

MIC-5333

AdvancedTCA, Dual Socket CPU Blade with Intel® Xeon® E5 Series Processors, Dual-Dual 40G Fabric Interface and Acceleration Support

Preliminary



Features



- Two 8-Core Intel® Xeon® E5 Series processors
- Intel® Communications Chipset 89xx Series
- Eight DDR3 VLP DIMMs with ECC support
- Up to four 40GBaseKR4 ports on Fabric interface to support Dual-Dual Star Topology
- Other fabric configurations supported via two Fabric Mezzanine sites (type I)
- Two 10/100/1000BASE-T front panel ports
- One Fabric Mezzanine Module (type II) for optional front IO or additional acceleration
- Fully managed, hot swappable RTM with 36 PCIe gen.3 lanes



Introduction

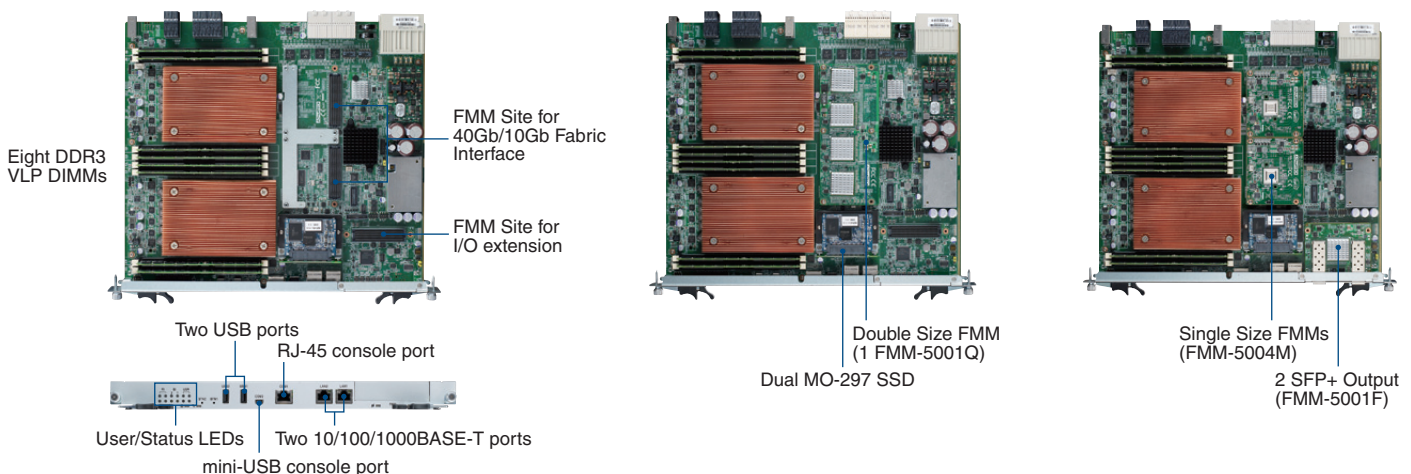
Advantech's MIC-5333 is a 40G dual processor ATCA blade based on the Intel® platform for communications infrastructure, formerly codenamed "Crystal Forest". It enables the highest network and packet processing performance available in ATCA form factor with up to 16 cores and 32 threads of processing power, scalable offload based on Intel® QuickAssist technology and support for up to four 40G fabric ports. Fast PCI Express gen. 3 technology running at up to 8Gbps per lane and best in class virtualization support combined with superior thermal design make it ideal for high performance applications and workload consolidation on Intel® architecture.

Two QPI interfaces between the CPUs improve memory and I/O access throughput and latencies when one processor needs to access resources hosted by the other socket. With four DDR3 DIMMs per socket in a quad channel design running up to 1600MT/s, the MIC-5333 not only offers superior memory bandwidth over 3-channel designs, but can also support memory densities up to 256GB using latest LR DIMM technology. It outperforms previous generation dual socket designs while keeping similar thermal characteristics with balanced airflow resistance.

Fabric connectivity is implemented using up to two FMM type I sites, each site connecting to two backplane fabric channels. This allows the MIC-5333 to scale from legacy 10GE to high speed 40GE network interfaces as well as optional dual dual star support for the most demanding applications in high end data and enterprise networking utilizing 4 hub blades per system. A variety of standard FMMs can be used to implement 10GBaseKX4, multiple 10GBaseKR & 40GBaseKR4 interfaces. Beyond that, a Fabric Mezzanine Module type II socket with PCIe x8 connectivity provides extension possibilities for additional front port I/O, offload and acceleration controllers such as the Intel® Communications Chipset 89xx Series, IPSec offload engines or customer specific logic. FMMs have higher PCI Express bandwidth than AMCs, and integrate better in terms of thermal design, cost and board real estate. Moreover, FMMs can be reused on RTMs and across different blade designs. This unmatched flexibility combined with the highest performance Intel® Xeons available make the MIC-5333 equally well suited for application and data plane workloads.

The onboard IPMI firmware based on Advantech's IPMI core offer greater modularity and flexibility for the customization of system management features, and provides the framework for added value features enhancing Reliability, Availability, Serviceability, Usability and Manageability (RASUM) of the product. HPM.1 based updates are available for all programmable components (BIOS, BIOS Settings, IPMC firmware, FPGA) including rollback support. Advantech's IPMI solution, combined with an optimized UEFI BIOS continues to offer advanced features used on previous generation MIC-532x blades, such as Dynamic Power Budgeting, BIOS redundancy, Real Time Clock Synchronization, CMOS Backup, CMOS Override and MAC Mirroring. Advantech IPMI firmware has been tested for CP-TA compliance using the Polaris Networks ATCA Test Suite and against a variety of AdvancedTCA shelf management solutions.

The MIC-5333 connects 36 PCIe gen.3 lanes to the zone 3 interface for a maximum of IO bandwidth to hot-swappable RTMs such as the RTM-5104, supporting rear I/O connectivity and an optional FMM (Fabric Mezzanine Module). Please contact Advantech for more information on available RTMs. On-board FPGA design facilitates customer-specific modifications and the core board design can be modified or adapted to other form factors through Advantech's DMS customization services.



Specifications

Processor System	CPU	Dual Intel® Xeon® E5 Series processors*
	Max. Speed	E5-2648L: 1.8 GHz (TDP 70W, 8 Cores/16 Threads, 20M L3 Cache) E5-2658: 2.1 GHz (TDP 95W, 8 Cores/16 Threads, 20M L3 Cache)
	Chipset	Intel® Communications Chipset 89xx Series
	BIOS	Redundant 64-Mbit BIOS firmware flashes with AMI UEFI based BIOS
	QPI	8.0 GT/s
Memory	Technology	Four channel DDR3 1066/1333/1600MHz SDRAM (72-bit ECC Un-/Registered), LR DIMM support
	Max. Capacity	Configurable up to 256 GB
	Socket	8 VLP DIMMs
Zone 2	Fabric Interface	4/8 x 10GBaseKR with dual star backplane topology supported (via FMM-5001Q) 2/4 x 40GBaseKR4 with dual / dual-dual star backplane topology supported (via FMM-5004M/5004MM)
	Base Interface	i350 quad GbE MAC/PHY supporting two 10/100/1000Base-T ports
Front I/O Interface	Serial (COM)	2 x 16C550 compatible Serial Ports (1 RJ-45 connector, 1 mini-USB connector)
	Ethernet	2 x 10/100/1000BASE-T through PCIe based i350
	USB 2.0	2 x Type A ports
Operating System	Compatibility	WindRiver Linux, RedHat Enterprise, CentOS6.1, Windows Server 2008
IPMC	BMC Controller	NXP LPC1768 (Cortex M3)
	IPMI	Compliant with IPMI 2.0 using Advantech IPMI code base
Watchdog Timer	Supervision	1 for x86 BIOS POST, OS Boot, Application
	Interval	IPMI compliant
FMM	Site	1 FMM type II socket, 2 FMM type I sockets
	Interface	FMM type I: 2 x PCIe x8 from CPU sockets 0 and 1 FMM type II: one PCIe x8 from CPU socket 1
Miscellaneous	Storage	2 x MO-297 SSD
	Real Time Clock	Built-in
Power Requirement	Configuration	2x E5-2658 (TDP 95W), 8 x DDR3 1600 8GB VLP Memory, FMM-5001Q (Quad i82599 for FI) , FMM-5001F (Single i82599, with 2x SFP+ output to Front Panel)
	Consumption	Input Voltage: -48V / 274W (Preliminary) Input Voltage: -60V / 279W (Preliminary)
Zone 3 (RTM)	RTM	Advantech common RTM interface Type 2
	Interface	2 x PCIe x16, 1 x PCIe x4, 2 x USB, 1 x UART, , 1 x COM
Physical Characteristics	Dimensions (W x D)	6HP, 322.25 x 280.00 mm (12.69" x 11.02") (PCB size)
	Weight	3.275 kg
Environment	Operating	Non-operating
	Temperature	0 ~ 55° C (32 ~ 131° F) -40 ~ 70° C (-40 ~ 158° F)
	Humidity	5 to 93% @ 40° C (non condensing) 95% @ 40° C (non-condensing)
	Shock	4 G each axis 20 G each axis
	Vibration (5 ~ 500 Hz)	0.5 Grms 2.16 Grms, 30 mins each axis
Compliance	Environment	ETSI EN300019-2-1 Class 1.2, EN300019-2-2 Class 2.3, ETSI EN300019-2-3 Class 3.1E Designed to meet GR63-CORE
	PICMG	3.0 R3.0, 3.1 R1.0, HPM.1
	EMC	FCC47 CFR Part15, Class A, CE Mark (EN55022/EN55024/EN300386) Designed to meet GR1089-CORE

*Note. MIC-5333 will be compliant to PICMG3.1R2.0 when released.

Ordering Information

Part Number	Description
MIC-5333N-P01	with dual 8C/16T 70W (E5-2648L) CPUs and FMM-5001Q for Four 10GBase KR FI interface, no memory, no MO-297 SSD
MIC-5333N-P02	with dual 8C/16T 95W (E5-2658) CPUs and FMM-5001Q for Four 10GBase KR FI interface, no memory, no MO-297 SSD
MIC-5333M-P01	with dual 8C/16T 70W (E5-2648L) CPUs and FMM-5004M for 40GBaseKR4 FI interface, no memory, no MO-297 SSD
MIC-5333M-P02	With dual 8C/16T 95W (E5-2658) CPUs and FMM-5004M for 40GBaseKR4 FI interface, no memory, no MO-297 SSD

Contact Advantech for information on available and future RTMs and FMMs.