

# FMM Series

## Extension Modules for Advantech CPU Boards



### Features

- PCIe based extension modules for ATCA CPU & RTM boards
- Implicit e-keying support
- Ideal to add additional I/O or customer-specific functionality to a standard product:
  - Different or additional I/O on a blade
  - Accelerators and offload engines to a platform
  - Backplane fabric ports on a blade
- FRU EEPROM on mezzanine for management
- Smaller, lower power & less expensive than AMC modules



### Introduction

Advantech's Fabric Mezzanine Modules (FMM) provide additional flexibility to Advantech ATCA CPU and RTM boards. Additional flexibility can be I/O ports such as 10GE SFP+ ports, 40GE networking, VGA server type graphics module, PCIe-based expression offload, as well various FI interfaces for ATCA CPU boards. Fabric Mezzanine Modules facilitate ease of system customization by using standard CPU boards and RTMs.

Fabric Mezzanine Modules have a PCIe x8 or x16 high speed local CPU / processor interface, which can be routed to local resources, or ATCA Zone 2/3. Advantech has defined two types of modules, Fabric mezzanine Type I and Fabric mezzanine Type II, offering different functionality dependent on the host board. Type I FMMs are internal mezzanines with PCIe and fabric connectivity, providing customized fabric interface, such as XAU1, KR, or KR4. Type II FMMs have the same PCB shape as Type I modules, but support I/O connectors and front panel mounting. With one PCIe x16 or two PCIe x8 gen.3 ports routed to the front CPU blade, the FMM socket is a perfect solution for I/O port expansion, and also customer-defined acceleration and interfaces. As FMM modules are less complex than AMC modules, customers can deploy faster with a customized design.

FMM-5001B



FMM-5001F



FMM-5001Q



FMM-5002



FMM-5004M



FMM-5006



## Specifications

	Fabric mezzanine type I*			Fabric mezzanine type II		
FMM Module/ Main Chip	FMM-5001B	Intel® 82599EB		FMM-5001F	Intel® 82599ES	
	FMM-5001Q	4 x Intel® 82599ES		FMM-5002	Silicon Motion SM750	
	FMM-5004M	Mellanox CX3		FMM-5006	Intel® Communications Chipset 8900 Series	
Management	EEPROM FRU	Microchip 24LC32A				
	Thermal IC	TI TMP75AIDR				
Protocol / I/O ports	FMM-5001B	Dual ports XAUI to backplane				
	FMM-5001F	2 SFP+				
	FMM-5001Q	Dual ports 4 x KR to backplane				
	FMM-5002	VGA				
	FMM-5004M	Dual ports KR4 to backplane				
	FMM-5006	Quick Assist				
Power Requirement	FMM-5001B 7.35W	FMM-5001F 9.29W	FMM-5001Q 29.4W	FMM-5002 4.54W	FMM-5004M 6.8W	FMM-5006 28.08W Max
Physical Characteristics	Dimensions (W x D)	Single Size (75mm x 64mm): FMM-5001B, FMM-5001F, FMM-5002, FMM-5004M, FMM-5006 Double Size (150mm x 64mm): FMM-5001Q				
	Weight	FMM-5001B 75g	FMM-5001F 75g	FMM-5001Q 90g	FMM-5002 60g	FMM-5004M 35g
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	3G, half-sine 11ms, each axis			18G, half-sine 11ms, each axis	
	Vibration	5 - 200 Hz, 0.2G, each axis			5 Hz to 20 Hz @ 1 m2/s3 (0.01 g2 /Hz) (flat) 20 Hz to 200 Hz @ -3 dB/oct (slope down) 95% @ 40° C (non-condensing)	
Compliance	Environment	ETSI EN300019-2-1 Class1.2, EN300019-2-2 Class 2.3, ETSI EN300019-2-3 Class 3.1E				
	PICMG	3.0 R3.0, HPM.1, IRTM.0				
	EMC	CSAC22.2 FCC47 CFR Part15, Class A, CE Mark (EN55022/EN55024/EN300386) Designed to meet GR1089-CORE				

\*Note: Type I FMMs do not include a front panel, other than the FMM-5001B

## Compatibility

	FMM-5001B	FMM-5001F	FMM-5001Q	FMM-5002	FMM-5004M	FMM-5006
MIC-5332	Yes	Yes	-	Yes	-	Yes
MIC-5333	Yes	Yes	Yes	Yes	Yes	Yes
RTM-5104	-	Yes	-	Yes	-	Yes
MIC-5342	-	Yes	-	Yes	-	Yes
MIC-5345	-	Yes	-	Yes	-	Yes

## Ordering Information

Part Number	Description
FMM-5001BE	10GE Dual-dual star FI support
FMM-5001FE	10GE Intel® 82599ES with dual SFP+ output
FMM-5001QE	Quad Intel® 82599ES for 40GE FI support
FMM-5002E	Server graphic with one external VGA port
FMM-5004ME	Mellanox CX3 for 40GE FI support
FMM-5006AE	Intel® DH8920 PCH QuickAssist Accelerator
FMM-5006TE	Intel® DH8955 PCH QuickAssist Accelerator

## Related Products

Model Name	Description
MIC-5332 series	ATCA CPU blade with dual Intel® Xeon® CPU
MIC-5333 series	ATCA CPU blade with dual Intel® Xeon® CPU
MIC-5342 series	ATCA CPU blade with dual Intel® Xeon® CPU
MIC-5345 series	ATCA CPU blade with dual Intel® Xeon® CPU
RTM-5104 series	AdvancedTCA® RTM for MIC-5332