

# MIC-6311

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



### Features

- 4th 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 DDR3-1600 up to 16 GB with ECC support
- Two SRIOx4 ports and two PCIe8 ports on Fabric interface
- Two 1000BASE-T ports on Base interface
- Two 1000BASE-T front panel ports
- One CFast / one 2.5" SSD storage Device



### Introduction

Advantech's MIC-6311 is a single processor VPX blade based on the Intel® 4th generation Core® i3/i5/i7 platform. It enables the highest performance available in 6U VPX form factor with two SRIOx4 ports in the VPX data plane and two PCI Express x8 gen. 3 lanes in the VPX expansion plane for workstation and compute intense applications. The two Serial RapidIO ports offer the possibility to interface the MIC-6311 to digital front ends such as DSP and FPGA cards via a high speed, low latency deterministic interconnect. In addition, PCI Express ports with up to 8GB/s throughput offer a high performance interface to mainstream peripherals and IO 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-6311 offers the ability to fit harsh environments while maintaining maximum memory throughput and supporting memory expansion using the latest SO DIMM technology. Moreover, the 4th generation Core® processors offer increased cache size and efficiency as well as instruction set improvements which make the MIC-6311 a high performance compute engine with outstanding floating point and vector processing performance.

Tailored for rugged environments, MIC-6311 has been designed to support conduction-cooling heat sinks. Additionally, it implements an onboard soldered, industrial SSD for maximum reliability. By using Intel's latest powerful PCH (Lynx Point) with its advanced SATA controller advanced storage options are supported such as a 2.5" SATA III HDD/SSD socket offering high storage capacity with up to 6Gbps transfer speed. A CFast socket provides an alternative for implementing a cost efficient, pluggable SSD. An onboard XMC/PMC site with PCIe x8 gen.3 connectivity can host high speed offload or I/O mezzanines. Two USB 3.0 ports in front panel can connect to the external devices with up to 5Gbps data rate. Network and remote connectivity can be achieved via a RS232 console (RJ45) and two GbE RJ45 ports, powered by intel's latest Gigabit Ethernet Controller, the i350.

The processor's integrated enhanced graphics engine Iris offers the up to 2x the graphic performance compared to previous generation solutions. Triple independent display support can be implemented by using the MIC-6311's VGA front panel port and two Display port / HDMI interfaces on rear transition modules. Audio port support via the backplane interface enhances media support. Three SATA ports (SATAIII) and four USB ports (2x USB 3.0, 2x USB 3.0) are also connected to backplane to fulfill the demand for extra IO ports or storage. Two GbE/ SERDES ports support system level IP connectivity and two UART interfaces can be leveraged to interface to legacy devices and consoles.

### Specifications

Processor System	CPU	Intel® 4th Generation Core i3/i5/i7 mobile processors up to 2.4 GHz (6MB L2 cache)
	Max. Speed	2.4 GHz
	Chipset	Intel Lynx Point (QM87)
	BIOS	Redundant AMI UEFI based 8MByte SPI flash
Memory	Technology	Dual channel DDR3 1600MHz w/ ECC
	Max. Capacity	Configurable up to 16 GB
	Socket	1 bank soldered onboard, 1x 204-pin SODIMM
VPX Interface	P1	2x SRIOx4 Gen2
	P2	2x PCIe8 (1 port NT Capable)
	P3	64s PMC IO
	P4	12d XMC IO; 2x 10/100/1000BT or 2x SerDes (on request) from I350
	P5	2x USB3.0; 2x USB 2.0; 3x SATA-III; DisplayPort x2; UART(2x); Audio; KB/Mouse from SIO
Graphics	Controller	Intel embedded graphic controller Iris (3 independent displays)
Ethernet	Controller	Intel I350-AM4 Quad Port Gigabit Ethernet Controller
Front I/O Interface	Serial (COM)	1 RS-232 on RJ-45 connector
	Ethernet	2 x RJ-45 10/100/1000BASE-T
	USB	2x USB 3.0, 1x USB2.0
	Miscellaneous	XMC/PMC, VGA
Operating System	Compatibility	Linux; Windows7; VxWorks6.x (on request)

## Specifications (Cont.)

Storage	2.5" SSD/SATA	SATA III	
	CFast	SATA II	
	Onboard Flash	8G	
Power Requirement	Consumption	56.3W total power envelope with 37W CPU (on request) 66.3W total power envelope with 47W CPU	
	PCB Dimensions	4HP, 160.00 x 233.35 mm (6.30" x 9.19") (W x D)	
Physical Characteristics	Weight	0.95kg without peripherals	
	Operating	Non-operating	
Environment	Temperature	Grade 1: 0 ~ 55°C Grade 2: -25 ~ 70 °C (on request)	-40 ~ 85 °C
	Humidity	95% @ 40° C, non-condensing	95% @ 60° C, non-condensing
	Bump		25G, 6ms
	Vibration (5 ~ 500 Hz)	3.5Grms (without onboard HDD)	
Compliance	Altitude	15,000ft, 55° C above sea level	40,000ft, -40° C above sea level
	VPX	OpenVPX (VITA 65)	
	Safety	FCC class A, CE, RoHS	
	EMC	FCC47 CFR Part15, Class A, CE Mark (EN55022/EN55024/EN300386)	

Note: 1. CFast and 2.5" SSD are mutually exclusive.

## Ordering Information

System Board Model Number	Front Panel						Main On-board Features					
	VGA	USB3.0 (type A)	USB2.0 (type A)	Ethernet (RJ-45)	Console (RJ-45)	XMC / PMC	CPU	Onboard Memory	CFast Socket	Storage Channel	SODIMM Socket	BMC
MIC-6311-A1I8E	1	2	1	2	1	1	i7-4700QE	8GB	1	1 SATA-III	1	No
MIC-6311-B1I8E	1	2	1	2	1	1	i5-4402E	8GB	1	1 SATA-III	1	No
MIC-6311-B2C8E	-	-	-	-	-	-	i5-4402E	8GB	1	-	-	Yes

