

# MIC-6313

## OpenVPX CPU Blade with 4th/ 5th Generation Intel® Core™ Processor



### Features

- 4th/ 5th Generation Intel® Core™ processor, up to 4 cores / 8 threads
- Intel® QM87 PCH
- Triple independent display support
- OpenVPX MOD6-PAY-4F1Q2U2T-12.2.1-2 profile compliant
- Onboard and SO-DIMM DDR3L-1600, up to 16 GB, with ECC support
- Four SRIOx4 ports and two PCIe8 ports on Fabric interface
- Four 1000BASE-T ports on Base interface (two configurable to SERDES)
- Two 1000BASE-T front panel ports
- One CFast and one onboard flash storage device



### Introduction

The MIC-6313 is Advantech's next generation single processor 6U VPX blade, based on the 4th/ 5th Generation Intel® Core™ and Intel® Xeon® Processor E3 Lv4 embedded platform. To enable the highest performance available in the 6U VPX form factor for workstation and compute intense applications, the four Serial RapidIO ports in the VPX data plane offer high speed up to 5Gb/s, low latency, scalable, error recoverable deterministic interconnectivity to digital front ends such as DSP and FPGA cards. In addition, two PCI Express ports x8 lanes in the VPX expansion plane, with up to PCI Express gen. 2 (5Gb/s) throughput offer a high performance interface to mainstream peripherals and I/O cards. With a SO-DIMM socket and additional soldered, onboard DRAM with ECC in a dual channel design running up to 1600MT/s, the MIC-6313 can be integrated into various harsh environments while maintaining maximum memory throughput, and supports memory expansion by using the latest SO-DIMM technology simultaneously. In addition, the 4th/ 5th generation Intel® Core™ and Xeon® E3 Lv4 embedded processors offer increased cache size and efficiency, as well as instruction set improvements, which make the MIC-6313 a high performance compute engine with outstanding floating point and vector processing performance.

Tailored for harsh environments, the MIC-6313 has a native ruggedized convection cooled heat sink adaptable to various chassis environments; with the alternative optional air cooled heat sink, additional I/O is provided on the front panel. An onboard soldered, industrial SSD is included for maximum reliability, and a CFast/ SSD socket is also available for a cost-efficient, modular storage. By using Intel®'s powerful PCH (Lynx Point) with its advanced SATA controller, the MIC-6313 offers high storage capacity at up to 6Gbps transfer speed. An onboard XMC site with PCIe x8 gen.3 connectivity can host high speed offload or I/O mezzanines. Two USB 3.0 ports on the front panel can connect to external devices with up to 5Gbps data rate. Network and remote connectivity can be achieved via a RS-232 console (RJ-45) and two GbE RJ-45 ports, powered by Intel®'s latest Gigabit Ethernet controller.

The next generation graphics engine Intel® Iris Pro offers up to 2x the graphic performance compared to previous generation solutions. Triple independent display support can be implemented by using the MIC-6313's DVI front panel port and two DVI interfaces on rear transition modules. Audio is powered by a ALC892 controller via the backplane interface, and provides media support. Four SATA ports (SATAIII) and four USB ports (2x USB 3.0, 2x USB 2.0) are also connected to the backplane to fulfill the demand for extra IO ports or storage. Four GbE ports (two SERDES selectable) support system level IP connectivity, and four UART interfaces (RS232/422/485 selectable) can be leveraged to interface to legacy devices and consoles.

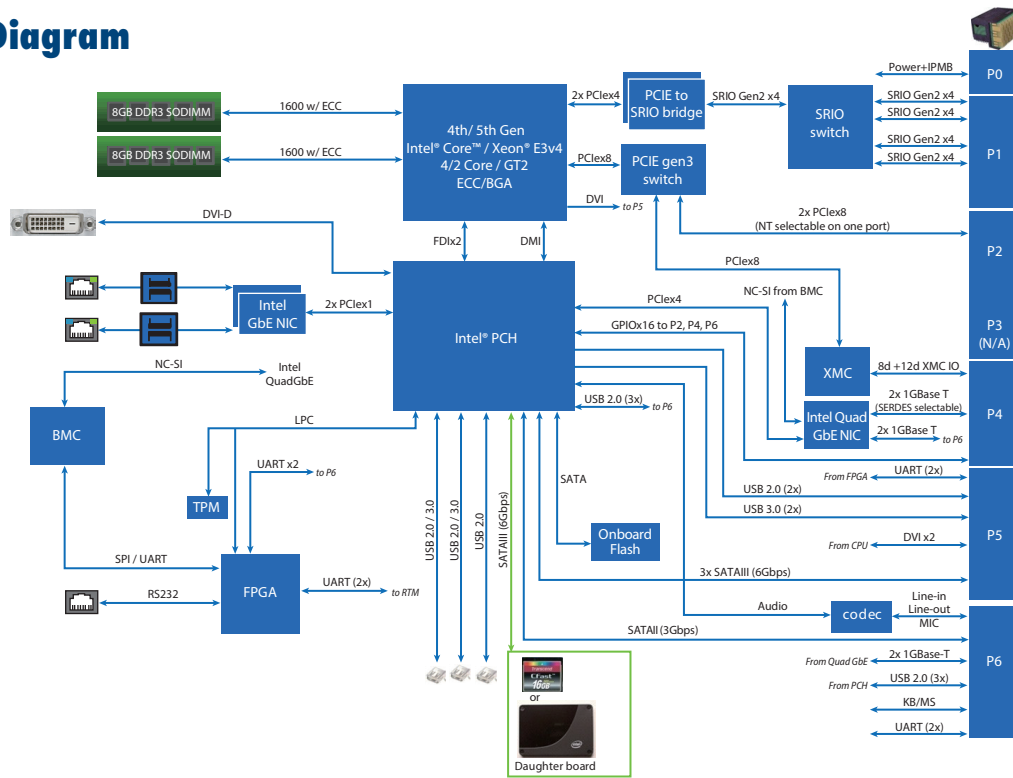
### Specifications

Processor System	CPU	Intel® Xeon® Processor E3-1278L/i5-4402E*
	Max. Speed	3.3 GHz
	Chipset	Intel® Lynx Point (QM87)
	BIOS	Redundant AMI UEFI based 8MByte SPI flash
Memory	Technology	Dual channel DDR3L 1600MHz w/ ECC
	Max. Capacity	Configurable up to 16GB
	Socket	8GB memory soldered onboard, 1x 204-pin SODIMM socket max. to 8GB
VPX Interface	P1	4x SRIOx4 Gen2
	P2	2x PCIe8 (1 port NT Capable)
	P4	8d+12d XMC IO.; 2x 10/100/1000BT (alternative of SerDes) from I350
	P5	2x USB3.0; 2x USB 2.0; 3x SATA-III; DVI x2; 2x UART(RS-232/422/485 switchable)
	P6	2x 10/100/1000BT; Audio from ALC892; 2x USB 2.0; KB/Mouse from SIO;1x SATA II
	Graphics	Controller
Ethernet	Controller	Intel® I350-AM4 Quad Port Gigabit Ethernet Controller to backplane; 2x I210 to front panel
	Serial (COM)	1 RS-232 on RJ-45 connector,
Front I/O Interface	Ethernet	2 x RJ-45 10/100/1000BASE-T
	USB	2x USB 3.0, 1x USB2.0
	Miscellaneous	XMC, DVI
	Operating System	Compatibility
Storage	CFast	SATA III
	Onboard Flash	64G SATA
Power Requirement	Consumption	117 W total power envelope with 47W CPU 91W with 25W CPU
	PCB Dimensions	4HP, 233.35 x 160 mm (9.2" x 6.3") (W x D)
Physical Characteristics	Weight	0.95kg without peripherals

## Specifications (Cont.)

Environment	Operating (with 30 CFM airflow)	Non-operating	
	Temperature	-40 – 70° C	-40 – 85° C
	Humidity	95% @ 40° C, non-condensing	95% @ 60° C, non-condensing
	Shock	VITA 47, OS2 VITA 47, OS1 (ruggedized convection cooled)	
	Vibration	VITA 47, V2 (Convection cooled with 2.5" SSD; Ruggedized convection cooled with CFast) 0.008 g <sup>2</sup> /Hz, 2 Grms, 5-500Hz (convection cooled)	
Compliance	Altitude	50 000ft @ -40° C above sea level	
	VPX	OpenVPX (VITA 65), REDI (VITA 48), IPMI 2.0	
	Safety	FCC class A, CE, RoHS	
	EMC	FCC47 CFR Part15, Class A, CE Mark (EN55022/EN55024/EN300386)	

## Block Diagram



Part Number	Front Panel				Main On-board Features					
	Display	USB	Ethernet (RJ45)	Console (RJ45)	CPU	Onboard Memory	Onboard Flash	External storage	SODIMM Socket	IPMI management
MIC-6313-A1A4E	DVI x1	2.0x1; 3.0x2	2	1	E3-1278Lv4	8GB	64GB	CFast Socket	Yes	Yes
MIC-6313-B1C4E	VGA x1	3.0x2	0	0	i5-4402E	8GB	64GB	CFast Socket	No	Yes

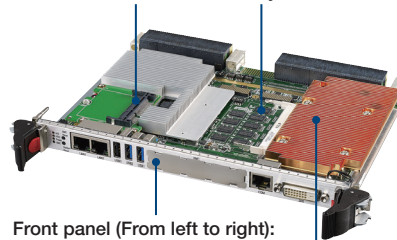
## Ordering Information\*\*

Model number	Configuration
MIC-6313-A1A4E	MIC-6313 with E3-12x8Lv4, Air-cooled heat sink, 64G onboard flash
MIC-6313-B1C4E	MIC-6313 with i5-4402E, ruggedized convection cooled heat sink, 64G onboard flash

\*: For the other Intel® 4th/5th generation Core family CPU availability, please contact your local sales office.

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One CFast Socket Memory SODIMM socket



Front panel (From left to right):  
Two RJ-45 (GbE)  
USB2.0  
Two USB3.0  
XMC  
RJ-45 (console)  
DVI

One passive CPU heat sink