

# MIC-3396MIL

## 6U CompactPCI Intel® 4th/5th Gen. Core™ i5/i7 Processor Blade with ECC support



### Features

- Supports 4th /5th Generation Intel® Core™ i5/i7 processors and Intel® QM87 PCH with embedded graphic (up to 3independent displays)
- Up to 16 GB (DDR3 1600) low voltage ECC memory (max 8GB on board, socket SO-UDIMM x1, max 8GB)
- Optimized single-slot SBC with 2.5" SATA-III HDD/CFast socket
- Two SATAIII and two SATAII ports, two USB 3.0, four USB 2.0 ports, two DVI ports, four RS-232 ports, one PS/2 connector, and PCIe x16 interfaces to the Rear Transition Module (RTM)
- Four gigabit Ethernet ports for PICMG 2.16, front and rear connectivity
- PICMG 2.16 R1.0, PICMG 2.1 R2.0, PICMG 2.6 R1.0 compliant



### Introduction

The MIC-3396MIL is specially design for ruggedized applications, and offers three different configurations that meet a wide range of environment requirements.

Using 4th and 5th generation Intel® Core™ i5/i7 and Intel® Xeon® processors, it supports up to four cores / eight threads at 2.7GHz and 6MB last level cache. Ruggedized requirements are addressed by a conduction cooled design an extended operation temperature range (-40 ~ 85 °C measured at wedge lock). Shock and vibration resistances of the board are increased by using wedge locks and a single-piece CNC-milled aluminum alloy plate that conforms to the major IC packages.

With highly integrated functional capabilities, the MIC-3396MIL fully utilizes the I/O features of the Intel® chipsets. It supports maximum 16GB of 1600 MHz DDR3L RAM, an onboard 2.5" Serial ATA HDD or SSD, a CFast slot, one PCIe x16 and a set of I/O functions brought through the backplane to a unique rear transition module, which contains eight GPIOs, four USB2.0 and four RS-232/422/485 console ports as pin headers, two SATA Gen III and two SATA Gen II as connectors, two/four LAN ports (two LAN ports are switchable form front panel to RTM), one DVI-D port, one VGA port, two USB 3.0, one P/S2 port and one RS-232/422/485 port on the front panel.

### Specifications

Processor System	CPU	4th/5th Generation Intel® Core™ i5/i7 mobile and Xeon® processors up to 2.7 GHz (6MB LLC )
	Platform Controller Hub	Intel® QM87
	BIOS	Redundant AMI 16MByte SPI flash
CompactPCI Interface	J1 Connector	32-bit PCI local bus
	J2 Connector	64-bit PCI local bus
	J3 Connector	PICMG2.16 + RTM area
	J4-J5 Connectors	RTM area
Memory	Technology	DDR3L 1600 MHz, dual channel with low voltage and ECC support
	Max. Capacity	Up to 16GB (max. 8GB on-board, max. 8GB SODIMM)
	Socket	SODIMM x1
Graphic	Controller	Intel® embedded graphic controller (triple independent display)
	VRAM	Dynamic
	Resolution	Up to 2048 x 1536, 64k colors at 75Hz
Ethernet	Controller	1 Intel® I350 four-ports Gigabit Ethernet controllers (on PCIe x4 channel)
	Interface	10/100/1000Base-TX Ethernet
	I/O Connector	PICMG 2.16 and RJ-45 x2 (switchable from front panel to RTM)
Storage	Onboard HDD/SSD	1 2.5" (SATA-III)
	Channels	Onboard SATA-III connector
	Onboard Flash	SATA-III
	Channels	1 CFast socket (SATA-II)
	RTM	SATA-III and SATA-II
	Channels	2 x SATA-III connectors 2 x SATA-II connectors
Front I/O	USB3.0	2 type A
	USB2.0	2 type A
	VGA	1, optional
	DVI-I	1
	COM	2 RS232 D-Sub9
	LAN	2 10/100/1000 Mbps on RJ45
	Front Panel LEDs	x1 blue for Hot Swap, 1x yellow for HDD, x1 green for Master/Drone mode, x1 green BMC Heartbeat, and x1 green for Power
	Buttons	CPU reset button and BMC reset button

## Specifications (Cont.)

Rear I/O	USB2.0	6 ports	
	USB3.0	2 port	
	COM	4 ports (two ports for front and rear connectivity)	
	LAN	4 ports (2x PICMG 2.16, 2x GbE switchable from front panel)	
	SATA	2 SATA-III and 2 SATA-II	
	PCIe	1 PCIe16 Gen3 7GT/s	
	Display	1 DVI-I and 1 DVI-D	
	Others	PS/2 for keyboard & mouse	
Watchdog Timer	Output	Local Rest and Interrupt	
	Interval	Programmable 1s ~ 255s	
Hardware Monitor	HWM	NCT7904	
BMC	Controller	LPC1768, IPMI v2.0 compliant	
Operating System	Compatibility	Win7/8.1/10, Linux, VxWorks 6.x (on request)	
Power Requirement	Configuration	4HP	
	TDP (estimate)	Maximum: up to 80W (quad core), 50W (dual core) or less, depending on CPU type	
Physical	Dimension (W x D)	233.35 x 160.0 mm	
		Operating	Non-operating
	Temperature	-40 ~ 85 °C (measured at wedge lock)	-50 ~ 100 °C (measured at wedge lock )
	Humidity	95 % @ 40 °C, non-condensing	95 % @ 60 °C, non-condensing
	Vibration (5-500 Hz)	3.5Grms (without on-board 2.5" SATA HDD)	
	Bump		25G, 6ms
Regulatory	Altitude	15000ft, 55 °C, above sea level	40000 ft, -40 °C, above sea level
	Conformance	FCC Class A, CE, RoHS, CCC	
Compliance	Standards	PICMG2.0 R3.0, PICMG2.1 R.0, PICMG2.9 R1.0, PICMG2.16 R1.0,	

## Ordering Information

System Board Model Number	Front Panel						Main On-board Features					Other Coating
	DVI-I	USB3.0 (type A)	USB2.0 (type A)	Ethernet (RJ45)	COM (DB-9)	Conduction Cool	CPU	Onboard Memory	CFast Socket	Storage Channel	SODIMM Socket	
MIC-3396MILS-P8E	1	2	2	2	2	-	I5-4402E	DDR3L-8GB	1	1 SATA-III	1	-
MIC-3396MILS1-P8E	1	2	2	2	2	-	I7-5850EQ	DDR3L-8GB	1	1 SATA-III	1	-
MIC-3396MILB-P8E*	-	-	-	-	-	Available	I5-4402E	DDR3L-8GB	1	-	-	Yes

Note: For CPU, on-board memory and other feature availability request, please connect your local sales office.  
 \* Bare board w. CPU and on-board memory w/o conduction cool

Part Number	Rear Panel						On-board Header / Socket / Connector					
	LAN	PS/2*	COM (RJ45)	USB 3.0	DVI-D	VGA	Audio	USB 2.0	COM	SATA	Slot Width	Conn.
RIO-3396MIL-A1E	4	1	1*	2	1	1	1	2 (4 ports)	4*	4	1	J1, J3, J4, J5

\*Note: One PS/2 port carries the signals for keyboard and mouse. Y cable is included. There are four RS-232/485/422 ports max, including from rear panel and on-board header.

## CPU Information

CPU Type	# of Core	# of Thread	DMI	Frequency	Turbo Frequency	Cache	TDP	Graphics	Graphic Frequency	PCIe
I5-4402E	2	4	5 GT	1.6 GHz	2.7 GHz	3 MB	25W	HD4600	400-900MHz	Gen 3
I7-5700EQ	4	8	5 GT	2.6 GHz	3.4 GHz	6 MB	47W	GT2	300MHz-1GHz	Gen 3
I7-5850EQ	4	8	5 GT	2.7 GHz	3.4 GHz	6 MB	47W	GT3e	300MHz-1GHz	Gen 3
E3-1258Lv4	4	8	5 GT	1.8 GHz	3.2 GHz	6 MB	47W	GT2	700MHz-1GHz	Gen 3
E3-1278Lv4	4	8	5 GT	2 GHz	3.3 GHz	6 MB	47W	GT3e	800MHz-1GHz	Gen 3

## Related Products

Model number	Configuration
RIO-3396MIL-A1E	RTM Module with 4 LAN ports, USB3.0/2.0, DVI, PS2 and COM ports for MIC-3396MIL
MIC-3396MIL-1960E	Conduction Cool cold blade metal parts for MIC-3396MILB-P8E
MIC-3396MIL-1961E	Conduction Cool cold blade metal parts w/ SSD & CFast slot support

### MIC-3396MIL-PxE Series

