

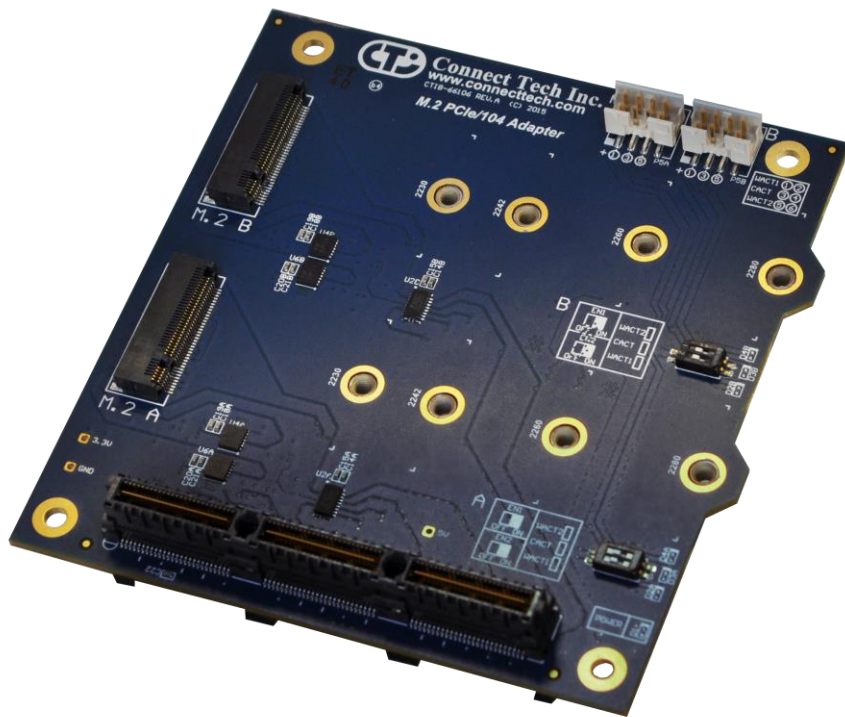


Connect Tech Inc.

Embedded Computing Experts

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PCIe/104 M.2 Adapter Users Guide



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Preface

Disclaimer

The information contained within this user's guide, including but not limited to any product specification, is subject to change without notice.

Connect Tech assumes no liability for any damages incurred directly or indirectly from any technical or typographical errors or omissions contained herein or for discrepancies between the product and the user's guide.

Customer Support Overview

If you experience difficulties after reading the manual and/or using the product, contact the Connect Tech reseller from which you purchased the product. In most cases the reseller can help you with product installation and difficulties.

In the event that the reseller is unable to resolve your problem, our highly qualified support staff can assist you. Our support section is available 24 hours a day, 7 days a week on our website at: www.connecttech.com/sub/support/support.asp. See the contact information section below for more information on how to contact us directly. Our technical support is always free.

Contact Information

Mail/Courier

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Note:

Please go to the [Download Zone](#) or the [Knowledge Database](#) in the [Support Center](#) on the Connect Tech website for product manuals, installation guides, device driver software and technical tips. Submit your technical support questions to our customer support engineers via the [Support Center](#) on the Connect Tech website.

Telephone/Facsimile

Technical Support representatives are ready to answer your call Monday through Friday, from 8:30 a.m. to 5:00 p.m. Eastern Standard Time. Our numbers for calls are:

Toll Free: 800-426-8979 (North America only)

Telephone: 519-836-1291 (Live assistance available 8:30 a.m. to 5:00 p.m. EST, Monday to Friday)

Facsimile: 519-836-4878 (on-line 24 hours)



Limited Product Warranty

Connect Tech Inc. provides a 2 year Warranty for the PCIe/104 M.2 Adapter. Should this product, in Connect Tech Inc.'s opinion, fail to be in good working order during the warranty period, Connect Tech Inc. will, at its option, repair or replace this product at no charge, provided that the product has not been subjected to abuse, misuse, accident, disaster or non-Connect Tech Inc. authorized modification or repair.

You may obtain warranty service by delivering this product to an authorized Connect Tech Inc. business partner or to Connect Tech Inc. along with proof of purchase. Product returned to Connect Tech Inc. must be pre-authorized by Connect Tech Inc. with an RMA (Return Material Authorization) number marked on the outside of the package and sent prepaid, insured and packaged for safe shipment. Connect Tech Inc. will return this product by prepaid ground shipment service.

The Connect Tech Inc. Limited Warranty is only valid over the serviceable life of the product. This is defined as the period during which all components are available. Should the product prove to be irreparable, Connect Tech Inc. reserves the right to substitute an equivalent product if available or to retract the Warranty if no replacement is available.

The above warranty is the only warranty authorized by Connect Tech Inc. Under no circumstances will Connect Tech Inc. be liable in any way for any damages, including any lost profits, lost savings or other incidental or consequential damages arising out of the use of, or inability to use, such product.

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ESD Warning



Electronic components and circuits are sensitive to ElectroStatic Discharge (ESD). When handling any circuit board assemblies including Connect Tech Adapter Board assemblies, it is recommended that ESD safety precautions be observed. ESD safe best practices include, but are not limited to:

- Leaving circuit boards in their antistatic packaging until they are ready to be installed.
- Using a grounded wrist strap when handling circuit boards, at a minimum you should touch a grounded metal object to dissipate any static charge that may be present on you.
- Only handling circuit boards in ESD safe areas, which may include ESD floor and table mats, wrist strap stations and ESD safe lab coats.
- Avoiding handling circuit boards in carpeted areas.
- Try to handle the board by the edges, avoiding contact with components.

Revision History

Revision	Date	Changes
0.00	2016-06-21	Preliminary Release

Introduction

Connect Tech's PCIe/104 M.2 Adapter Board is an engineering tool for the purpose of enabling rapid development of systems requiring the use of next generation form factor peripheral cards.

Available in multiple loadouts, see the ordering information for more details.

Product Features and Specifications

Specifications	
Form Factor	PCIe/104 standard size
Expansion Slots	M.2 (NGFF) 2230, 2242, 2260, 2280 Key E or key B available
SATA SSD	SATA III (6 Gb/s) interface, supported by key B
USB WWAN Interface	WWAN over USB, key B Include SIM slot(s)
WiFi Support	WiFi over PCIe and USB, Key E
Connectors	PCIe/104, M.2 Key B, M.2 Key E. Exact loadout depends on part number, see ordering information for more details.
Power	+5V over PCIe/104
Operating Temperature	Industrial -40C to +80C
Compliance	ROHS

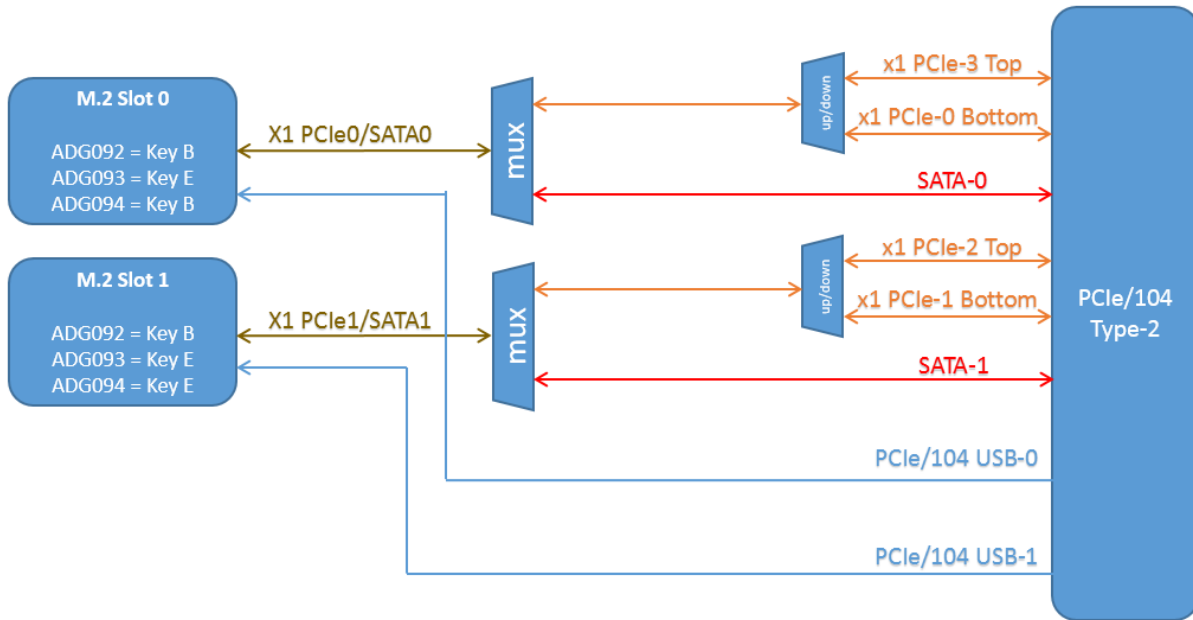
Part Numbers / Ordering Information

Part Number	Slot A	Slot B
ADG092	Key B	Key B
ADG093	Key E	Key E
ADG094	Key B	Key E

Key B accepts cards with Key B or B&M. typical usage is SATA SSD or Cellular devices
 Key E accepts cards with Key E or A&E. Typical usage is WiFi or PCIe x1 devices

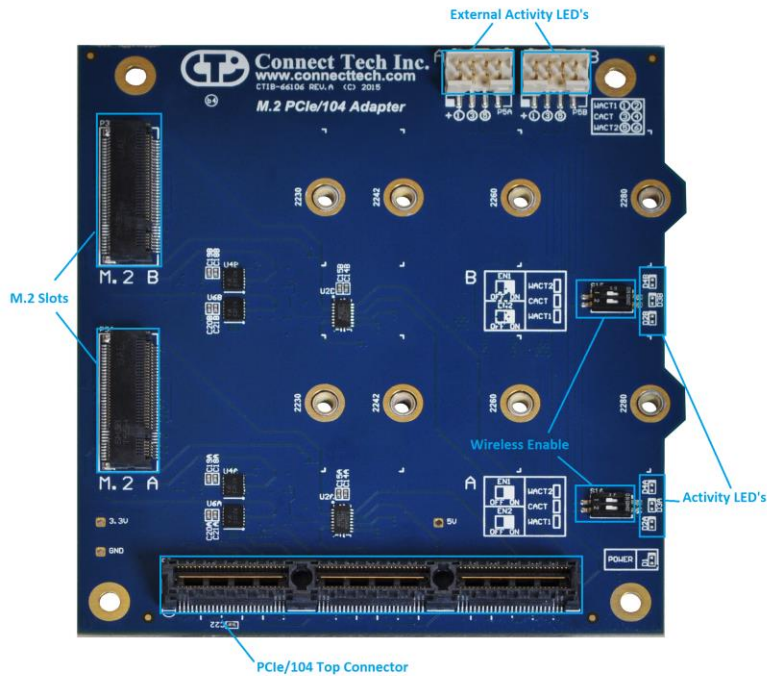
Product Overview

Block Diagram

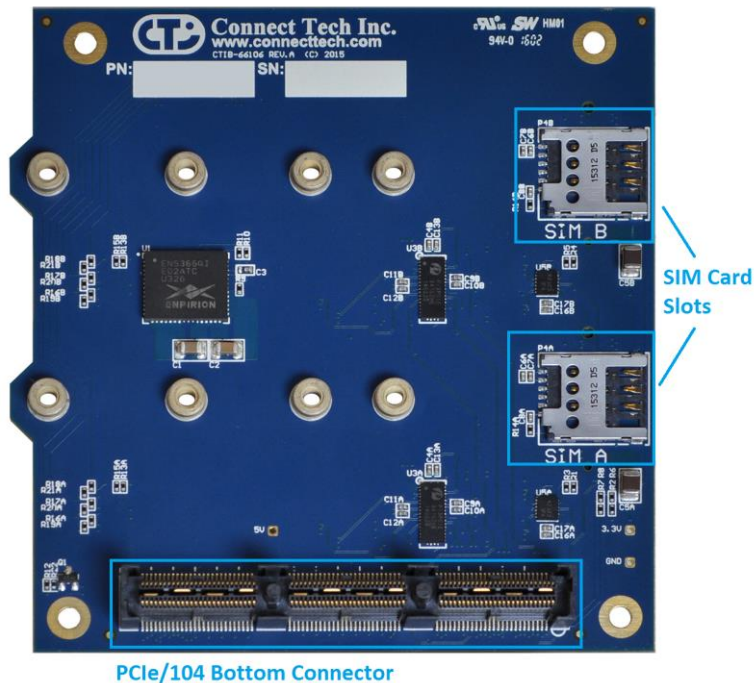


Connector Summary & Locations

ADG092/093/094 Top View



ADG092/093/094 Bottom View



Connector Summary & Locations

Designator	Description
P1	PCIe/104 Bottom Connector
P2	PCIe/104 Top Connector
P3A	M.2 Slot A
P3B	M.2 Slot B
P5A	Activity LEDs
P5B	Activity LEDs

Jumper Summary & Locations

Designator	Description
J1	SATA Detect Pin
S1A	WiFi Hardware Disable
S1B	WiFi Hardware Disable



Assembly Instructions

Card Installation

To install card, insert expansion card edge into P3A or P3B. Place the included spacer between ADG092/093/094 and expansion card, and use the included screw to secure card in place.

Detailed Feature Description

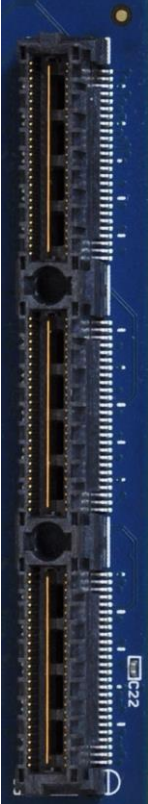
PCIe/104 Connector

Description


PCIe/104 interface to CPU module

Connectors & Jumpers

Function	PCIe/104 Top Interface
Location	P2
Type	Samtec fine pitch stacking connector, part number: ASP129637-03
Pinout	Refer to PCI/104-Express & PCIe/104 Specification, Rev 2.01





Function	PCIe/104 Bottom Interface	
Location	P1	
Type	Samtec fine pitch stacking connector part number: ASP-129646-03	
Pinout	Refer to PCI/104-Express & PCIe/104 Specification, Rev 2.01	

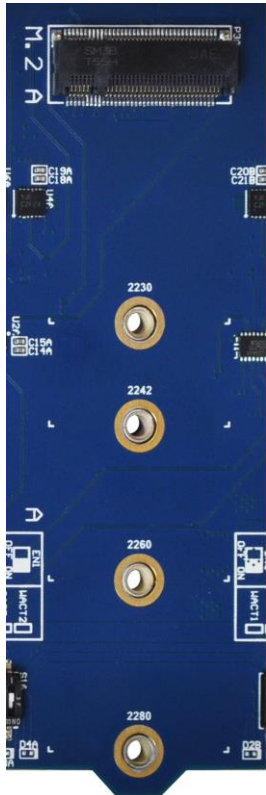
M.2 Expansion Slots

Description

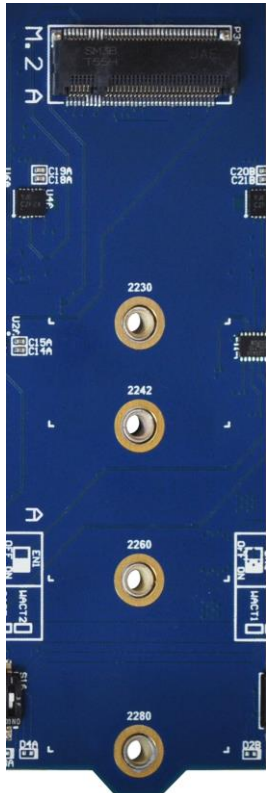
M.2 interface slots for expansion cards. Can be ordered in either key E or key BM. Card type support is listed below.

See Part Numbers/Ordering Information section for more ordering details.

Connectors & Jumpers

Function	M.2 Expansion, Key E	
Location	P3A/P3B	
Type	Used for wireless networking cards such as Intel 7260 JAE fine pitch edge card receptacle part number: SM3ZS067U410AER1000	
Pinout	See M.2 Specification Revision 1.0 for full details	



Function	M.2 Expansion, Key B	
Location	P3A/P3B	
Type	Used for SATA, GPS or Cellular cards. JAE fine pitch edge card receptacle part number: SM3ZS067U410ABR1000	
Pinout	See M.2 Specification Revision 1.0 for full details	

Function		
Location	J1	
Type	SATA Detect Pin (Optional)	
Jumper settings	Position	Description
	SATA_DET1	SATA Detect slot B
	SATA_DET0	SATA Detect slot A
	Insertion of jumpers will ground SATA detect lines. By default jumpers are not installed, leaving them open.	

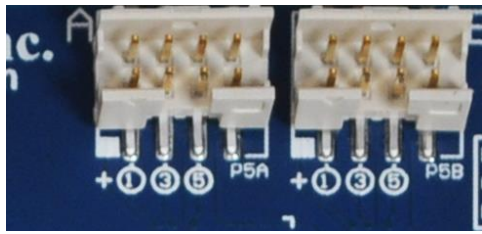
Indicator LEDs

Description

Header for use of optional external LED's.

Connectors & Jumpers

Function	Indicator LED's	
Location	P5A, P5B	
Type	PN: 98424-G52-08LF	
Pinout	Pin	Description
	1	LED1
	2	+3.3V
	3	LED1
	4	+3.3V
	5	LED2
	6	+3.3V
	7	N/C
8	N/C	



See M.2 Specification Revision 1.0 for full details

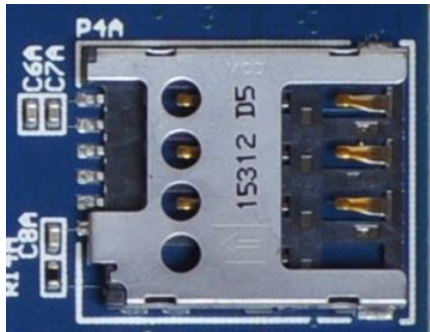
SIM Card Slots

Description

SIM Card slot for use with GPS expansion cards

Connectors & Jumpers

Function	SIM Card Slot
Location	P4A, P4B
Type	SIM Card slot for use with GPS or Cellular expansion cards
Pinout	See M.2 and GPS specifications for full details

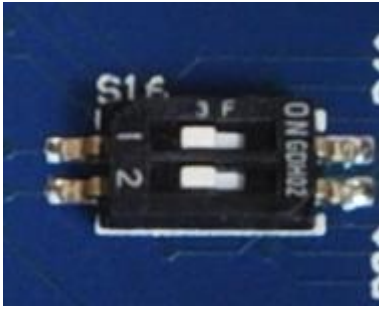


WiFi Hardware Disable

Description

Switches for disabling WiFi expansion cards

Connectors & Jumpers

Function	WiFi Hardware Disable Switch	
Location	S1A, S1B	
Description	Put switches in ON to enable WiFi devices, OFF to disable.	