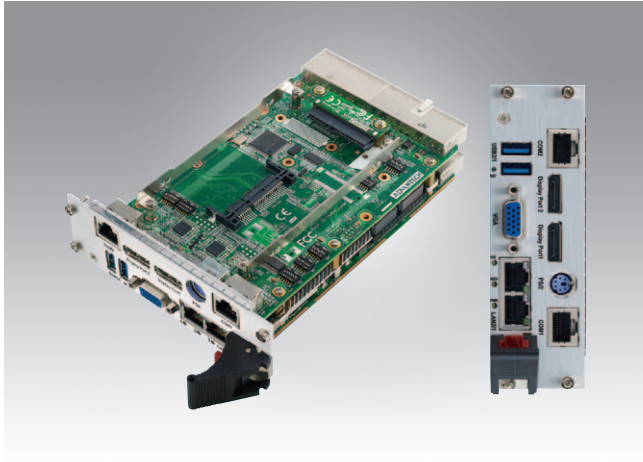# MIC-3328

3U CompactPCI PlusIO Intel® 3rd Generation Core™ Processor Blade

Features

- Supports 3rd Generation Intel® Core™ processor
- Intel® QM77 Platform Controller Hub
- 4 or 8 GB DDR3-1600 soldered SDRAM with ECC
- Triple independent display support
- Optional 8GB SATA NAND Flash on board
- 2.5" SATA-II SSD, CFast, XMC on 8HP version
- Two 10/100/1000 Mbps ports, 2 USB 3.0 ports, 1 VGA port on front panel (4HP)
- Two COM ports, 2 Display ports, 1 PS/2 port (8HP)
- Supports CompactPCI PlusIO
- PICMG2.0, R3.0 , PICMG2.1, R2.0, PICMG2.30 compliant

CompactPCI® PlusIO

Introduction

Advantech's MIC-3328 is a 3U CompactPCI PlusIO CPU blade based on the Intel® 3rd generation Core™ processor family. Based on latest 22nm process technology these processors support up to four cores / eight threads at up to 2.5GHz and up to 6M last level cache. With Intel HD Graphics(Gen7,DX11,OCL1.1) integrated into the CPU, the MIC-3328 can serve applications demanding high performance, high resolution video output on up to three independent display interfaces. Latest DDR3 DRAM up to 8GB running at 1600MT/s complement the powerful processor with high performance, ECC protected onboard memory.

MIC-3328's design for reliability like using soldered processor, DRAM and flash storage for enhanced shock and vibration tolerance make it an ideal choice for workstation workloads in harsh environments and mission/business-critical applications such as military, transportation, test & measurement and traffic control. The enhanced fixed point and floating point performance offered by the intel CoreTM processor, improvements in the vector processing instruction set (AVX) along with the possibility to utilize the integrated GPU via standard interfaces such as OpenCL make the MIC-3328 also a great fit for signal processing applications such as radar, beam forming or image processing.

For best in class IO performance, MIC-3328 uses the Intel QM77 PCH, which provides extensive I/O support such as USB3.0, PCI Express gen.2 and SATA-III ports. Three i210 Gigabit Ethernet Controllers provide front panel as well as rear panel network connectivity. The i210 provides higher performance over previous Gigabit Ethernet controllers, better support for virtualization, Energy Efficient Ethernet and ECC protected packet buffers for enhanced reliability. Support for timestampping and synchronization is accomplished via IEEE1588 (PTP). Support for industrial Ethernet protocols such as ProfiNet, EtherCAT and Powerlink is available via third party software partners.

For dense applications the MIC-3328 is available with a 4HP front panel, occupying a single slot, only. For applications requiring additional IO and/or peripheral support, the MIC-3328 can be extended to 8HP (2 slots) via specific extension modules (XTMs). For industrial display or workstation applications, a graphics-centric XTM routes two Display Ports from the PCH for triple display support, adds 2 COM ports for data acquisition and control plus a PS/2 and 2.5" SSD. A second XTM provides a XMC mezzanine slot for industry standard extension modules like Advantech's MIC-3666 dual 10GE adapter card. The XMC slot supports a PCI Express x8 interface directly into the Intel CoreTM processor with speeds up to 64Gbps according to PCI Express 3.0.

While support for legacy CompactPCI is provided on J1 via an onboard PI7C9X110 bridge, the MIC-3328 supports an UHM J2 connector according to PCIMG2.30 (PlusIO). While this connector maintains backwards compatibility and interoperability with legacy systems, it makes state of the art serial interfaces such as Gigabit Ethernet, PCI express, USB and SATA available for use on a Rear transition Module (RTM) or on a hybrid backplane supporting legacy IO cards as well as CompactPCI Serial peripheral cards as defined in PICMG2.30. Thus, MIC-3328 provides a smooth, risk free and future proof migration path from legacy parallel PCI bussed CompactPCI system to latest serial interface standard predominant in the computer industry. With full backwards compatibility to CompactPCI, customers investments stay protected while the door is opened for platform enhancements and innovations via the new serial interfaces. The MIC-3328 PlusIO J2 supports interfaces such as 4 PCI Express x1 gen. 2 links for IO extension, one GbE for computer to computer multiprocessing, three SATA for Hard drives and RAID systems as well as 4 USB ports for wireless interfaces and legacy interface replacement.

For more information about CompactPCI PlusIO and Serial offerings from Advantech or information on how this new platform can help you to gain competitive advantages, please contact your Advantech representative.

Specifications

Processor System	CPU	Intel® 3rd Generation Core™ i7 up to 2.5 GHz (6MB L2 cache) 1.7G, 3517UE, 17w / 2.5G,3555LE, 25w/ 2.1G, 3612QE, 35w
	Platform Controller Hub	Intel QM77
	BIOS	Customized AMI Aptio UEFI BIOS
CompactPCI Interface	J1 Connector	32-bit PCI local bus (33MHz)
	J2 Connector	CompactPCI PlusIO / RTM
Memory	Technology	DDR3-1600MHz SDRAM, dual channel with ECC support
	Max. Capacity	8 GB
	Soldered/socket	Soldered
Graphics	Chipset	Integrated in Intel CPU
	Resolution	VGA 2048 x 1536 pixels with 32-bit color at 75 Hz Display port 2560 x 1600 at 60 Hz

Specifications (Cont.)

Ethernet	Controller	3 x i210AT	
	Interface	10/100/1000 Mbps	
	I/O Connector	RJ-45 x 2 (front panel), RJ-45 x 1 (RTM / PlusIO)	
Storage	IDE	1 x CFast Socket on 8HP	
	SATA	1 x optional SATA NAND Flash on 4HP,1x Internal SATA connector on 8HP version	
Front I/O	VGA	DB15 Port	
	Ethernet	2 x 10/100/1000 Mbps RJ-45	
	USB 3.0	2 x Type A	
	8HP XTM	8HP-1: 2x RJ45 RS232, 2x Display port, 1x PS/2 port 8HP-2: XMC (PCIex8 gen.3) front IO	
PlusIO / RTM interface (4HPJ2 interface)	PCIE	4 x PCIex1 Gen 2 (one PCIex1 is routed to Mini-PCIe socket on board for wireless LAN using)	
	SATA	2 x SATA-II (one SATA-II is designed as half size mSATA socket on board), 1 x SATA-III	
	RJ45	1 GbE based on i210AT	
	USB 2.0	4 ports	
RIO (8HP)	8HP-1 J2 interface	1 x PS/2 is mutually exclusive with PS/2 on 8HP front panel by BOM control. It required a special 8HP board to work. The special 8HP board is on request by customer 2 x COM default setting is RS232, RS422/485 could be set by the switch on 8HP board (Total 4 COM ports on 8HP and it's RIO) 2 x DisplayPort is switchable from front panel by switch on 8HP board	
Watchdog Timer	Supervision	0 ~ 255s, 1s step, generate reset signal	
Operating System	Compatibility	Microsoft Windows XP Professional, Windows 7, Windows 8, Windows server 2008, VxWorks 6.9, Linux Redhat 6.1	
Power Requirement	Configuration	CPU TDP 17w/25w/35w, 8HP with RIO	
	Consumption	23.42W/ 33.12W /43.91W	
Physical	PCB Dimensions	4HP or 8HP, 160.00 x 100.00 mm (6.30" x 3.95") (W x H)	
	Weight	0.62kg w. AL Heatsink ,0.9kg w. Cu Heatsink including XTM	
Environment		Operating	Non-operating
	Temperature	0 ~ 60° C (32 ~ 140° F)	- 40 ~ 85° C (-40 ~ 185° F)
	Humidity	95% @ 40° C (non condensing)	95% @ 60° C (non-condensing)
	Shock	10 G, 11ms, each axis three times	30 G, 11ms, each axis three times
	Vibration	2Grms (5~500Hz, with CFast on 8HP)	Sine 2 Grms, 30mins each axis (5 ~ 500 Hz)
Regulatory	Conformance	FCC, Class A, CE, RoHS	
Compliance	Standard	PICMG 2.0 Rev. 3.0, PICMG 2.1 R2.0, PICMG2.30 PlusIO compatible	

Ordering Information

Model Number	Configuration
MIC-3328A1-D1E	MIC-3328, 3517UE, 4G RAM, w/ 8HP-1, 2 DP, 2 COM, PS/2
MIC-3328B1-D1E	MIC-3328, 3555LE, 8G RAM, w/ 8HP-1, 2 DP, 2 COM, PS/2
MIC-3328C1-D1E	MIC-3328, 3612QE, 8G RAM, w/ 8HP-1, 2 DP, 2 COM, PS/2
MIC-3328A1-S1E	MIC-3328, 3517UE, 4G RAM Single slot, 2 LAN, VGA, 2 USB
MIC-3328B1-S1E	MIC-3328, 3555LE, 8G RAM Single slot, 2 LAN, VGA, 2 USB
MIC-3328C1-S1E	MIC-3328, 3612QE, 8G RAM Single slot, 2 LAN, VGA, 2 USB

For other CPU blade SKU,chassis and RIO, please contact your Advantech sales representative.

Related Products

Model Number	Configuration
MIC-3666-AE	XMC board with dual 10Gbe SFP+, MIC-3328 8HP-2 matching
MIC-3022CE	3U enclosure,8slots,32-bit/33 MHz/66 MHz,250W CPCI PSU
MIC-3022PCE	3U enclosure, w/ CPCI PlusIO BP, 300W CPCI PSU
MIC-3611/3-AE	4-port RS-232/422/485
MIC-3716/3-A	3U 250kS/s,16-bit,16-ch multifunction Card
MIC-3756/3-A	3U CPCI 64-ch Isolated DI/O Card
MIC-3680/3-A	2-port CAN Card
MIC-3022AE	3U single system CPCI enclosure, with 400W ATX PSU
MIC-3022PAE	3U single system CPCI PlusIO enclosure, with 400W ATX PSU
MIC-3954-AE	3U CPCI-Serial card with dual mini-PCIe slot and SIM slot
MIC-3953-AE	3U CPCI PMC Carrier board

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