Equipment
- Active Connection

Intelligent Service

- Data Pre-treatment
- Local Network
- Data Logger
- White List
- Event Manager

Equipment Model Builder

- Device Model Builder
- Built-in Device Template
- I/O Tag Settings

Cloud Agent

- Public Cloud
- Database
- Private Cloud
- File Server

Device Node Deployment

- Project import and export
- User-friendly UI
- Easy mass deployment

Real-time Connection and Diagnostic

- Network status and data quality diagnostics
- Fast sync with field equipment

Equipment Model Builder

- Plug and play
- Rich equipment nodes and model
- Customizable model template

WISE-PaaS/EdgeLink-Enabled Gateways

Model Name		ADAM-3600
Description		Open Basis Intelligent RTU
System	CPU	Cortex A8
	Operating system	Linux RT 3.12
	Programming interface	C (Linux) IEC-61131-3, IEC-60870-104
	Communication protocols	Modbus/RTU, Modbus/TCP, DNP3
	Wireless communication protocols	GPRS, LTE 3G, Wi-Fi, Zigbee
	Special functions	Monitoring (iCDManager), data identification, breakpoint transmission, initiative reporting
Serial Port	Number of ports	3
	Type	1 x RS-232/485, 2 x RS-485
Network Port	Number of channels	2
	Number of independent IP addresses	2
	Speed	10/100 Mbps
	IP specifications	IPv4/IPv6
I/O	Onboard I/O	8 analog inputs, 8 digital inputs, 4 digital outputs
	Expansion slots	4
USB	USB2.0	1
Display Interface	VGA	1
	LED	System, serial, Ethernet, digital I/O, programmable
Storage Interface	SD	1 x SD slot
Operating Temperature		-40~70 °C
Certification		CE/FCC
Part Number		ADAM-3600-C2GL1A1E

Expansion Module for ADAM-3600

Model	Category	Channel	Part Number
ADAM-3617	Analog input module	4	ADAM-3617-AE
ADAM-3618	Analog input module	4, thermocouple	ADAM-3618-AE
ADAM-3624	Analog output module	4	ADAM-3624-AE
ADAM-3651	Digital input module	8	ADAM-3651-AE
ADAM-3656	Digital output module	8	ADAM-3656-AE
ADAM-3613	Analog input module	4, RTD	ADAM-3613-AE

Analog Input	
Signal Input	Differential
Sampling Rate	10 Hz
Voltage Input	+/- 10 V, +/- 2.5 V
Input Current	0~20 mA, 4~20 mA
Sensor Input	Thermocouple (type J, K, T, E, R, S, B) RTD (Pt100, Pt1000, Balco 500, Ni 518)
Resolution	16-bit

Analog Output	
Output Voltage	0~10 V
Output Current	0~20 mA, 4~20 mA
Resolution	12-bit

Digital Input	
Input Type	Sink
Rated Voltage	12/24 V_{DC}
Logic “0” Voltage	0~5 V_{DC}
Logic “1” Voltage	11~30 V_{DC}

Digital Output	
Output Type	Open collect
Output Voltage	8~30 V_{DC} @ max 200 mA

Wireless Expansion Module

EWM-W150H2E

Half-sized mini card, supports 802.11bgn

1750006043 SMA(M) cable, 15 cm

1750000318 2-dBi antenna, 11 cm

EWMC109F601E

6-band HSPA cellular module with SIM holder

1750006264 SMA(F) cable, 15 cm

1750005865 Dipole antenna, 11 cm

WISE-PaaS/TagLink-Enabled Gateways



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Model Name		ECU-1152TL	ECU-1251TL	ECU-1051TL	ECU-1050TL
Description		Industrial Communication Gateway	Industrial Communication Gateway	Industrial communication gateway	Industrial communication gateway
System	CPU	Cortex A8	Cortex A8	Cortex A8	Cortex A8
	Operating system	Linux RT 3.12	Linux RT 3.12	Linux RT 3.12	Linux RT 3.12
	Programming interface	C (Linux)	C (Linux)	C (Linux)	C (Linux)
	Wireless communication protocols	Modbus/RTU, Modbus/TCP, IEC-60870-101/104	Modbus/RTU, Modbus/TCP, IEC-60870-101/104	Modbus/RTU, Modbus/TCP, IEC-60870-101/104	Modbus/RTU, Modbus/TCP, IEC-60870-101/104
	Wireless communication	GRPS, 3G, LTE, Wi-Fi	GRPS, 3G, LTE, Wi-Fi	GRPS, 3G, LTE, Wi-Fi	GRPS, 3G, LTE, Wi-Fi
	Special functions	Monitoring, data identification, breakpoint transmission, initiative reporting	Monitoring, data identification, breakpoint transmission, initiative reporting	Monitoring, data identification, breakpoint transmission, initiative reporting	Monitoring, data identification, breakpoint transmission, initiative reporting
Serial Port	Number of ports	6	4	2	-
	Type	RS-232/485	RS-232/485	RS-232/485	-
Network Port	Number of channels	2	2	2	1
	Independent IP number	2	2	2	1
	Speed	10/100 Mbps	10/100 Mbps	10/100 Mbps	10/100 Mbps
	IP specifications	IPv4/IPv6	IPv4/IPv6	IPV4/IPV6	IPV4/IPV6
I/O	Onboard I/O	-	-	-	-
	Expansion slots	1 x mini-pcie	1 x mini-pcie	1 x mini-pcie	2 x mini-pcie
USB	USB2.0	1	1	-	-
Display Interface	VGA	-	-	-	-
	LED	PWR/Serial/Prog/LAN	PWR/Serial/Prog/LAN	PWR/Prog/LAN	PWR/Prog
Storage Interface	SD	1 x micro SD slot	1 x micro SD slot	1 x micro SD slot	1 x micro SD slot
Industry communication protocol		Modbus/ IEC-60870-104/BACnet IP/DNP3			
Programmable logic controller support		Siemens/Allen-Bradley/Schneider/Mitsubishi/Omron/Honeywell/Yokogawa/Delta/Panasonic			
Data logger		Realtime data logger			
Programing Support		Linux C, Web service API			
Operating Temperature		-40 ~ 70 °C	-40 ~ 70 °C	-40 ~70 °C	-40 ~70 °C
Certification		CE/FCC	CE/FCC	CE/FCC	CE/FCC
Part Number		ECU-1152TL-R11ABE	ECU-1251TL-R10AAE	ECU-1051TL-R10AAE	ECU-1050TL-R10AAE

Wireless Expansion Module

GPS

EWM-G108H01E

GPS/GNSS half-sized mini PCIe card

1750006264 SMA(F) cable, 15 cm

1750006432 4.5-dBi antenna, 5 m

Lte

EWM-C117FL0xE

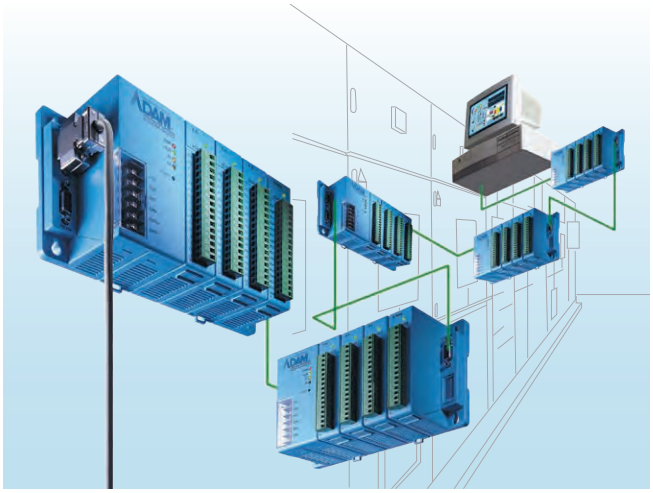
LTE/HSPA+/GPRS module, w/o SIM Slot

1750006264 SMA(F) cable, 15 cm

1750008424-01 LTE antenna, 14 cm

ADAM-5000 Series

Distributed I/O Systems & PC-based Controllers



Introduction

In the IIOT application, the first step of everything is data acquisition. People use high computing power at server side, and also need edge data collection and procession. One intelligent platform with modular design can save space in control cabinet and make installation easier. for sure this edge intelligent DAQ platform must support several communication interface to connect with upper layer system.

The ADAM-5000 series, a compact distributed data acquisition and control system, supports the shift toward Fieldbus-based systems. Based on popular Fieldbus data communication structures such as RS-485 and Modbus, the ADAM-5000 series now offers two different DA&C systems that allow field I/O devices to easily connect to PC network applications: the ADAM-5000 DA&C systems and the ADAM-5630 series of PC-based controllers.

Open DAQ Controller for Industry 4.0

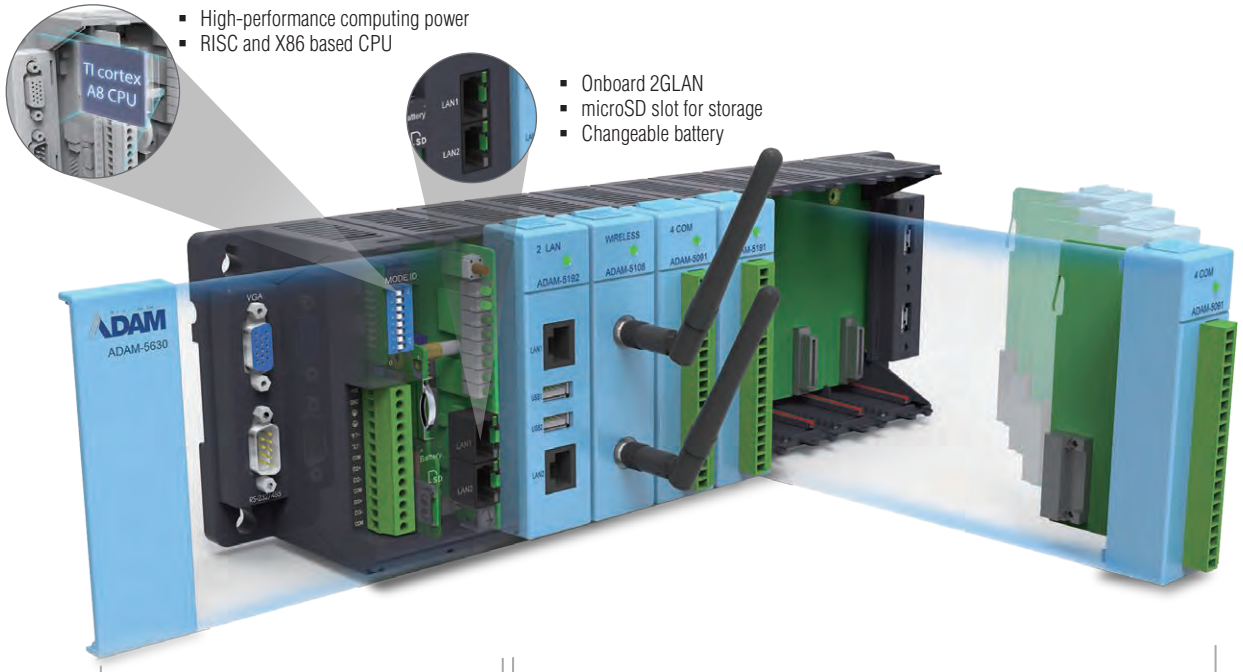
With the evolution of Industrial IoT, the demand of monitoring becomes enormous and complex in scale and variety. Hence the first stop of data acquisition requires higher ability to make the data valid. An ideal device of data acquisition for the new era covers higher computing capability, modularized I/O and customized ability.

The ADAM-5630 series of RISC-based programmable edge intelligent controllers includes ADAM-5630E, ADAM-5630. They feature cortex A8 CPU with DDR3 memory running real time Linux, which provides customer a high performance open platform.

Users can use Linux SDK and ADAM-5000 API(C and Python) to develop the application program. And ADAM-5630 also provides web service to help to set the configuration by web browser. The two onboard Ethernet ports which enables features like: FTP server, web server, TCP/UDP connections and Email alarm. ADAM-5630 controllers also have high expansion capability by supporting Modbus/RTU master/slave and Modbus/TCP client/server functions.

The ADAM-5560CE features Intel CPU running Windows CE. Users can use Microsoft Visual Studio .NET to develop the application program.

The ADAM-5560 also support CODESYS allow users to leverage the IEC 61131-3 SoftLogic programming environment to complete their automation task.



- High-performance computing power
- RISC and X86 based CPU
- Onboard 2GLAN
- microSD slot for storage
- Changeable battery
- Slide cover design
- User-friendly
- Terminal connector for device connections
- Modular data acquisition module design with a selection of more than 20 different I/O types
- Multiple port options for future communication expansion

Maximum System Design Flexibility

The ADAM-5000's modular design allows users to tailor solutions based on their own requirements. Built-in programmable I/O ranges and alarm outputs enhance flexibility in system design. A variety of communication media such as twisted-pair wiring, radio modems and fiber optics are supported.

System Maintenance and Troubleshooting

The ADAM-5000 series uses hardware self-test and software diagnosis to monitor system problems. Also included is a watchdog timer that monitors the microprocessor. If the system crashes, the watchdog automatically resets the system. Node ID setting is easily accomplished by setting a DIP switch on the front of the system.

Easy Installation and Networking

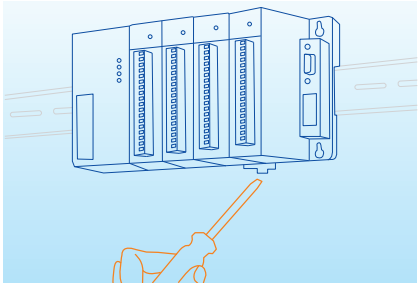
The ADAM-5000 series can be easily mounted on a DIN-rail or panel. Signal connections, network modifications and maintenance are simple and quick. Building a multi-drop network only requires a single twisted pair of wires.

Proven for Industrial Environments

The ADAM-5000 series can operate in industrial environments at temperatures between -10 and 70°C, and can use unregulated power sources between 10 and 30 V_{DC}. These units are protected against accidental power supply reversals. A 3-way isolation design (I/O, power & communication) prevents ground loops and reduces the effect of electrical noise in the system.

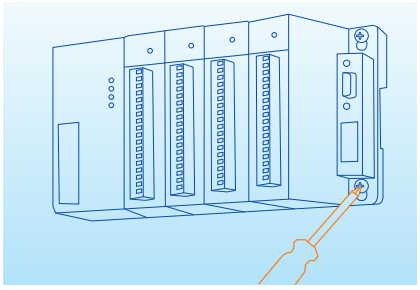
Extensive Software Support

The ADAM-5000 series is supported by most standard process controls and HMI software. .NET Class LIB is provided for use with Windows applications. OPC drivers provide links to a wide range of HMI/SCADA software packages such as InTouch, FIX and ICONICS. Advantech data acquisition software and Advantech Studio SCADA/HMI software are both tightly integrated with the ADAM-5000 systems.



DIN-rail Mounting

Installed on industrial standard DIN-rails



Panel/Wall Mounting

Flat surface system mounting

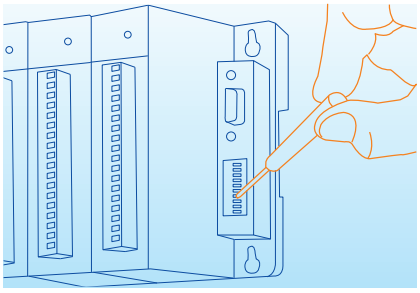
Distributed I/O Systems

Ethernet-based Data Acquisition and Control System

With the ADAM-5000/TCP as your Ethernet I/O data processing center, you can monitor and control field signals at speeds of 10/100 Mbps. The best field-proven communication performance that can be reached in industrial network environments. Additionally, the popular Modbus/TCP protocol is also supported.

RS-485 based Data Acquisition and Control System

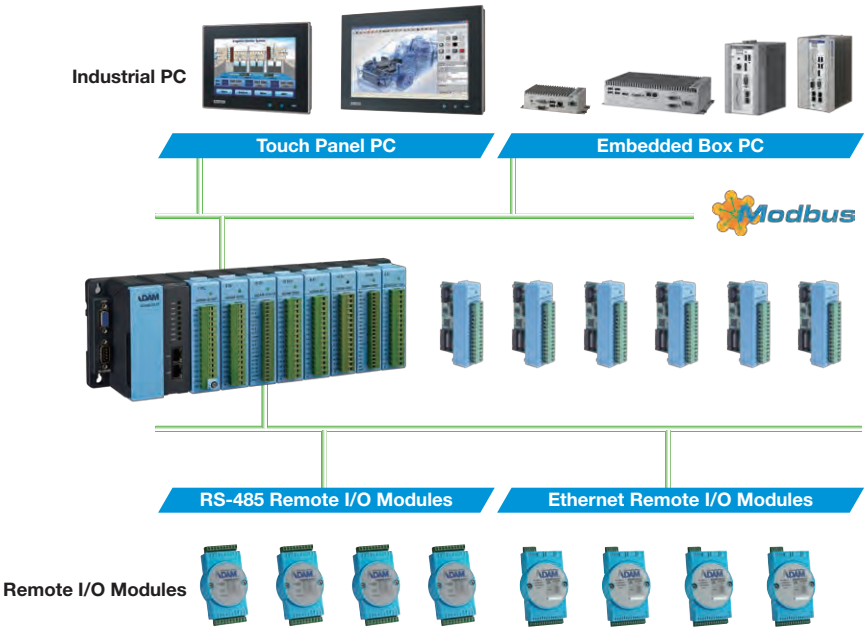
The ADAM-5000/485 system is a data acquisition and control system that can acquire, monitor and control data through multi-channel I/O modules. It communicates with a network master over a twisted-pair, multi-drop RS-485 network. Both ADAM ASCII and Modbus/RTU protocols are supported.

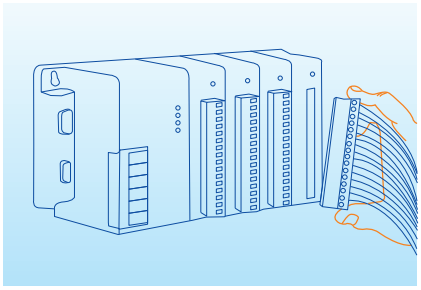


Node ID Setting

8-pin dip switch configuration

Simple and Cost Effective Network





Connection

Pre-wired plug-in terminals with I/O modules

ADAM-5000 Controller Selection Guide

System		ADAM-5630	ADAM-5630E	ADAM-5510/TCP ADAM-5510KW/TCP	ADAM-5510E/TCP ADAM-5510EKW/TP	ADAM-5560
CPU		cortex A8 600 MHz	cortex A8 600 MHz	80188		Intel Atom Z510P 1.1 GHz
RAM		512 MB DDR3L	512 MB DDR3L	640 KB		1 GB DDR2 SDRAM
Flash ROM		N/A	N/A	256 KB		-
Flash Memory		N/A	N/A	256 KB		-
Flash Disk		1 GB	1 GB	1 MB		-
OS		RT-Linux	RT-Linux	ROM-DOS		WinCE5.0/XP embedded
Control Software		Linux C SDK	Linux C SDK	ADAM-5510/TCP: Borland C ADAM-5510KW/TCP: KW SoftLogic	ADAM-5510E/TCP: Borland C ADAM-5510EKW/TP: KW SoftLogic	ADAM-5560CE: C/C++ and .NET ADAM-5560KW: KW SoftLogic
Real-time Clock		YES	YES	Yes		
Watchdog Timer		YES	YES	Yes		
COM1		RS-232/485	RS-232/485	RS-232	RS-232/RS-485	RS-232/485
COM2		RS-485	RS-485	RS-485		
COM3		RS-485	RS-485	RS-232 (TX, RX, GND)		RS-232/485
COM4		RS-232/485	RS-232/485	RS-232/485		
I/O Slots		4	8	4	8	7
Power Consumption		8W (for 5630 series only)		8 W		17 W
Isolation	Communication	2500 V_{DC} (COM1~COM3) (for 5630 series only)		2,500 V_{DC} (COM2 RS-485)		2,500 V_{DC} (COM2 RS-485) 1,500 V_{DC} (COM1, COM3, COM4 RS-485)
	Communication Power	3,000 V_{DC}				
	I/O Module	3,000 V_{DC}				
Diagnosis	Status Display	Power, RUN, Error, BAT, user define (for 5630 series only)		Power, CPU, Communication, Battery		Power, User Define
	Self Test	Yes, while ON				
	Software Diagnosis	Yes				
Communication	Interface	RS-232/485		Ethernet (RJ-45)		Ethernet (2 x RJ-45)
	Speeds	300 bps ~ 115.2 kbps		10/100 Mbps		10/100 Mbps
	Max. Distance	4,000 feet (1.2 km)		100 m		100 m
	Max. Nodes	32	32	256 for Ethernet, 32 for RS-485	256 for Ethernet, 32 for RS-485	256 for Ethernet, 32 for RS-485
	Protocol	User Defined, Modbus/RTU	User Defined, Modbus/RTU	User Defined, Modbus/ RTU, Modbus/TCP	User Defined, Modbus/ RTU, Modbus/TCP	Modbus/RTU, Modbus/TCP
	Remote I/O	Modbus Device				
	Power Requirements	10 ~ +30 V_{DC}				
Environment	Operating Temperature	-20 ~ 70°C		-10 ~ 70°C (14 ~ 158°F)		0 ~ 55°C (32 ~ 131°F)
	Storage Temperature	-25 ~ 85°C (-13 ~ 185°F)				
	Humidity	5 ~ 95%				
Dimensions (mm)		231 x 110 x 75	355 x 110 x 75	231 x 110 x 75	355 x 110 x 75	355 x 110 x 75

ADAM-5000 I/O Module Selection Guide




System		ADAM-5000/485	ADAM-5000E	ADAM-5000L/TCP	ADAM-5000/TCP
CPU		80188	80188	RISC CPU	
RAM		-	-	4 MB	
Flash ROM (User AP)		-	-	512 KB	
Flash Memory (Data Storage)		-	-	-	
Flash Disk		-	-	-	
OS		-	-	real-time OS	
Timer BIOS		-	-	-	
Real-time Clock		-	-	-	
Watchdog Timer		Yes			
I/O Slots		4	8	4	8
Power Consumption		3 W		4.0 W	5.0 W
Isolation	Communication	2,500 V_{DC}	3,000 V_{DC}	RS-485: 1,500 V_{DC}	
	Communication Power	3,000 V_{DC}			
	I/O Module	3,000 V_{DC}			
Diagnosis	Status Display	Power, CPU, Communication		Power, CPU, Error Diagnostic, Communication	
	Self Test	Yes, while ON			
	Software Diagnosis	Yes			
Communication	Interface	RS-232/485 (2-wire)	RS-232/485 (2-wire)	Ethernet	
	Speeds (bps)	1,200, 2,400, 4,800, 9,600, 19.2 K, 38.4 K, 57.6 K, 115.2 K	1,200, 2,400, 4,800, 9,600, 19.2 K, 38.4 K, 57.6 K, 115.2 K	10 M, 100 M	
	Max. Distance	4,000 feet (1.2 km)	4,000 feet (1.2 km)	100 m without repeater	
	Data Format	Advantech protocol: N, 8, 1 Modbus protocol: N, 8, 1 N, 8, 2 E, 8, 1 O, 8, 1	Advantech protocol: N, 8, 1 Modbus protocol: N, 8, 1 N, 8, 2 E, 8, 1	TCP/IP	
	Max. Nodes	128	128	Depend on IP address	
	Protocols	ADAM ASCII/Modbus Protocol	ADAM ASCII/Modbus Protocol	Modbus/TCP	
	Remote I/O	-	-	20 nodes Modbus devices	
	Power Requirements	+10 ~ +30 V_{DC}			
Environment	Operating Temperature	-10 ~ 70°C (14 ~ 158°F)			
	Storage Temperature	-25 ~ 85°C (-13 ~ 185°F)			
	Humidity	5 ~ 95%			
Dimensions (mm)		231 x 110 x 75	355 x 110 x 75	231 x 110 x 75	355 x 110 x 75

Analog Input/Output Modules





Module		ADAM-5013	ADAM-5017	ADAM-5017P	ADAM-5017UH	ADAM-5018
Analog Input	Resolution	16 bit	16 bit	16 bit	12 bit	16 bit
	Input Channel	3	8	8	8	7
	Sampling Rate	10 (total*)	10 (total*)	10 (total*)	200K**	10 (total*)
	Voltage Input	-	±150 mV, ±500 mV ±1 V, ±5 V, ±10 V	±150 mV, ±500 mV ±15V, ±10V, ±5 V, ±1 V 0 ~ 150mV, 0 ~ 500mV 0 ~ 1V, 0 ~ 5V, 0 ~ 10V 0 ~ 15V	±10 V, 0 ~ 10 V	±15 mV, ±50 mV ±100 mV, ±500 mV ±1 V, ±2.5 V
	Current Input	-	±20 mA	±20 mA, 4 ~ 20mA	0 ~ 20 mA, 4 ~ 20 mA	±20 mA
	Direct Sensor Input	Pt or Ni RTD	-	-	-	J, K, T, E, R, S, B
Isolation		3,000 V_{DC}	3,000 V_{DC}	3,000 V_{DC}	3,000 V_{DC}	3,000 V_{DC}

*Sampling rate value depends on used channel number.
Example: Using 5 channels on ADAM-5017, sampling rate for each used channel will be 10/5 = 2 samples/second.
**The sampling rate varies with the controller.






Module		ADAM-5018P	ADAM-5024	ADAM-5050	ADAM-5051/ ADAM-5051D/ ADAM-5051S	ADAM-5052	ADAM-5053S
Analog Input	Resolution	16 bit	-	-	-	-	-
	Input Channel	7	-	-	-	-	-
	Sampling Rate	10 (total*)	-	-	-	-	-
	Voltage Input	±15 mV, ±50 mV ±100 mV, ±500 mV ±1 V, ±2.5 V	-	-	-	-	-
	Current Input	4 ~ 20 mA	-	-	-	-	-
	Direct Sensor Input	J, K, T, E, R, S, B	-	-	-	-	-
Analog Output	Output Channels	-	4	-	-	-	-
	Resolution	-	12 bit	-	-	-	-
	Voltage Output	-	0 ~ 10 V	-	-	-	-
	Current Output	-	0 ~ 20 mA 4 ~ 20 mA	-	-	-	-
Digital Input and Digital Output	Digital Input Channels	-	-	16 DI/O (bit-wise selectable)	16 (ADAM-5051) 16w/LED (5051D/5051S)	8	32
	Digital Output Channels	-	-		-	-	-
Isolation		3,000 V_{DC}	3,000 V_{DC}	-	2,500 V_{DC} (5051S)	5,000 V_{RMS}	2,500 V_{DC}

*Sampling rate value depends on used channel number.
Example: Using 6 channels on ADAM-5017, sampling rate for each used channel will be 12/6 = 2 samples/second.

ADAM-5000 I/O Module Selection Guide

Digital Input/Output Modules

Module		ADAM-5055S	ADAM-5056/ ADAM-5056D	ADAM-5056S/ ADAM-5056SO	ADAM-5057S	ADAM-5060
Digital Input and Digital Output	Digital Input Channels	8 w/LED	-	-	-	-
	Digital Output Channels	8 w/LED	16 (ADAM-5056) 16 w/LED (ADAM-5056D)	16 w/LED	32	6 relay (2 form A/4 form C)
Isolation		2,500 V_{DC}	-	2,500 V_{DC}	2,500 V_{DC}	-

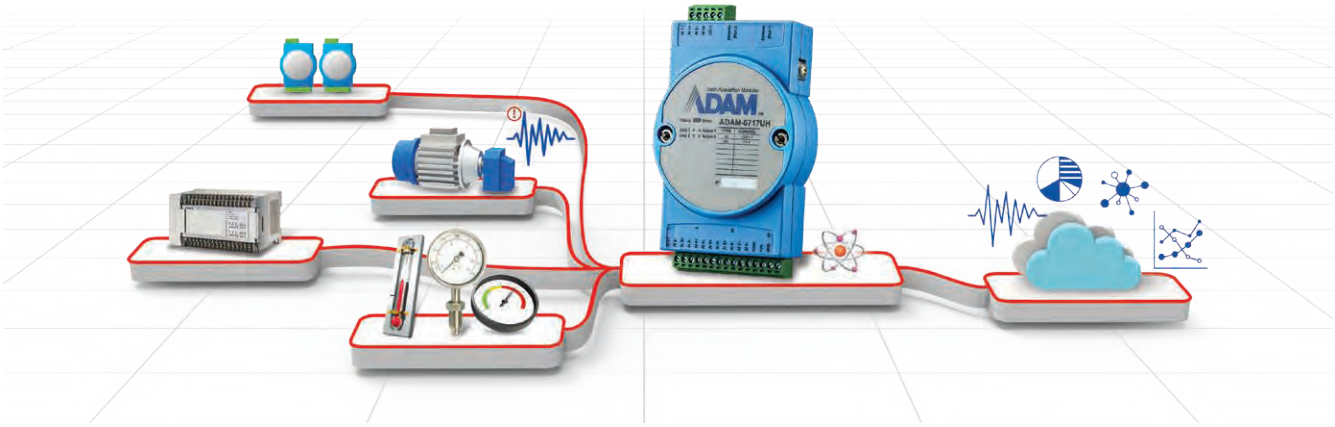
Module		ADAM-5069	ADAM-5080	ADAM-5081	ADAM-5090/ ADAM-5091	ADAM-5191	ADAM-5192
Digital Input and Digital Output	Digital Input Channels	-	-	-	-	-	-
	Digital Output Channels	8 power relay (form A)	-	-	-	-	-
Counter (32-bit)	Channels	-	4	4/8	-	-	-
	Input Frequency	-	0.3 ~ 1000 Hz max. (frequency mode) 5000 Hz max. (counter mode)	5 Hz ~ 1 MHz max. (frequency mode) 1 MHz max. (counter mode)	-	-	-
	Mode	-	Frequency, Up/ Down Counter, Bi-direction Counter	Frequency, Counter (Up/Down, Bi-direction, Up, A/B Phase)	-	-	-
Communication	Channels	-	-	-	4	4 (ADAM-5630 only)	2
	Type	-	-	-	RS-232/422/485	RS-232/422/485	LAN (ADAM-5630 only)
Isolation		-	1,000 V_{RMS}	2,500 V_{DC}	-	1,000 V_{DC}	

ADAM-5000 Controller Support Table

Type		PAC			PC-based Controller		
System		ADAM-5560KW	ADAM-5510KW ADAM-5510EKW	ADAM-5510KW/TCP ADAM-5510EKW/TP	ADAM-5560CE	ADAM-5510/TCP ADAM-5510E/TCP	ADAM-5510M ADAM-5510E
Function	I/O Module	7-slot Micro PAC with Atom™ CPU	4/8-slot Softlogic Controller w/ RS-485	4/8-slot Softlogic Controller w/ Ethernet	7-slot PC-based Controller with Atom™ CPU	4/8-slot PC-based Controller with Ethernet	4/8-slot PC-based Controller with RS-485
Analog Input (AI)	ADAM-5013	•	•	•	•	•	•
	ADAM-5017	•	•	•	•	•	•
	ADAM-5017P	•	-	-	•	•	•
	ADAM-5017H	-	•	•	-	•	•
	ADAM-5017UH	•	-	-	•	•	•
	ADAM-5018	•	•	•	•	•	•
	ADAM-5018P	•	-	-	•	•	•
Analog Output (AO)	ADAM-5024	•	•	•	•	•	•
Digital Input (DI)	ADAM-5051	•	•	•	•	•	•
	ADAM-5051D	•	•	•	•	•	•
	ADAM-5051S	•	•	•	•	•	•
	ADAM-5052	•	•	•	•	•	•
	ADAM-5053S	•	-	-	•	-	-
Digital Output (DO)	ADAM-5056	•	•	•	•	•	•
	ADAM-5056D	•	•	•	•	•	•
	ADAM-5056S	•	•	•	•	•	•
	ADAM-5056SO	•	•	•	•	•	•
	ADAM-5057S	•	-	-	•	-	-
Digital I/O	ADAM-5050	•	•	•	•	•	•
	ADAM-5055S	•	•	•	•	•	•
Relay Output	ADAM-5060	•	•	•	•	•	•
	ADAM-5069	•	•	•	•	•	•
Counter/ Frequency	ADAM-5080	-	•	•	-	•	•
	ADAM-5081	•	-	-	•	•	•
Comm.	ADAM-5090	-	•	•	-	•	•

ADAM-6700 Series

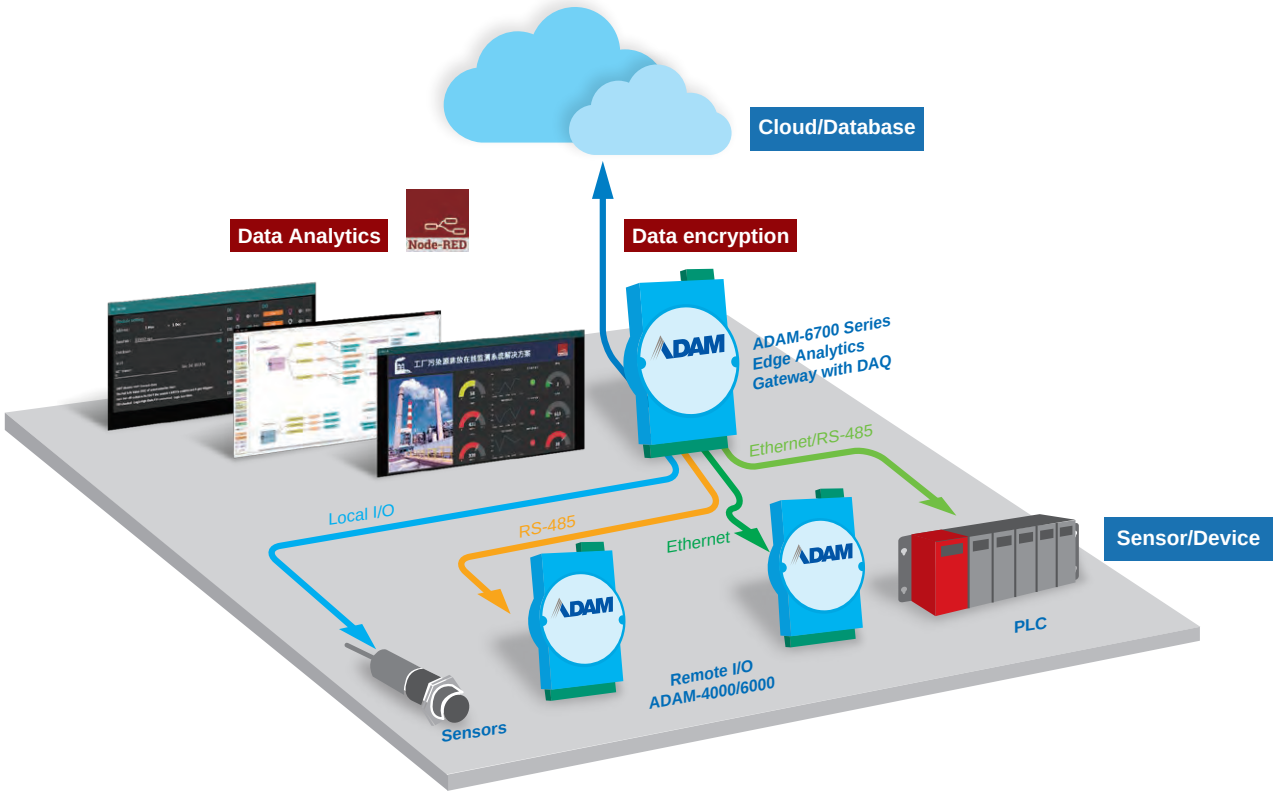
Edge Data Acquisition and Analytics Gateway



Introduction

ADAM-6700 is aiming at the edge applications. Compact size with I/O and powerful CPU allow it to possess the strength of data acquisition and analytics. Leveraging the Node-red ADAM-6700 series provides flexibility in different applications.

Edge Gateway with DAQ and Intelligence



Features

Edge Data Analytics

The cloud connectivity cost is related to the data size updated to the cloud, instead of updating all raw data to the cloud, ADAM-6700 processed the raw data and turn them into significant information such as average ,Max ,min of a period , the RMS,FFT value for predictive maintenance. The data size is reduced by sending the processed data.

Acquire data and take action locally

ADMA-6700 series equips the I/O that can acquire data from digital or analog sensors, and with the A8 MCU, large amount of data can be analyzed, and take the action locally, which reduce the latency or lose of sending command from cloud. For instance, if the temperature and vibration value is out of the specification, ADAM-6700 will directly trigger the alarm locally, meanwhile, sending the mail to management center.

Built in Node-Red

Node-red is a graphic programming tool developed by IBM. User can establish the project by simply dragging and dropping the nodes. No complicated programming process is need. Furthermore all the nodes information are open to public, variety of nodes can be found at https://flows.nodered.org/, Besides, the nodes are programmed based on JavaScript, for advanced users, JavaScript code for nodes can be modified according to the project

Cloud access with data encryption

Every cloud service has their own connection mechanism. So user will face the difficulty handling the protocol, encryption and data format. ADAM-6700 series is capable of dealing with data to the cloud service by different nodes. For the legacy machines that are incapable of sending data to the cloud, ADAM-6700 series transforms those legacy machines to the IoT world

Starting-up with Node-RED

ADAM-6700 series is built in the Node-RED environment. Various nodes enable users to establish the project in a short time without much effort . Below lists some examples about what users can leverage by the Node-red nodes. More nodes information can be found at https://flows.nodered.org/,

Communication

Users can use the node to deal with communication such as MQTT,Modbus,Restful. Furthermore the nodes also handle the process to update data to database or cloud

Data Visualization

Users can use the dashboard to visualize the data. The data trend can be monitored easily

Data process

the raw data can be calculated with the calculation nodes. Processed Data such as the average ,max,min ,scaling, RMS, FFT and many calculation results can be obtained with the nodes

Set logic rules

with the logic nodes, user can set the logic rule by using the "If", "then", "else", "and" ,"or" nodes according to their project. After setting, the ADAM-6700 will take action locally according to the rules

ADAM-6700 Series Selection Guide



		ADAM-6750	ADAM-6717UH	ADAM-6771
CPU		ARM Cortex-A8 32-Bit 1GHz		
Memory		NAND flash 512MB		
RAM		DDR3L 512MB		
External storage		1GB microSD (Optional)		
OS		Real-time Linux V3.12		
Programming		Node-Red(Graphic programming environment based on javascript),Linux C		
Interface	RS-485	1		2
	RS-485/232			2
	LAN	2	2	2
	USB 2.0			1
Digital input	Channel	8		
	Type	Dry contact: logic 0 close to ground logic 1 Open Wet contact: logic 0: 0 ~ 5 V_{DC} logic 1: 10 ~ 50 V_{DC}		
	Counter input	3kHZ		
Digital Output	Channel	4	1	
	Voltage	0 ~ 50 V_{DC}	0 ~ 50 V_{DC}	
	Type	Sink	Sink	
Analog input	channel		8	
	Sampling rate	100kHZ (total)		
Diemension		70W x 122L x 27H mm		