CompactPCI Systems

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Advantech CompactPCI
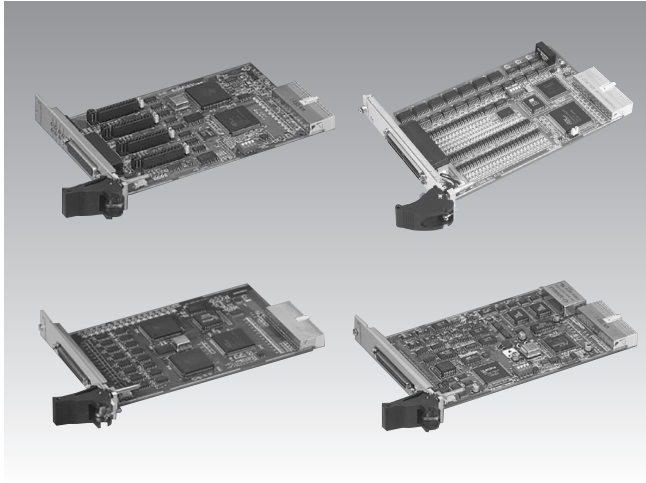
- Commercial standard PCI chips provide high performance at a low price
- Up to 8 slots in one bus segment. Expandable using PCI-to-PCI bridge chips
- Eurocard form factor
- Airtight, high density, 2 mm pin-and-socket connectors
- Front loading and removal
- Vertical card orientation for better cooling
- Staged power pins for hot-swap capability
- Excellent shock and vibration characteristics

Introduction

Engineers have been trying to apply high-performance, low-cost PC technologies to critical applications such as telecommunications and industrial automation for quite some time. Unfortunately, the characteristics of desktop PC technologies do not readily lend themselves to critical applications where high serviceability, vibration & shock resistance, and good ventilation are required. CompactPCI may be the answer.

What is CompactPCI ?

CompactPCI is a small, rugged, high-performance industrial computer architecture based on the standard PCI bus specification. It was developed by the PCI Industrial Computers Manufacturers Group (PICMG) in late 1994, and is ideal for embedded applications.

Three important technologies form the core of CompactPCI: PCI local bus, Eurocard mechanics, and airtight pin-and-socket connectors.

PCI Local Bus

PCI stands for Peripheral Component Interconnect. It was published by Intel® in 1992, and soon became popular in commercial PC designs. It is a high-performance, processor-independent data bus, and most importantly, it is very inexpensive. The PCI local bus specification defines two data widths: 32-bit and 64-bit operating at a speed up to 66 MHz. This provides theoretical throughput up to 264 MB/s at 32-bit or 528 MB/s at 64-bit. Most computer systems and operating systems support the PCI bus. For example, Pentium, Alpha, PowerPC, Windows, Unix, and MacOS. Because PCI components are manufactured in large quantities, they are inexpensive and readily available. With these advantages, the PCI bus is very suitable for high speed computing and high speed data communication applications.

Eurocard Mechanics

Eurocard is an industrial-grade packaging standard popularized by VMEbus. CompactPCI allows the use of 3U and 6U Eurocards. The dimensions of a 3U CompactPCI board are 160 mm deep x 100 mm high, while the dimensions of a 6U CompactPCI board are 160 mm deep x 233.35 mm high. The front panels of CompactPCI boards are IEEE 1101.1 and IEEE 1101.10 compliant, and may include optional EMC gaskets to minimize electromagnetic interference. Typically, the front panel contains I/O connectors, LED indicators, and switches. CompactPCI also supports rear panel I/O, which is compliant with IEEE 1101.11. Rear panel I/O is popular for telecommunication equipment because of its easy-to-maintain characteristics. If all the wiring is done on rear transition boards (passive boards), the front CompactPCI boards (active boards), which may require maintenance, are "clean" without any connected wiring. The front CompactPCI boards can then simply be replaced without the need for rewiring.

Airtight Pin-and-Socket Connectors

CompactPCI uses airtight, high-density pin-and-socket connectors as specified in the IEC-1076 international standard. These 2 mm "hard metric" connectors have low inductance and controlled impedance, which reduce signal reflections caused by the high speed PCI bus. They enable CompactPCI systems to have up to eight slots in one bus segment.
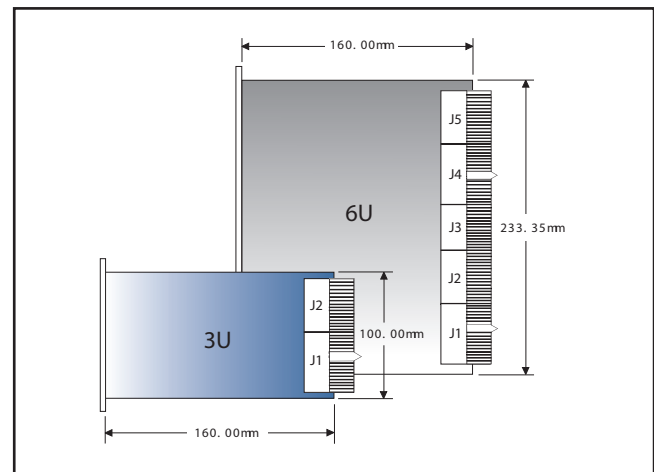
Eurocard Form Factor

The CompactPCI specification defines five connectors, designated as J1 through J5. The 3U CompactPCI board has two connectors labeled J1 and J2, while the 6U CompactPCI board has five connectors labeled J1 through J5. J1 and J2 are defined identically on both 3U and 6U CompactPCI boards, so 3U and 6U CompactPCI boards are electrically interchangeable.

Pin-and-Socket Connector

CompactPCI versus Conventional Industrial PCs

Serviceability

Replacement of a card from a conventional industrial PC system is always time-consuming. Users need to unfasten the chassis cover, disconnect all wiring from the card, replace the card, reconnect the wiring, and refasten the chassis cover. It is a process prone to error because there can be internal cabling between cards and peripheral devices, and it is necessary to remove all cabling before a card can be replaced. The serviceability of conventional industrial PC systems is not as simple and fast as CompactPCI systems.

CompactPCI is designed to be a front loading and removable system. The replacement of a CompactPCI board is very simple, with no need to remove the chassis cover. In addition, if the I/O is cabled through the back of the system, the front CompactPCI boards are "clean" without any connected wiring, and the replacement of a CompactPCI board is quick and easy. The maintenance time can be reduced from a matter of hours (conventional industrial PCs) to a matter of minutes, yielding a lower Mean Time To Repair (MTTR).

4U 8-Slot CompactPCI Enclosure

4U 8-Slot CompactPCI Enclosure

Vibration and Shock Resistance

Conventional industrial PCs do not provide reliable and secure support for peripheral cards in the system. Cards inside conventional industrial PCs are screwed down at one point only, and the top and bottom card edges are not supported by guide rails. Therefore, the connecting edge of a card is prone to shift under shock and vibration.

CompactPCI boards are firmly mounted in the system. Guide rails support the top and bottom edges of the boards. Front panel retaining mechanisms securely lock the front panel to the surrounding mechanical frame. The connecting edge of the board is held tightly in place by the pin-and-socket connectors. With all four sides of the board firmly held in place, it is much less prone to suffer loss of electrical contact in high vibration and shock environments.

Ventilation

Conventional industrial PC systems cannot provide regular airflow paths, resulting in uneven cooling within the chassis. Airflow is blocked by backplanes, card brackets, and disk drives. Cooling air cannot circulate over all the cards, and hot air is not immediately forced out of the chassis. Electronic devices and circuit boards deteriorate because of these cooling related problems: warped circuit boards, bad connections, broken traces, and shortened component lives.

CompactPCI systems provide clear paths for airflow over all active, heat-producing boards in the system. Cooling air easily flows through the spaces between cards, and carries heat out of the spaces. A fan system can be integrated at the bottom of the boards to provide forced air to each slot. CompactPCI systems are therefore much less susceptible to cooling problems because of the even cooling pattern inherent in their mechanical design.

The Complete Offering for Mission-Critical Applications

The MIC-3000 series is an industrial CompactPCI solution which features front-end access, high shock and vibration tolerance characteristics, automatic cooling system, fault resilient and hot swappable capabilities. These features make MIC-3000 the most reliable PC-based computing platform, for mission-critical applications. Advantech leverages 3U CompactPCI as the industrial high-end computing platform, providing Pentium 4-grade CPU modules, 8-slot chassis, high-speed I/O and serial communication modules, to become a total solution provider for industrial CompactPCI solutions. Target applications include military defense, transportation, traffic control, test and measurement (T&M) and critical data acquisition & control markets.

MIC-3106
MIC-3111

4U CompactPCI With 2 Peripheral Slots

4U CompactPCI With 7 Peripheral Slots

Preliminary

MIC-3106   MIC-3111

Features

- 4U CompactPCI supports 2 or 7 peripheral slots
- High performance or low power consumption CPU selectable
- Lockable power on/off switch prevents inadvertent access
- 40dB Ultra low system noise for working environments
- Easy-accessible cooling fan and air filter for system maintenance
- Robust design, Anti-Vibration up to 2G with SSD

Introduction

The MIC-3106 and 3111 are Advantech's latest IPC's and the first to use the CompactPCI standard. CompactPCI is an open standard that gives users the flexibility to add the components that they need. The small footprint of MIC-3106 and 3111 makes it the smallest CPCI system available and offers either 2 or 7 expansion slots to give users the flexibility to build the system they require. For improved access and configuration, the MIC-3106 and 3111 are front accessible and the highly reliable nature of CompactPCI makes it the perfect choice for industrial applications. The three available models in the MIC-3106 and 3111 offer a choice of either high power or low power CPUs and therefore a range of prices to suit the requirements of specific companies.

Specifications

			MIC-3106	MIC-3111
Power Supply	Power Type		ATX	ATX
	Input Voltage		100 ~ 240 V_{AC}	100 ~ 240 V_{AC}
	Wattage		180W	180W
	ON/OFF Switch		Lockable Toggle Switch	Lockable Toggle Switch
Backplane	System Slot		1, on the right	1, on the right
	Peripheral Slot		2 Slots	7 Slots
	PCI Bus		32-bit 33MHz	32-bit 33MHz
Physical	Dimensions (W x H x D mm)		134 x 177 x 238	234 x 177 x 258
	Weight (kg)		4.33 Kg	6.14 Kg
Environment	Temperature	Operating	0 ~ 50°C	0 ~ 50°C
		Non-Operating	-20 ~ 60°C	-20 ~ 60°C
	Humidity (non-condensing)	Operating	10 ~ 85% @ 40°C	10 ~ 85% @ 40°C
		Non-Operating	10 ~ 95% @ 40°C	10 ~ 95% @ 40°C
	Vibration (5 ~ 500 Hz)	Operating	2Grms (without HDD)	2Grms (without HDD)
		Non-Operating	2G	2G
	Shock (11ms)	Operating	10G	10G
		Non-Operating	30G	30G
Compliance	Regulatory		CE, FCC, CCC, UL, RoHS	CE, FCC, CCC, UL, RoHS
	Compliance		PICMG 2.0 Rev. 3.0	PICMG 2.0 Rev. 3.0

Ordering Information

Part Number	Description
MIC-3106-00-AE	Modular Industrial Chassis 4U, 2 slots, w/ 180W
MIC-3111-00-AE	Modular Industrial Chassis 4U, 7 slots, w/ 180W
MIC-3106-L1-AE	4U, 2 slots, w/ 180W, MIC-3325N
MIC-3106-L2-AE	4U, 2 slots, w/ 180W, MIC-3325D
MIC-3106-H1-AE	4U, 2 slots, w/ 180W, MIC-3328 w/ 3217UE
MIC-3111-L1-AE	4U, 7 slots, w/ 180W, MIC-3325N
MIC-3111-L2-AE	4U, 7 slots, w/ 180W, MIC-3325D
MIC-3111-H1-AE	4U, 7 slots, w/ 180W, MIC-3328 w/ 3217UE
MIP-3104-AE	MIC-3100 PCI Hybrid Box
MIC-3106-H2-AE	4U, 2 slots, w/ 180W, MIC-3328 w/ 3517UE
MIC-3111-H2-AE	4U, 7 slots, w/ 180W, MIC-3328 w/ 3517UE

Optional Accessories

Part Number	Description
1990024035N000	Fan filter 130 x 10 x 12 mm³ (for MIC-3106)
1990024034N000	Fan filter 230 x 10 x 10 mm³ (for MIC-3111)
1750002440	Bottom side fan 60 x 60 x 13 mm³
1750007398-01	Up side blower 51 x 51 x 15 mm³
1960064154N001	4HP bracket cover
1960064193N001	Wall Mount Kit for MIC-3106
1960064192N001	Wall Mount Kit for MIC-3111
1960064183N001	Table Mount for MIC-3106
1960064184N001	Table Mount for MIC-3111

ADVANTECH **CompactPCI Systems**

CPU Options

L1	Processor	CPU	Intel Atom N455, 1.66GHz
		Memory	2 GB Onboard
		Storage	1 x CompactFlash Type II 1 x 2.5" SATA HDD
	Front I/O	VGA	1 x DB15 port
		Ethernet	2 x 10/100/1000 Mbps, RJ45 connector
		USB 2.0	3 x Type A
		Serial	2 x RS-232, DB9 connector
		PS/2	1
	Operating System	Windows	XP, XPE, 7
L2	Processor System	CPU	Intel Atom D525, 1.8GHz
		Memory	2GB On board
		Storage	1 x CompactFlash Type II 1 x 2.5" SATA HDD
	Front I/O	VGA	1 x DB15 port
		Ethernet	2 x 10/100/1000 Mbps, RJ45 connector
		USB 2.0	3 x Type A
		Serial	2 x RS-232, DB9 connector
		PS/2	1
	Operating System	Windows	XP ,XPE, 7

H1	Processor	CPU	Intel 3rd Gen. Core i3-3217UE, 1.6GHz
		Memory	4GB On board
		Storage	1 x CFast 1 x 2.5" SATA HDD
	Front I/O	VGA	1 x DB15 port
		Ethernet	2 x 10/100/1000 Mbps, RJ45 connector
		USB 2.0	2 x Type A
		Serial	2 x RS-232, RJ45 connector
		PS/2	1
	Operating System	Windows	XP, 7
H2	Processor	CPU	Intel 3rd Gen. Core i7-3517UE, 1.7 GHz
		Memory	4GB On board
		Storage	1 x CFast 1 x 2.5" SATA HDD
	Front I/O	VGA	1 x DB15 port
		Ethernet	2 x 10/100/1000 Mbps, RJ45 connectors
		USB 3.0	2 x Type A
		Serial	2 x RS-232, RJ45 connector
		PS/2	1
	Operating System	Windows	XP, 7

PCI Hybrid Box

MIP-3104			
Backplane	CPCI interface to chassis		1 for chassis
	PCI Slot		4 Slots
	PCI Slot Power (4 Slot)		12V @ 2.4A, -12V @ 0.8A, +5V @ 7.5A, +3.3V @ 10A
Physical	Dimensions (W x H x D mm)		142 x 131 x 213
	Weight (g)		725
	Temperature	Operating	0~50°C
		Non-operating	-20~60°C
	Humidity (non-condensing)	Operating	10~85% @40°C
		Non-operating	10~95% @40°C
	Vibration (5~500 Hz)	Operating	1 Grms (with MIC-3100 chassis)
		Non-operating	1G
	Shock (11 ms)	Operating	10G (with MIC-3100 chassis)
		Non-operating	30G
Compliance	Regulatory		CE, FCC
	Compliance		PICMG 2.0 Rev. 3.0

MIC-3121

4U CompactPCI With 7 Peripheral Slots

Preliminary

Features

- 4U height rackmount CompactPCI supports 7 peripheral slots
- Optional 4-slot PCI hybrid box for flexible configuration
- Selectable high performance or low power consumption CPU
- Lockable power on/off switch prevents accidental access
- Very low noise cooling fan for quiet environments
- Easily-accessible cooling fan and air filter for system maintenance
- All front-accessible connectors/cables for easy wall mounting

Introduction

The MIC-3121 CompactPCI is Advantech's new generation IPC to meet the CompactPCI standard, it offers a 4U height rackmount platform, with compact features, and is the most compact device in its price range. The MIC-3121 measures 482 x 177 x 310 mm, which is the standard 4U height rackmount CPCI system. With seven CPCI expansion slots or three CPCI expansion slots plus an optional four slot PCI hybrid box, users have the flexibility to configure their own system. With all these features the MIC-3121 is an open platform with a front access modular design, and high reliability which makes it the perfect choice for industrial applications where high availability matters.

The MIC-3121 has two levels of CPU choice. One is the Intel Core i3-3217UE CPU for high performance applications, and the other is the Intel Atom N455 CPU which is the most cost effective for low power consumption applications.

Specifications

Power Supply	Power Type	ATX
	Input Voltage	100~240 V_{AC}
	Wattage	300W
	On/Off Switch	Lockable Toggle Switch
Backplane	System Slot	1 on the right
	Peripheral Slot	7 slots
	PCI Bus	32-bit 33 MHz
Dimensions (W x Hx D mm)	482 x 177 x 310	
Weight (kg)	9.65 Kg	
Temperature	Operating	0~50°C
	Non-operating	-20~60°C
Humidity (non-condensing)	Operating	10~85% @ 40°C
	Non-operating	10~95% @ 40°C
Vibration (5~500 Hz)	Operating	2Grms (without HDD)
	Non-operating	2G
Shock (11ms)	Operating	10G
	Non-operating	30G
Certification	CE, FCC, CCC, UL, RoHS	
Compliance	PICMG 2.0 Rev. 3.0	

Ordering Information

Part Number	Description
MIC-3121-00-AE	Modular Industrial Chassis 4U, 7 slots, w/ 300W
MIC-3121-L1-AE	4U, 7 slots, w/ 300W, MIC-3325N
MIC-3121-L2-AE	4U, 7 slots, w/ 300W, MIC-3325D
MIC-3121-H1-AE	4U, 7 slots, w/ 300W, MIC-3328 w/ 3217UE
MIP-3104-AE	MIC-3100 PCI Hybrid Box
MIC-3121-H2-AE	4U, 7 slots, w/ 300W, MIC-3328 w/ 3517UE

Optional Accessories

Part Number	Description
1990024038N000	Fan filter 430 x 10 x 10 mm3 (for MIC-3121 only)
1750002440	Bottom side fan 60 x 60 x 13 mm3
1750007398-01	Top blower 51 x 51 x 15 mm3
1960064154N001	4HP bracket cover
1960064155N001	8HP bracket cover

CPU Options

L1	Processor	CPU	Intel Atom N455, 1.66GHz
		Memory	2GB Onboard
		Storage	1 x CompactFlash Type II
			1 x 2.5" SATA HDD
	Front I/O	VGA	1 x DB15 port
		Ethernet	2 x 10/100/1000 Mbps, RJ45 connector
		USB 2.0	3 x Type A
		Serial	2 x RS-232, DB9 connector
		PS/2	1
	Operating System	Windows	XP, XPE, 7
L2	Processor System	CPU	Intel Atom D525, 1.8GHz
		Memory	2GB On board
		Storage	1 x CompactFlash Type II
			1 x 2.5" SATA HDD
	Front I/O	VGA	1 x DB15 port
		Ethernet	2 x 10/100/1000 Mbps, RJ45 connector
		USB 2.0	3 x Type A
		Serial	2 x RS-232, DB9 connector
		PS/2	1
	Operating System	Windows	XP, XPE, 7

H1	Processor	CPU	Intel 3rd Gen. Core i3-3217UE, 1.6GHz
		Memory	4GB On board
		Storage	1 x CFast
			1 x 2.5" SATA HDD
	Front I/O	VGA	1 x DB15 port
		Ethernet	2 x 10/100/1000 Mbps, RJ45 connector
		USB 2.0	2 x Type A
		Serial	2 x RS-232, RJ45 connector
		PS/2	1
	Operating System	Windows	XP, 7
H2	Processor	CPU	Intel 3rd Gen. Core i7-3517UE, 1.7 GHz
		Memory	4GB On board
		Storage	1 x CFast
			1 x 2.5" SATA HDD
	Front I/O	VGA	1 x DB15 port
		Ethernet	2 x 10/100/1000 Mbps, RJ45 connectors
		USB 3.0	2 x Type A
		Serial	2 x RS-232, RJ45 connector
		PS/2	1
	Operating System	Windows	XP, 7

PCI Hybrid Box

MIP-3104			
Backplane	CPCI interface to chassis		1 for chassis
	PCI Slot		4 Slots
	PCI Slot Power (4 Slot)		12V @ 2.4A, -12 V@ 0.8A, +5V @ 7.5A, +3.3V @ 10A
Physical	Dimensions (W x H x D mm)		142 x 131 x 213
	Weight (g)		725
	Temperature	Operating	0~50°C
		Non-operating	-20~60°C
	Humidity (non-condensing)	Operating	10~85% @40°C
		Non-operating	10~95% @40°C
	Vibration (5~500 Hz)	Operating	1 Grms (with MIC-3100 chassis)
		Non-operating	1G
	Shock (11 ms)	Operating	10G (with MIC-3100 chassis)
		Non-operating	30G
Compliance	Regulatory		CE, FCC
	Compliance		PICMG 2.0 Rev. 3.0

MIC-3001

Features

- 8-slot 3U CompactPCI®
- Easy installation: rack or panel mount
- Hot swap compliant backplane
- Hot swap fan tray module
- Optional fault detection and alarm notification
- Logic ground and chassis ground can be isolated or common

CE

Specifications

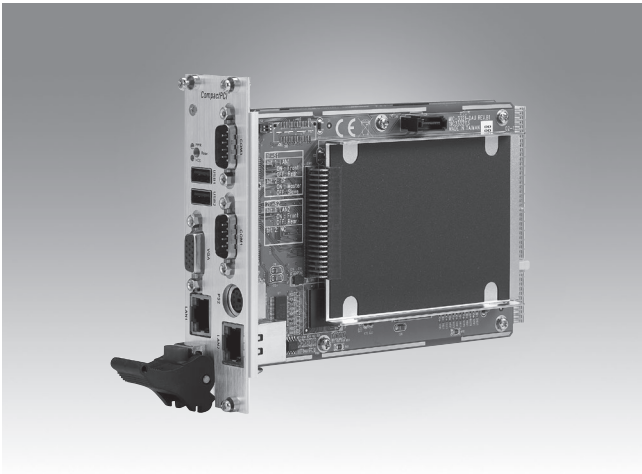|									
Backplane	Slots	8							
	Bus	32-bit/33 MHz							
	Vio Voltage	3.3 V/5 V (short-bar selectable)							
Device Bay	HDD or CD-ROM	Yes							
Cooling	Fan	2 (2 x 113 CFM)							
Power	Input	90 ~ 132 V_{AC}/180 ~ 264 V_{AC} @ 47 ~ 63 Hz.							
	Output	400 W							
	Loading (A)	Model	Load	+3.3 V	+5 V	-5 V	+12 V	-12 V	+5 Vsb
		MIC-3001	Max.	20	42	1	14	1	0.75
			Min.	0.2	2.5	0	0.5	0	0
Environment	Operating Temperature	0 ~ 50°C (32 ~ 122°F)							
	Storage Temperature	-40 ~ 80°C (-40 ~ 176°F)							
	Storage Humidity	10 ~ 90% @ 40°C, non-condensing							
Physical		MIC-3001/8				MIC-3001AR/8			
	Dimensions (W x H x D)	440 x 178 x 240 mm				440 x 178 x 283 mm			
	Weight	7 kg (15.4 lb)				10 kg (22 lb)			
	Operating Vibration	1.0 Grms w/CF disk 0.5 Grms w/3.5" HDD							
	Shock	10 G peak-to peak, 11ms duration							
Reliability	MTBF (hours)	71174 hours							
Compliance	PICMG Compliance	PICMG 2.0, R 2.1CompactPCI Specification PICMG 2.1, R 1.0 Hot Swap Specification							

Ordering Information

Part Number	Description
MIC3001AR801E-ES	4U CompactPCI chassis with 8-slot backplane, fan tray module, rear I/O and AC ATX power supply

MIC-3321

3U CompactPCI® Intel Celeron® M 1GHz / Pentium® M 2 GHz Controller

1 WebAccess+ Solutions
2 Motion Control
3 Power & Energy Automation
4 Automation Software
5 Operator Panels
6 Automation Panels
7 Automation Panels
8 Industrial Wireless Solutions
9 Industrial Ethernet Solutions
10 Industrial Gateway Solutions
11 Serial communication cards
12 Embedded Automation PCs
13 Programmable Automation Controllers
14 CompactPCI Systems
15 Wireless IoT Ethernet I/O Modules
16 IoT Ethernet I/O Modules
17 RS-485 I/O Modules
18 Data Acquisition Boards

Features

- Built-in Intel® Pentium® M 760 2.0 GHz processor/ Celeron® M Ultra Low Voltage 373 1.0GHz processor
- Mobile Intel® 915GM express chipset
- Supports up to 1GB DDR2 533/400 SDRAM soldered on board
- Extended operating temp: -25 ~ 70°C (-13 ~ 158°F) (Optional: MIC-3321C only)
- Dual Giga LAN on PCI-Express
- High-performance Intel Graphics Media Accelerator 900 VGA display
- Onboard CompactFlash® disk socket
- Onboard 2.5" HDD support
- Rear I/O signal support for easy wiring (Only for MIC-3321D-DE)

RoHS COMPLIANT 2002/95/EC   CE

Introduction

The MIC-3321D is a 3U CompactPCI system controller board that combines the performance of Intel's Mobile Pentium M 760 2.0GHz processor with the high integration of the 915GM chipset and the I/O Controller Hub ICH6. The MIC-3321C with the low power of the Intel Mobile Celeron M makes it possible to work with high extended temperature ranges. The directly soldered CPU and memory provides less weight and a higher shock/vibration resistance than socket devices. In all, MIC-3321 is a powerful 3U CompactPCI Controller that fulfills requirements in mission critical applications, such as military defense, transportation, traffic control, test and measurement (T&M) as well as critical data acquisition & control applications.

Specifications

CPU		MIC-3321D: Intel Pentium M 760 2.0 GHz with 2 MB L2 cache
		MIC-3321C: Intel Celeron M Ultra Low Voltage 373 1.0 GHz with 512 KB L2 cache
Chipset		Intel 915 GM (GMCH) + Intel 82801FBM (ICH6-M)
BIOS		Award 4 MB Flash
Bus	Front Side Bus	533 MHz (Intel Pentium M 760 2.0 GHz CPU) 400 MHz (Intel Celeron M Ultra Low Voltage 373 1.0 GHz CPU) PCI-to-PCI Bridge: PERICOM PI7C8150
	PCI Bus	7 x 32-bit/33MHz CompactPCI bus Master interface 3.3 V/5 V VIO adjustable
Memory		Directed Soldered 512 MB DDR2 SDRAM
Graphics		Controller: Intel Graphics Media Accelerator 900
		VRAM: DVMT3.0 128MB
		Resolution: Up to 2048 x 1536 with 32-bit color at 75 Hz
Ethernet		Interface: 10/100/1000 Mbps Gigabit Ethernet
		Controller: 2 x Intel 82573E/L PCI Express Gigabit Ethernet Controllers
		Connector: 2 x RJ-45
		Supports Pre-boot Execution Environment (PXE)
Serial		Interface: RS-232
		Controller: 2 x 16C550 Compatible
		Data Bits: 5, 6, 7, 8
		Stop Bits: 1, 1.5, 2
		Parity: None, Even, Odd
		Speed (bps): 50 ~ 115.2K
		Data Signal: TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND
		Connector: 2 x DB9 male
		Two as front I/O, one as rear I/O
P-IDE		One channel P-IDE Supports PIO mode 4 (16.67MB/s data transfer rate) and ATA 33/66/100 (33/66/100MB/s data transfer rate)
		1 x CompactFlash Socket Type II
		1 x 44-pin 2.5" HDD connector
USB		4 x USB 2.0 channels up to 480Mbps, 2 as front I/O, 2 as rear I/O

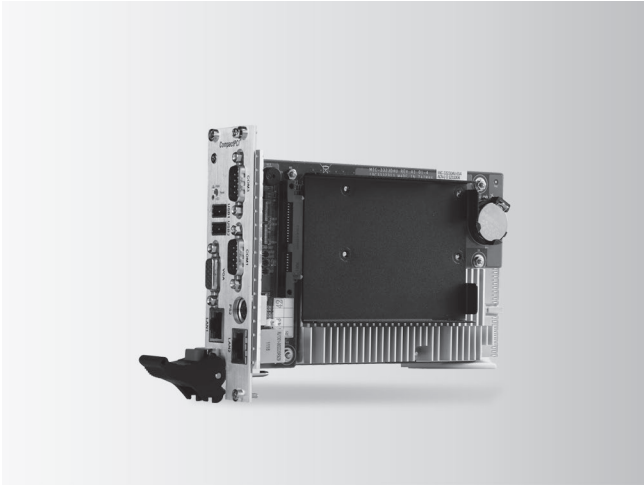|		
PS/2		PS/2 for keyboard and mouse legacy support
Watchdog Timer		0 ~ 64s, 0.25s step, generate reset signal
Hot Swap		Support for all signals to allow peripheral boards to be hot swapped. The individual clocks for each slot and access to the backplane ENUM# signal comply with the PICMG 2.1 Hot Swap specification. (PCI to PCI bridge GPIO3)
Front Panel Functions	4HP Board	1 x VGA-CRT 15-pin D-SUB connector Ethernet: 1 x RJ-45 connector with integrated LEDs USB: 2 x 4-pin connectors Reset: Reset button, guarded LED: Power, HDD
	8HP Board (Additional to 4HP)	COM1: 1 x DB9 RS-232 connector COM3: 1 x DB9 RS-232 connector PS/2: 1 x PS/2 connector for keyboard and mouse Ethernet: 1 x RJ-45 connector with integrated LEDs
Rear I/O via J2 (Only for MIC-3321D-DE)		2 x USB 2.0 channels
		2 x Gigabit Ethernet channels with LED (shared with front I/O)
		1 x COM port
		1 x VGA-CRT channel (shared with front I/O)
		1 x PS/2 keyboard/mouse channel (shared with front I/O)
Compliancy		PICMG 2.0 Rev. 3.0 compatible
		CompactPCI Hot Swap Specification PICMG 2.1 R2.0
Environment	Operating Temperature	0 ~ 50°C/ 32 ~ 122°F (Pentium M 2.0G / Celeron M 1.0G CPU) -25 ~ 70°C/ -13 ~ 158°F (Optional: Celeron M 1.0G CPU only)
	Storage Temperature	-40 ~ 80°C/ -40 ~ 176°F
Physical	Dimensions (L x H)	160 x 100 mm (3U)
	Weight	0.6 kg

Ordering Information

Part Number	Description
MIC-3321D-CE	Pentium M 2.0 GHz, 2MByte L2 cache, 512 MByte soldered DDR2 SDRAM, 8 HP width
MIC-3321C-CE	Celeron M 1.0 GHz, 512KByte L2 cache, 512 MByte soldered DDR2 SDRAM, 8 HP width

MIC-3323

3U CompactPCI® Intel Core® 2 Duo 1.66GHz / Atom™ D510 1.66GHz Controller

Features

- Supports two different CPU types
  - Intel® Core® 2 Duo or Atom™ D510 Processor
  - Intel® GME965 GMCH /ICH8M
- Supports up to 4GB DDR2 533/667 MHz SDRAM
- Dual Giga LAN ports
- High-performance Intel 965GME Graphics Media Acclerator
- Internal CompactFlash Slot or Supports SATA 2.5" HDD
- Supports Rear I/O Connections

RoHS COMPLIANT 2002/95/EC CE FCC

Introduction

The MIC-3323 is a 3U CompactPCI® system control board, which support two different CPU grade, one adapts high performations Intel® Core® 2 Duo1.6GHz processor and highly integrated Intel® 965GM Express chipset, and the other one adapts Intel® Atom™ Processor D510 1.66GHZ and ICH8M chipset. In addition to 4MB L2 Cache, it supports 2GB DDR2 SDRAM up to 4GB and dual Gigabit Ethernet.

The MIC-3323 is a powerful 3U CompactPCI Controller that fulfills your requirements in mission critical applications, such as military defense, transportation, traffic control, test and measurement (T&M) as well as critical data acquisition & control application.

Specifications

CPU	Intel® Core® 2 Duo 1.6GHZ/Atom™ D510 1.66 GHZ (Note 1)
L2 Cache	4 MB L2 Cache/1MB L2Cache
Chipset	Intel® 965GM GMCH/ICH8M
BIOS	AWARD™ 4 Mbit /AMI 16Mbit Flash BIOS
BUS	Front Side Bus	533MHZ (Intel® Core® 2 Duo 1.6GHz CPU)
		533MHZ (Intel®Atom™ D510 1.66 GHZ CPU)
	PCI Bus	PCI-PCI bridge PERICOM PI7C8150
		7 x 32bit/33MHz Compact PCI bus master interface
		3.3V VIO
Memory	SDRAM, DDR2 533/667 MHz Support 2G (Note 2)
	Socket: 2 x 200-pin SODIMM sockets
Graphics	Chipset: Intergated Intel 965GME Chipset/Intel Atom D510
	Resolution: Up to 1920 x 1080
Ethernet	Interface: 1000/100/10M Base-TX Gigabit Ethernet
	Controller: PCI-Expressx1 Intel@82574L Ethernet Controller
	Connector: RJ-45 x 2
	Optional Front End or Rear End Ethernet (Selected with Switch)
Serial	Interface: RS-232
	UART: 3 x 16C550 compatible
	Data bits: 5,6,7,8
	Stop Bits: 1,1.5,2
	Parity: None, Even, Odd
	Speed: 50~115.2Kbps
	Data Signal: TXD, RXD, RTS, CTS, DTR, DSR, DCD, RI GND
	Connector: 3 X DB-9 (Two in Front Panel and one in Real I/O)
SATA	1 x SATA interface, data transfer rate up to 300MB/S(Note 3)
USB	4 x USB 1.1 channels up to 480Mbps, 2 as front I/O, 2 as rear I/O (doesn't support USB 2.0)
PS/2	Used for Keyboard and mouse
Watchdog Timer	256 levels timer interval, from 0 to 255 sec or min setup by software, jumper less selection, generates system reset

Hot-swap	Supports for all signal to allow peripheral boards to be Hot swapped
Compliance	PICMG®2.0 Rev.3.0 Compatible
	Compact PCI Hot-swap PICMG® 2.1 Rev.2.0
Environment	Humidity: 5~95% (non-condensing)
	Working Temp: 0 ~ 50°C
	Storage Temp: -40°C~80°C
Physical	Dimensions (W X H): 160 X 100mm (3U)
	Weight: 0.8Kg
Front panel Function(8HP) (MIC-3323)	COM1/3: 2X DB9, RS-232
	PS/2: 1 for Keyboard and Mouse
	Ethernet: 2 x RJ-45 connectors with LEDs
	VGA: 1 x 15 pin D-SUB connector
	USB: 2 x USB1.1, 4 pin Connector
	Button: Reset Button
	LED: Power, HDD
Rear I/O Panel Function (8HP)	COM2: 1 x DB9,RS-232
	PS/2: 1 for keyboard and Mouse (Shared with Front PS2)
	Ethernet: 2 x RJ-45 connectors with LED (Shared with Front I/O, selected with switch)
	VGA: 1 x 15 pin D-SUB connectors (shared fornt VGA)
	USB: 2 x USB2.0,4 pin connector

Note 1: Select different CPU grade by order number
Note 2: Supports 2GB, up to 4GB
Note 3: Support SATA or CF Card by order number

Ordering Information

- **MIC-3323D01-D23E**   3U CompactPCI® Intel® Core® 2 Duo 1.6GHz Controller with SATA HDD/8HP
- **MIC-3323D01-A33E**   3U CompactPCI® Intel® Atom D510 1.66G Controller with SATA HDD/8HP

ADVANTECH | **CompactPCI Systems**

MIC-3611
MIC-3612
MIC-3620

4-port RS-422/485 3U CompactPCI® Card with Surge and Isolation Protection
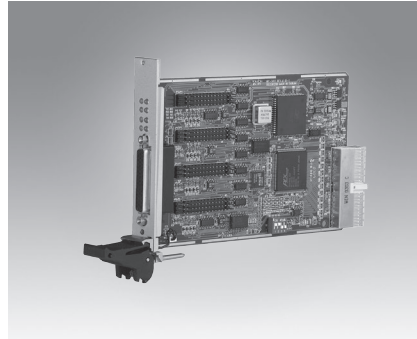
4-port RS-232/422/485 3/6U CompactPCI® Card

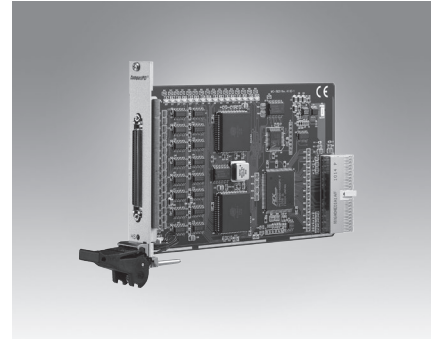**8-port RS-232 3U CompactPCI® Card**
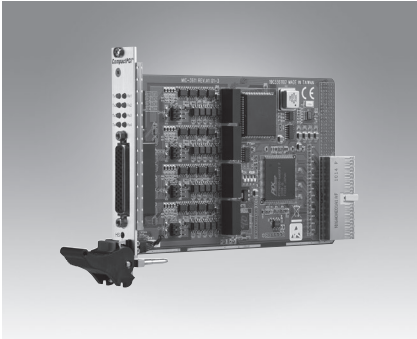
MIC-3611/3   CE FCC

MIC-3612/3   CE

MIC-3620/3   CE FCC

Features

- PCI Specification 2.1x compliant
- Speeds up to 921.6Kbps
- 16C954 UARTs with 128-byte standard
- Standard Industrial 3U/6U sized CPCI Board size
- I/O address automatically assigned by PCI Plug-and-Play
- OSs supported: Windows 98/2000/XP
- Surge protection: 2,000 V_{DC}
- Isolation protection: 2,500 V_{DC}
- Interrupt status register for increased performance
- Space reserved for termination resistors(for RS-422/485)
- Automatic RS-485 data flow control

Specifications

Communications
- **Communication** BUS controller: PLX9030 Controller UART: 16C954 UART with 128-byte FIFOs
- **IRQ** All ports use the same IRQ assigned by PCI Plug-and-Play
- **Data Bits** 5, 6, 7, 8
- **Stop Bits** 1, 1.5, 2
- **Parity** none, even, odd
- **Speed** 50bps ~ 921.6 Kbps
- **Data Signals** TxD, RxD ,RTS, CTS (for RS-422/485)
- **Surge Protection** 2,000 V_{DC}
- **Isolation Protection** 2,500 V_{DC}

General
- **Bus Type** CompactPCI bus specification 2.1 compliant
- **I/O Connectors** DB44 and four RS422/485 DB9 male
- **Dimensions (L x H)** 160 x 100 mm (6.3" x 3.9"), 3U bracket
- **Power Consumption** +5 V @ 600 mA
- **Operating Temperature** 0 ~ 60°C (32 ~ 140°F)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)
- **Operating Humidity** 5 ~ 95% Relative Humidity, non-condensing
- **Certification** CE, FCC

Ordering Information
- **MIC-3611/3-AE** 4-port RS-422/485 3U CompactPCI communication card w/isolation & surge protection

Features

- PCI Specification 2.1 compliant
- Speeds up to 921.6 kbps
- 4-port RS-232/422/485
- Surge protection
- 16C954 UARTs with 128-byte standard
- Standard Industrial CompactPCI® 3U Board size
- I/O address automatically assigned by PCI Plug & Play
- OSs supported: Windows® 98/2000/XP, Linux 2.4
- Interrupt status register for increased performance
- Automatic RS-485 data flow control
- Tx/Rx LED indicator

Specifications

Communications
- **Communication** BUS controller: PLX9030 Controller UART: 16C954
- **Data Bits** 5, 6, 7, 8
- **Data Signals** TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND (for RS-232) TxD, RxD, RTS, CTS (for RS-422) DATA+, DATA- (for RS-485)
- **IRQ** All ports use the same IRQ assigned by PCI Plug & Play
- **Parity** None, even, odd
- **Speed (bps)** 50 ~ 921.6 k
- **Stop Bits** 1, 1.5, 2

General
- **PICMG Compliance** CompactPCI V2.0, R 3.0 Hot swap V2.1, R 2.0
- **Bus Type** CompactPCI V2.1
- **I/O Connectors** DB 44pin female
- **Dimensions (L x H)** 160 x 100 mm (6.3" x 3.9"), 3U bracket
- **Power Consumption**

	Typical	Max.
+5 V	220 mA	285 mA
+3.3 V	100 mA	200 mA
+12 V	60 mA	80 mA

- **Operating Temperature** 0 ~ 70°C (32 ~ 158°F) (IEC68-2-1, 2)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)
- **Operating Humidity** 5 ~ 95% RH, non-condensing (IEC 68-2-1, 2)

Ordering Information
- **MIC-3612/3-AE** 3U CompactPCI 4-port RS-232/422/485 Card
- **MIC-3612/6-AE** 6U CompactPCI 4-port RS-232/422/485 Card

Features

- PCI Specification 2.1 compliant
- Speeds up to 921.6 kbps
- 16C954 UARTs with 128-byte standard
- 8-port RS-232
- Standard Industrial CompactPCI 3U Board size
- I/O address automatically assigned by PCI Plug & Play
- OSs supported: Windows 98/2000/XP, Linux 2.4
- Interrupt status register for increased performance

Specifications

Communications
- **Communication** PCI9030 + 16C954 Controller
- **Data Bits** 5, 6, 7, 8
- **Data Signals** TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND
- **IRQ** All ports use the same IRQ assigned by PCI Plug & Play
- **Parity** None, even, odd
- **Speed (bps)** 50 ~ 921.6 k
- **Stop Bits** 1, 1.5, 2

General
- **PICMG Compliance** CompactPCI V2.0, R 3.0 Hot swap V2.1, R 2.0
- **Bus Type** CompactPCI bus specification 2.1 compliant
- **I/O Connectors** SCSI 68-pin female
- **Dimensions (L x H)** 160 x 100 mm (6.3" x 3.9"), 3U Bracket
- **Power Consumption** +5 V, +3.3 V, +12 V
- **Operating Temperature** 0 ~ 70°C (32 ~ 158°F) (refer to IEC68-2-1, 2)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)
- **Storage Humidity** 5 ~ 95% Relative Humidity, non-condensing (IEC 68-2-1, 2)

Ordering Information
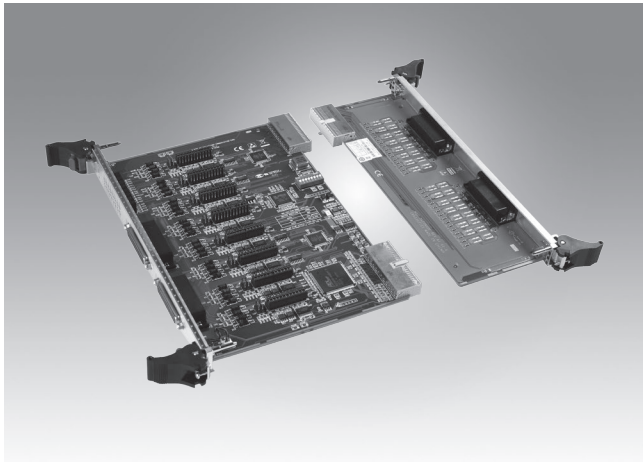- **MIC-3620/3-AE** 3U CompactPCI 8-port RS-232 Card

MIC-3621
MIC-3680

8-Port RS-232/422/485 6U CompactPCI® Card with Surge Protection

2-Port CAN-bus 3U CompactPCI® Card

MIC-3621

CE

MIC-3680/3

CE

Features

- CPCI Specification 2.1 compliant
- Speeds up to 921.6 kbps
- 16C954 UARTs with 128-byte standard
- 8-port RS-232/485/422
- Standard Industrial CompactPCI 6U Board size
- I/O address automatically assigned by PCI Plug & Play
- Interrupt status register for increased performance
- Automatic RS-485 data flow control
- OS support: Windows 2000/XP

Specifications

Communications

- **Communication Controller** — BUS Controller: PCI9030 UART:16C954 Controller
- **Data Signals -** **RS-232** TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND
  RS-422 TX+, TX-, RX+, RX-, RTS+, RTS-, CTS+, CTS-, GND
  RS-485 DATA+, DATA-, GND
- **Speed (bps)** 50~921.6k
- **Data Bits** 5, 6, 7, 8
- **Stop Bits** 1, 1.5, 2
- **Parity** None, even, odd
- **IRQ** All ports use the same IRQ assigned by PCI plug & play
- **Surge Protection** 2,500 V_{DC}

General

- **PICMG Compliance** CompactPCI V2.0, R 2.1 Hot swap V2.1, R 2.0
- **Bus Type** CompactPCI bus specification 2.1 compliant
- **Hotswap Support** Yes
- **I/O Connectors** 2 x DB44 (female)
- **Dimensions (LxH)** 233.35 x 160 mm (9.19" x 6.3"), 6U Bracket
- **Power Consumption** +5V, +3.3V, +12V
- **Operating Temperature** 0~70°C (32~158°F) (refer to IEC68-2-1, 2)
- **Storage Temperature** -20~80°C (-4~176°F)
- **Storage Humidity** 5~95%, Relative Humidity, non-condensing (refer to IEC 68-1,-2,-3)

Ordering Information

- **MIC-3621RE** 6U CompactPCI 8-port RS-232/485/422 Front I/O Card and Rear I/O Support
- **MIC-3621RIOE** 6U CompactPCI Rear I/O Module for MIC-3621RE
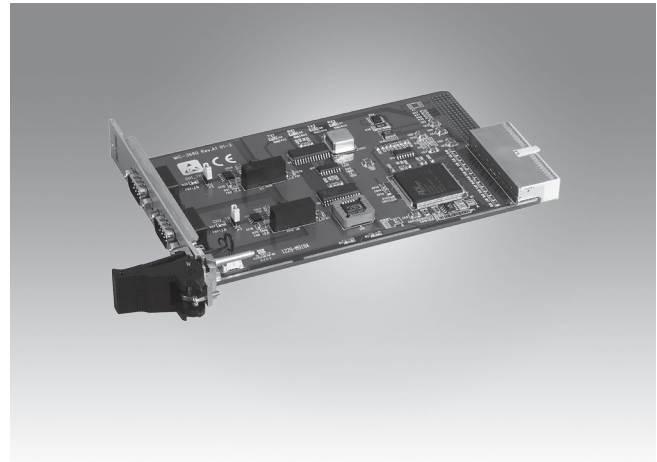
Features

- CompactPCI specification PICMG 2.0 R3.0 compatible
- Hot swap support
- Two individual CAN ports
- Supports CAN2.0 A/B
- High speed transmission up to 1 Mbps
- 16 MHz CAN controller frequency
- Optical isolation up to 2,500 V_{DC}
- Microsoft Windows DLL library and examples included
- Supports Windows 98/2000/XP drivers and utility
- Supports Rear I/O

Specifications

Communications

- **CAN Controller Frequency** 16 MHz
- **CAN Transceiver** 82C250
- **Communication Controller** SJA-1000
- **Ports** 2
- **Protocol** CAN 2.0 A/B
- **Signal Support** CAN_H, CAN_L, GND
- **Speed (bps)** Up to 1 Mbps programmable transfer rate
- **Isolation Protection** 2,500 V_{DC}

General

- **PICMG Compliance** CompactPCI V2.0, R 3.0 Hot swap V2.1, R 2.0
- **Bus Type** CompactPCI
- **I/O Connectors** 2 x DB9-M
- **Dimensions (L x H)** 160 x 100 mm (6.3" x 3.9")
- **Power Consumption** 5 V @ 400 mA (Typical)
- **Operating Temperature** 0 ~ 65°C (32 ~ 149°F)
- **Storage Temperature** -25 ~ 85°C (-13 ~ 185°F)
- **Storage Humidity** 5 ~ 95% RH, non-condensing

Ordering Information

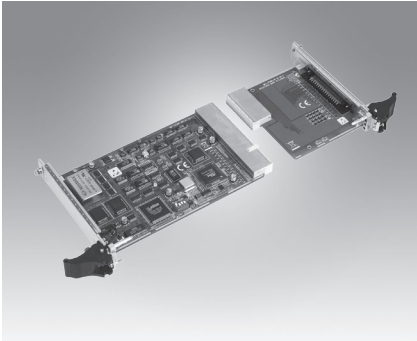- **MIC-3680/3-AE** 3U CompactPCI 2-port Isolated CAN Communication Card

ADVANTECH **CompactPCI Systems**

MIC-3716
250 kS/s, 16-bit, 16-ch Multifunction 3U CompactPCI® Card

MIC-3723
16-bit, 8-ch Analog Output 3U CompactPCI® Card

MIC-3758
128-CH Isolated Digital I/O 3U CompactPCI® Card

MIC-3716/3

MIC-3723/3

MIC-3758/3

Specifications

Analog Input
- **Channels** — 16 single-ended, 8 differential, or combination
- **Resolution** — 16 bits
- **Max. Sampling Rate** — 250 kS/s
- **FIFO Size** — 1024 samples/ch
- **Overvoltage Protection** — 30 Vp-p
- **Input Impedance** — 100 MΩ/10 pF (Off); 100 MΩ/100 pF (On)
- **Sampling Modes** — Software, pacer, or external
- **Input Range**

	Bipolar	±10	±5	±2.5	±1.25	±0.625
	Unipolar	-	0 ~ 10	0 ~ 5	0 ~ 2.5	0 ~ 1.25
	Accuracy (% of FSR ±1LSB)	0.15	0.03	0.03	0.05	0.1

Analog Output
- **Channels** — 2
- **Resolution** — 16 bits
- **Output Rate** — Static update
- **Output Range**

Internal Reference	Bipolar	±5, ±10
	Unipolar	0 ~ 5, 0 ~ 10
External Reference		0 ~ +x V @ +x v (-10 ≤ x ≤ 10)
		-x ~ +x V @ +x v (-10 ≤ x ≤ 10)

- **Slew Rate** — 20 V/μs
- **Driving Capability** — ±20 mA
- **Output Impedance** — 0.1 Ω max.
- **Operation Mode** — Single output
- **Accuracy** — Relative: ±1LSB

Digital Input/Output
- **Channels** — 16, 5V/TTL
- **Input Voltage** — Logic 0: 0.4 V max. Logic 1: 2.4 V min.
- **Output Voltage** — Logic 0: 0.4 V max. Logic 1: 2.7 V min.
- **Output Capability** — Sink: 0.4 V max. @ +8 mA Source: 2.4 V min. @ -0.4 mA

Counter/Timer
- **Channels** — 3
- **Compatibility** — 5 V/TTL
- **Resolution** — 16 bits
- **Max. Input Frequency** — 1 MHz
- **Reference Clock** — Internal 10 MHz External Clock Frequency 10 MHz External Voltage Range TTL (Low: 0.8, High: 2 V)

General
- **PICMG Compliance** — CompactPCI V2.0, R 2.1 Hot-Swap V2.1, R 2.0
- **Bus Type** — CompactPCI
- **I/O Connector Type** — 68-pin SCSI-II female
- **Dimensions (L x H)** — 160 x 100 mm (6.9" x 3.9") with 3U Bracket
- **Power Consumption** — Typical: +5 V @ 850 mA, +12 V @ 600 mA Max.: +5 V @ 1 A, +12 V @ 700 m A
- **Certification** — CE

Ordering Information
- **MIC-3716/3-AE** — 3U, 250 kS/s, 16-bit, 16-ch High-Resolution Multifunction Card
- **PCLD-8710-AE** — Industrial Wiring Terminal Board with CJC circuit for DIN-rail Mounting. (cable not included)
- **PCL-10168-1E/2E** — 68-pin SCSI-II cable with male connectors on both ends and special shielding for noise reduction, 1 and 2 m
- **ADAM-3968-AE** — 68-pin SCSI-II Wiring Terminal Board for DIN-rail Mounting
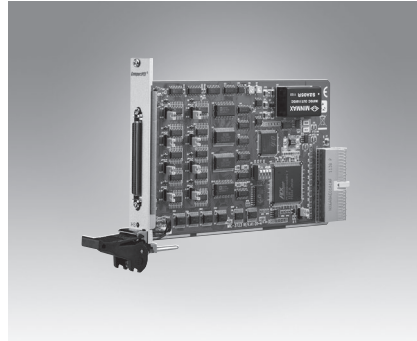
Specifications

Analog Output
- **Channels** — 8
- **Resolution** — 16 bits
- **Output Rate** — Static update
- **Output Range** — (V, software programmable)

Internal Reference	Unipolar	±10 V
	Current Loop	0 ~ 20 mA, 4 ~ 20 mA

- **Slew Rate** — 20 V/μs
- **Driving Capability** — 5mA
- **Output Impedance** — 0.1 Ω max.
- **Operation Modes** — Single output, synchronized output
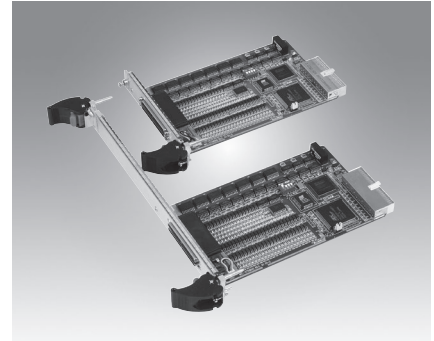
Digital Input/Output
- **Channels** — 16, 5V/TTL
- **Input Voltage** — Logic 0: 0.8 V max. Logic 1: 2.0 V min.
- **Output Voltage** — Logic 0: 0.5 V max. @ 24 mA Logic 1: 2.4 V min. @ -15 mA
- **Output Capability** — Sink: 0.5 V max. @ 24 mA Source: 2.4 V min. @ -15 mA

General
- **PICMG Compliance** — CompactPCI V2.0, R 2.1 Hot-Swap V2.1, R 2.0
- **Bus Type** — CompactPCI
- **I/O Connector Type** — 68-pin SCSI-II female
- **Dimensions (L x H)** — 160 x 100 mm (6.9" x 3.9") with 3UBracket
- **Power Consumption** — Typical: 5 V @ 850, 12 V @ 600 mA
- **Certification** — CE

Ordering Information
- **MIC-3723/3-AE** — 3U CompactPCI 16-bit, 8-ch non-isolated analog output card
- **PCL-10168-1E** — 68-pin SCSI-II cable with male connectors on both
- **PCL-10168-2E** — ends and special shielding for noise reduction, 1 and 2 m
- **ADAM-3968-AE** — 68-pin SCSI-II Wiring Terminal Board for DIN-rail mounting

Specifications

Isolated Digital Input
- **Channels** — 64
- **Input Voltage** — Logic 0: 2.5 V max. Logic 1: 5 V min. (25 V max)
- **Interrupt Capable Ch.** — 64
- **Isolation Protection** — 2,500 V$_{DC}$
- **Opto-Isolator Response** — 50 μs
- **Input Resistance** — 3 kΩ

Isolated Digital output
- **Channels** — 64
- **Output Type** — Sink (NPN)
- **Isolation Protection** — 2500 V$_{DC}$
- **Output Voltage** — 5 ~ 40 V$_{DC}$
- **Sink Current** — 90 mA max./Channel
- **Opto-isolator Response** — 50 μs

General
- **Bus Type** — CPCI bus spec. 2.1 compliant
- **I/O Connectors** — 1 x MINI-SCSII HDRA-E100 Female
- **Dimensions (L x H)** — 160 x 100 mm (6.9" x 3.9") with 3U Bracket
- **Power Consumption** — Typical: +5 V @ 800 mA, +3.3 V @ 600 mA Max : +5 V @ 1 A, +3.3 V @ 1 A
- **Operating Temperature** — 0 ~ 60°C (32 ~ 140°F) (IEC 68-2-1,2)
- **Storage Temperature** — -20°~ 70°C (-4°~ 158°F)
- **Storage Humidity** — 5 ~ 95% (IEC 68-2-3) non-condensing
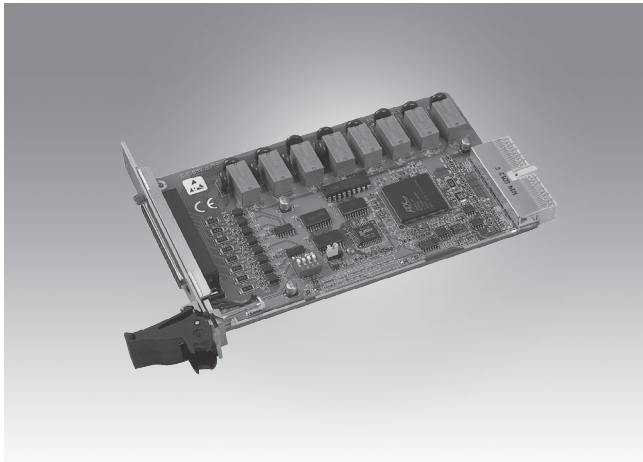
Ordering Information
- **MIC-3758/3-AE** — 3U CompactPCI 128-ch isolated Digital I/O card
- **PCL-101100S-1** — 100-pin SCSI Cable, 1 m
- **ADAM-39100** — 100-pin SCSI wiring terminal, DIN-rail mounting

MIC-3761
MIC-3780

8-CH Relay & 8-CH Isolated Digital Input 3U CompactPCI® Card

8-CH, 16-bit Counter/Timer 3U CompactPCI® Card

MIC-3761/3

RoHS COMPLIANT 2002/95/EC   CE

MIC-3780/3

CE

Specifications

Isolated Digital Input
- **Channels**   8
- **Input Voltage**   Logic 0: 3 V max.
  Logic 1: 10 V min.
  (50 V max.)
- **Input Current***   10 V_{DC} 1.6 mA (typical)
  12 V_{DC} 1.9 mA (typical)
  24 V_{DC} 4.1 mA (typical)
  48 V_{DC} 8.5 mA (typical)
  50 V_{DC} 8.9 mA (typical)
- **Interrupt Capable Ch.**   ID0 ~ ID7
- **Isolation Protection**   2,500 V_{DC}
- **Overvoltage Protection**   70 V_{DC}
- **Opto-Isolator Response**   25 µs
- **Input Resistance**   560 Ω

Relay Output
- **Channels**   8
- **Relay Type**   SPDT
  (4 Form A, and 4 Form C)
- **Contact Rating**   3 A @ 250 V_{AC} or
  3 A @ 24 V_{DC}
- **Relay on Time**   15 ms max.
- **Relay off Time**   5 ms max.
- **Life Span**   Mechanical
  2 x 10^7 ops. min.
  Electrical
  2 x 10^5 ops. min. (contact rating)
- **Resistance**   1 GΩ min. (at 500 V_{DC})

General
- **PICMG Compliance**   CompactPCI V2.0, R 3.0
  Hot-Swap V2.1, R 2.0, R 2.1
- **Bus Type**   CompactPCI
- **I/O Connectors**   1 x 37-pin D-type female connector
- **Dimensions (L x H)**   160 x 100 mm (6.9" x 3.9") with 3U Bracket
- **Power Consumption**   Typical: +5 V @ 220 mA
  Max.: +5 V @ 750 mA
- **Certification**   CE

Ordering Information
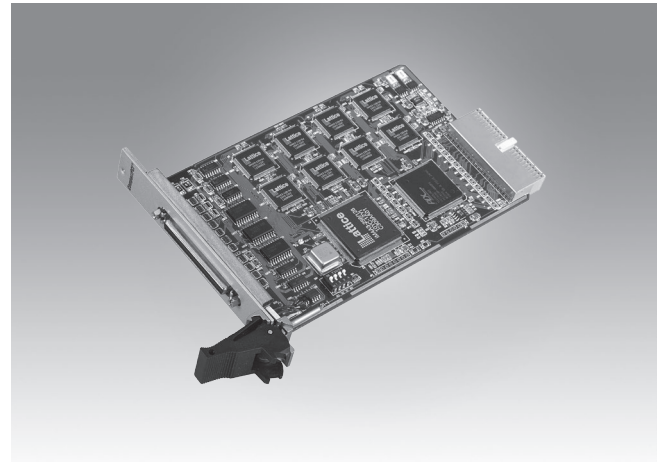
Specifications

Digital Input
- **Channels**   8
- **Compatibility**   5 V/TTL
- **Input Voltage**   Logic 0: 0.8 V max.
  Logic 1: 2.4 V min.
- **Interrupt Capable Ch.**   1 (channel 0)

Digital Output
- **Channels**   8
- **Compatibility**   5 V/TTL
- **Output Voltage**   Logic 0: 0.5 V max. @ 24 mA
  Logic 1: 2.4 V min. @ -15 mA
- **Output Capability**   Sink: 0.5 V max. @ 24 mA
  Source: 2.4 V min. @ -15 mA

Counter/Timer
- **Channels**   8 (independent)
- **Resolution**   16 bits
- **Compatibility**   5 V/TTL
- **Max. Input Frequency**   20 MHz
- **Reference Clock**   Internal: 20 MHz
- **Counter Modes**   12 (programmable)
- **Interrupt Capable Ch.**   8

General
- **PICMG Compliance**   CompactPCI V2.0, R 3.0
  Hot-Swap V2.1, R 2.0
- **Bus Type**   CompactPCI V2.1
- **I/O Connectors**   68-pin SCSI-II female
- **Dimensions (L x H)**   160 x 100 mm (6.3" x 3.9") with 3U Bracket
- **Power Consumption**   Typical: +5 V @ 900 mA
  Max: +3.3 V @ 1.2 A
- **Operating Temperature**   0 ~ 60°C (32 ~ 140°F) (refer to IEC 68-2-1, 2)
- **Storage Temperature**   -20 ~ 70°C (-4 ~ 158°F)
- **Relative Humidity**   5 ~ 95 % RH non-condensing (refer to IEC 68-2-3)
- **Certification**   CE, FCC Class A

Ordering Information