# MIC-5401

### **Advanced Mezzanine Card SAS/SATA Storage AMC**



#### **Features**

- Single-width mid-size AMC form factor
- SAS or SATA 2.5" hard disk drive compatible
- Hot-swap capable
- AdvancedTCA and MicroTCA compatible
- Dual port SAS drive support
- 3.0 Gb/s interface speed support
- Two thermal sensors to monitor on-board temperatures
- System management compliant to PICMG3.0 R2.0, AMC.0 R2.0, AMC.3 R1.0, and IPMI1.5
- Power-on hour counter
- HPM.1 compliant firmware upgrade and rollback support through IPMB





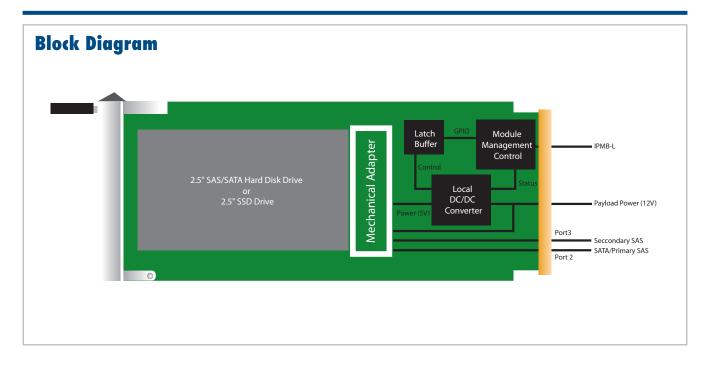


#### Introduction

The Advantech MIC-5401 is a single-width/mid-size Advanced Mezzanine Card (AMC) designed to support a 2.5" SAS or SATA hard disk drive to work as an enterprise storage module on an ATCA platform or in a MicroTCA shelf. The 2.5" hard disk drive is connected to the AMC port 2 (SAS and SATA) and port 3 (SAS only) according to the AMC.3 specifications. Dual port SAS drives may be used on the MIC-5401 to increase the interface bandwidth of failover support between dual hosts in fault tolerant environments. Like all other standard AMC modules, an IPMI-based module management controller (MMC) is also implemented on the MIC-5401 to serve as a communication interface to the Carrier Management Controller on an ATCA platform, or to the MicroTCA Carrier Management Controller on the MicroTCA Carrier Hub in a MicroTCA shelf. As a local IPMI controller on the AMC, it manages all hot-swap activities, E-keying, and hardware heath monitoring such as voltages (12V, 5V, and management power 3.3V) and on-board temperatures (including hard disk drive's ambient temperature). The MIC-5401's mechanical design is optimized for a maximum of shock and vibration durability combined with a user- and service friendly mounting process for the disk drive.

## **Specifications**

Single width, mid-size form factor (full-size front panel available as an option)   Storage Device Supported   2.5" SAS or SATA hard disk drives, or 2.5" SATA SSD (solid state drive)   PICMG 3.0 R2.0, AMC.0 R2.0, and IPMI 1.5 compliant Redundant firmware images based on Pigeon Point Systems' solution supporting HPM.1 compliant upgrades and manual/automatic rollback				
System Management PICMG 3.0 R2.0, AMC.0 R2.0, and IPMI 1.5 compliant Redundant firmware images based on Pigeon Point Systems' solution supporting HPM.1 compliant upgrades and manual/automatic rollback  Power-on hour counter Voltage: 12 V, 5 V, and 3.3 V management power Temperature: two on-board locations  Watchdog AMC compliant watchdog Thermal Sensor LM75/DS75 (x2)  Temperature and humidity (operating) Temperature and humidity (non-operating) GR-63-CORE, Issue 3, R4-7 (-5° C ~55° C; 5% ~95%RH)  GR-63-CORE, Issue 3, R4-7 (-40° C ~70° C; 95%RH)  Altitude GR-63-CORE, Issue 3, R4-8, R4-9, R4-10, R4-11, R4-12 (-60 m ~4000 m) Vibration (operating) Vibration (non-operating) IEC 60068-2-64 (0.002G/Hz, 1 Grms, 5 ~500 Hz) Vibration (non-operating) Shock (operating) Shock (non-operating) IEC 60068-2-27 (half-Sine, 10 G, 11 ms) Shock (non-operating) IEC 60068-2-27 (half-Sine, 10 G, 11 ms) Conformance UL94V0, FCC Class B, CE, RoHS & WEEE compliant NEBS Level 3 Designed for GR-63-CORE and GR-1089-CORE	AMC Module	Single width, mid-size form factor (full-size front panel available as an option)		
Redundant firmware images based on Pigeon Point Systems' solution supporting HPM.1 compliant upgrades and manual/automatic rollback  Power-on hour counter  Voltage: 12 V, 5 V, and 3.3 V management power Temperature: two on-board locations  Watchdog AMC compliant watchdog Thermal Sensor LM75/DS75 (x2)  Temperature and humidity (operating) Temperature and humidity (non-operating) Temperature and humidity (non-operating)  Environmental Conditions  Altitude GR-63-CORE, Issue 3, R4-7 (-40° C ~ 70° C; 95%RH)  Vibration (operating) Vibration (non-operating) Vibration (non-operating) Shock (operating) Shock (operating) IEC 60068-2-64 (0.002G²/Hz, 1 Grms, 5 ~ 500 Hz) Vibration (non-operating) Shock (operating) Shock (non-operating) IEC 60068-2-27 (half-Sine, 10 G, 11 ms) Shock (non-operating) IEC 60068-2-27 (half-Sine, 30 G, 11 ms)  Regulatory  Regulatory  Redundant firmware images based on Pigeon Point Systems' solution supporting HPM.1 compliant upgrades and manual/automatic rollback Power-on hour counter Voltage: 12 V, 5 V, and 3.3 V management power Temperature: woo n-board locations  Redundant images based on Pigeon Point Systems' solution supporting HPM.1 compliant upgrades and manual/automatic rollback Power-on hour counter Voltage: 12 V, 5 V, and 3.3 V management power Temperature: woo n-board locations  Redundant images based on Pigeon Power Temperature: woo n-board locations  Redundant images based on Pigeon Power Temperature: woo n-board locations  Redundant images based on Pigeon Power Temperature: woo n-board locations  Redundant images based on Pigeon Power Temperature: woo n-board locations  Redundant images based on Pigeon Power Temperature: woo n-board locations  Redundant images based on Pigeon Power Temperature: woo n-board locations  Redundant images based on Pigeon Power Temperature: woo n-board locations  Redundant images based on Pigeon Power Temperature: woo n-board locations  Redundant images based on Pigeon Power Temperature on power Temperature on power Temperature on power Temperature on powe	Storage Device Supported	2.5" SAS or SATA hard disk drives, or 2.5" SATA SSD (solid state drive)		
Redundant firmware images based on Pigeon Point Systems solution supporting HPM.1 compliant upgrades and manual/automatic folloack   Power-on hour counter	System Management	PICMG 3.0 R2.0, AMC.0 R2.0, and IPMI 1.5 compliant		
Power-on hour counter  Voltage: 12 V, 5 V, and 3.3 V management power Temperature: two on-board locations  Watchdog AMC compliant watchdog Thermal Sensor LM75/DS75 (x2)  Temperature and humidity (operating) Temperature and humidity (non-operating)  Environmental Conditions  Altitude GR-63-CORE, Issue 3, R4-7 (-40° C ~ 70° C; 95%RH)  Altitude GR-63-CORE, Issue 3, R4-8, R4-9, R4-10, R4-11, R4-12 (-60 m ~ 4000 m)  Vibration (operating) Vibration (non-operating)  EC 60068-2-64 (0.002G²/Hz, 1 Grms, 5 ~ 500 Hz)  Vibration (non-operating)  Shock (operating)  EC 60068-2-27 (half-Sine, 10 G, 11 ms)  Shock (non-operating)  LEC 60068-2-27 (half-Sine, 30 G, 11 ms)  Conformance UL94V0, FCC Class B, CE, RoHS & WEEE compliant NEBS Level 3  Designed for GR-63-CORE and GR-1089-CORE		Redundant firmware images based on Pigeon Point Systems' solution supporting HPM.1 compliant upgrades and manual/automatic rollback		
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Watchdog         AMC compliant watchdog           Thermal Sensor         LM75/DS75 (x2)           Environmental Conditions         Temperature and humidity (operating)         GR-63-CORE, Issue 3, R4-7 (-5° C ~ 55° C; 5% ~ 95%RH)           GR-63-CORE, Issue 3, R4-7 (-40° C ~ 70° C; 95%RH)         GR-63-CORE, Issue 3, R4-8, R4-9, R4-10, R4-11, R4-12 (-60 m ~ 4000 m)           Vibration (operating)         IEC 60068-2-64 (0.002G²/Hz, 1 Grms, 5 ~ 500 Hz)           Vibration (non-operating)         IEC 60068-2-6 (2 G, 5 ~ 500 Hz, 1 Octave/min)           Shock (operating)         IEC 60068-2-27 (half-Sine, 10 G, 11 ms)           Shock (non-operating)         IEC 60068-2-27 (half-Sine, 30 G, 11 ms)           Regulatory         UL94V0, FCC Class B, CE, RoHS & WEEE compliant           NEBS Level 3         Designed for GR-63-CORE and GR-1089-CORE		Voltage: 12 V, 5 V, and 3.3 V management power		
Thermal Sensor		Temperature: two on-board locations		
Temperature and humidity (operating)	Watchdog	AMC compliant watchdog		
Conference   Con	Thermal Sensor	LM75/DS75 (x2)		
Environmental Conditions	Environmental Conditions		GR-63-CORF Issue 3 R4-7 (-5° C ~ 55° C: 5% ~ 95%RH)	
Conformance		( )		
Vibration (operating)   IEC 60068-2-64 (0.002G²/Hz, 1 Grms, 5 ~ 500 Hz)			GR-63-CORE, Issue 3, R4-7 (-40° C ~ 70° C; 95%RH)	
Vibration (non-operating)   IEC 60068-2-6 (2 G, 5 ~ 500 Hz, 1 Octave/min)		Altitude	GR-63-CORE, Issue 3, R4-8, R4-9, R4-10, R4-11, R4-12 (-60 m ~ 4000 m)	
Shock (operating)   IEC 60068-2-27 (half-Sine, 10 G, 11 ms)		Vibration (operating)	IEC 60068-2-64 (0.002G <sup>2</sup> /Hz, 1 Grms, 5 ~ 500 Hz)	
Shock (non-operating) IEC 60068-2-27 (half-Sine, 30 G, 11 ms)  Conformance UL94V0, FCC Class B, CE, RoHS & WEEE compliant  NEBS Level 3 Designed for GR-63-CORE and GR-1089-CORE		Vibration (non-operating)	IEC 60068-2-6 (2 G, 5 ~ 500 Hz, 1 Octave/min)	
Regulatory  Conformance NEBS Level 3  UL94V0, FCC Class B, CE, RoHS & WEEE compliant Designed for GR-63-CORE and GR-1089-CORE		Shock (operating)	IEC 60068-2-27 (half-Sine, 10 G, 11 ms)	
NEBS Level 3 Designed for GR-63-CORE and GR-1089-CORE		Shock (non-operating)	IEC 60068-2-27 (half-Sine, 30 G, 11 ms)	
NEDS Level 5 Designed for Gn-03-Cone and Gn-1009-Cone	Regulatory	Conformance	UL94V0, FCC Class B, CE, RoHS & WEEE compliant	
Chandles Chanderde DIOMO 2 0 D2 0 AMO 0 D2 0 AMO 0 D4 0 IDMI4 F and COODE Advanced MO Hardware Profile V/4 0		NEBS Level 3	Designed for GR-63-CORE and GR-1089-CORE	
Compnance Standards Picing 3.0 N2.0, Aimc.0 N2.0, AMIC.3 N1.0, PIMIT.5, and Scope Advanceding Hardware Profile V1.0	Compliance	Standards	PICMG 3.0 R2.0, AMC.0 R2.0, AMC.3 R1.0, IPMI1.5, and SCOPE AdvancedMC Hardware Profile V1.0	



# **Ordering Information**

Model Number	Front Panel
MIC-5401-0000E	Mid-Size

#### Note:

- 1. AMC modules with pre-installed hard disk or solid state disk drives are available on request. Please contact Advantech sales representative for further detail.
- 2. Full size front panel is available on request.