Connect Tech Inc.
Embedded Computing Experts

USERS GUIDE

Rogue-T5 Carrier for NVIDIA® Jetson Thor™

CTIM-00160 Revision 0.00 2026-03-04

NVIDIA Elite Partner

CONNECT TECH
connecttech.com
sales@connecttech.com

TABLE OF CONTENTS

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: http://connecttech.com/support/resource-center/. See the contact information section below for more information on how to contact us directly. Our technical support is always free.

Contact Information

Contact Information	
Mail/Courier	Connect Tech Inc. Technical Support 489 Clair Rd. W. Guelph, Ontario Canada N1L 0H7
Contact Information	sales@connecttech.com connecttech.com Toll Free: 800-426-8979 (North America only) Telephone: +1-519-836-1291 Facsimile: 519-836-4878 (on-line 24 hours)
Support	Please go to the Connect Tech Resource Center for product manuals, installation guides, device drivers, BSPs and technical tips. Submit your technical support questions to our support engineers. Technical Support representatives are available Monday through Friday, from 8:30 a.m. to 5:00 p.m. Eastern Standard Time.

Limited Product Warranty

Connect Tech Inc. provides a 1-year Warranty for this product. 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.

Copyright Notice

Trademark Acknowledgment

Connect Tech, Inc. acknowledges all trademarks, registered trademarks and/or copyrights referred to in this document as the property of their respective owners. Not listing all possible trademarks or copyright acknowledgments does not constitute a lack of acknowledgment to the rightful owners of the trademarks and copyrights mentioned in this document.

ESD Warning

Electronic components and circuits are sensitive to ElectroStatic Discharge (ESD). When handling any circuit board assemblies including Connect Tech carrier 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	2026-02-04	Preliminary Release

INTRODUCTION

Connect Tech's Rogue-T5 (AGX302) is a full featured NVIDIA® Jetson Thor™ module carrier board. This carrier board is specifically designed for commercially deployable platforms and has a small footprint of 92mm x 108mm.

Rogue-T5 provides access to an impressive list of latest generation interfaces on the NVIDIA® Jetson Thor™. See the table below for a full list of product features.

Rogue-T5 has been designed to be compatible with Connect Tech's camera add-on expansion boards such as the JCB009, JCB022, JCB003 and more to interface directly with NVIDIA® Jetson Thor™ high density MIPI CSI interfaces.

Product Features and Specifications

Specifications	
Compatibility	NVIDIA® Jetson Thor™ T5000/T4000/ NVIDIA® IGX Thor™ 5000 (no SMCU)
Ethernet	2 x 10GBase-T Ethernet (from AQR113) – Rugged Locking IX Connector 1 x 2.5GBase-T Ethernet (from Intel i226) – Rugged Locking IX Connector
USB	1x USB 3.2 USB Gen2 10Gbps (Type-C w/ OTG) 1x USB 3.2 USB Gen2 10Gbps (Rugged Locking High-Speed Samtec ARF6 Connector) **XBG026** Breakout Board used to breakout to standard USB-C connector
Debug USB UART	1x Micro USB UART Port
Storage	1x NVMe M.2 Key M Slots
Input Power	**+12V DC Input Power Only** (Positive Locking 6-pin Molex Mini-Fit Jr Header)
Display Output	1x DisplayPort – Rugged Locking High-Speed Samtec ARF6 Connector **XBG037** Breakout Board used to breakout to standard DisplayPort connector
Camera Input	1x 16-Lane MIPI Expansion Connector
User Expansion	1x M.2 Key E Slot with PCIe & USB (Wi-Fi + BT Modules)
CAN Bus	4x CAN 2.0b Ports on TFM Connector
Misc IO	2x UART (3.3V UART0 and UART1) 1x I2C (3.3V) 2x RS-232 (UART4 and UART5) 3x GPIO (3.3V level shifted) 1x PWM (3.3V level shifted) 1x I2S (1.8V)
RTC Battery	1x 3-pin Molex PicoBlade Connector
Fan	2x 4-pin Molex PicoBlade Connector
Mechanical Information	92mm x 108mm
Operating Temperature (Carrier Board Only)	-40°C to +85°C (-40°F to +185°F)
Weight (carrier board and PHY heatsink only)	136 grams
Warranty and Support	1 Year

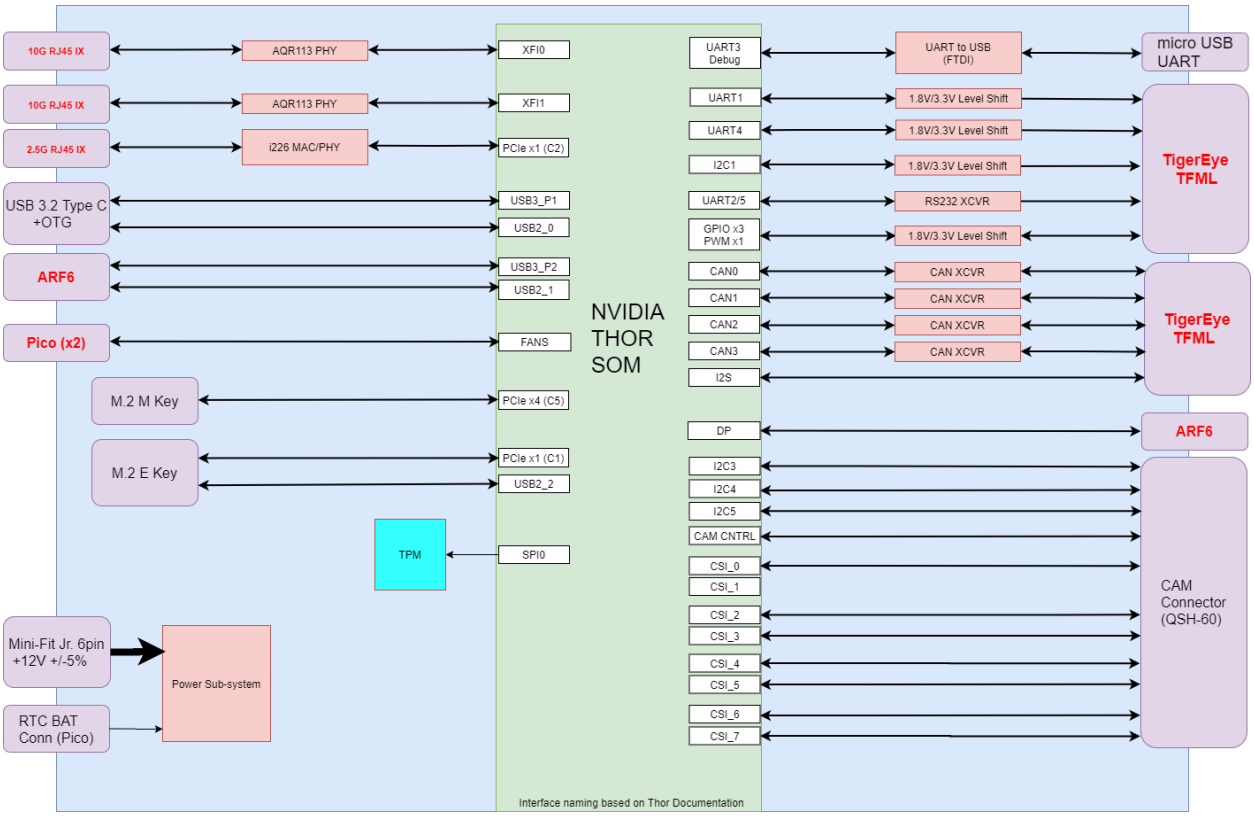
Note 1: Thor™ module operating temperature is from -25°C to a maximum TTP temperature of 80°C

Part Numbers / Ordering Information

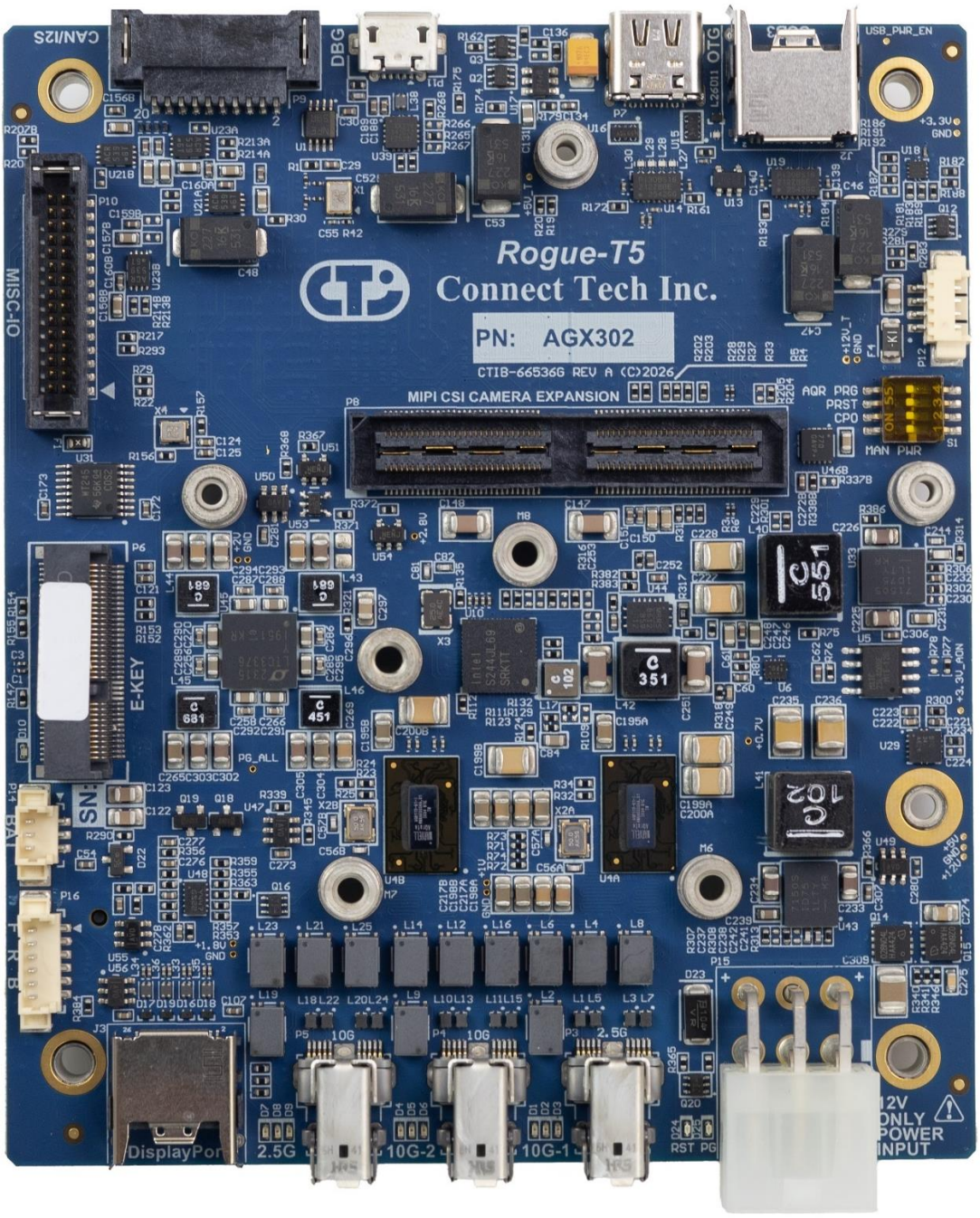
Part Number	
AGX302	Carrier Only
AGX302-XXX	Pre-Integrated Products – ask sales@connecttech.com for more options
MSG103	PSU 6pin +12V 252W (CTI provided power brick)
XBG037	DisplayPort Breakout

PRODUCT OVERVIEW

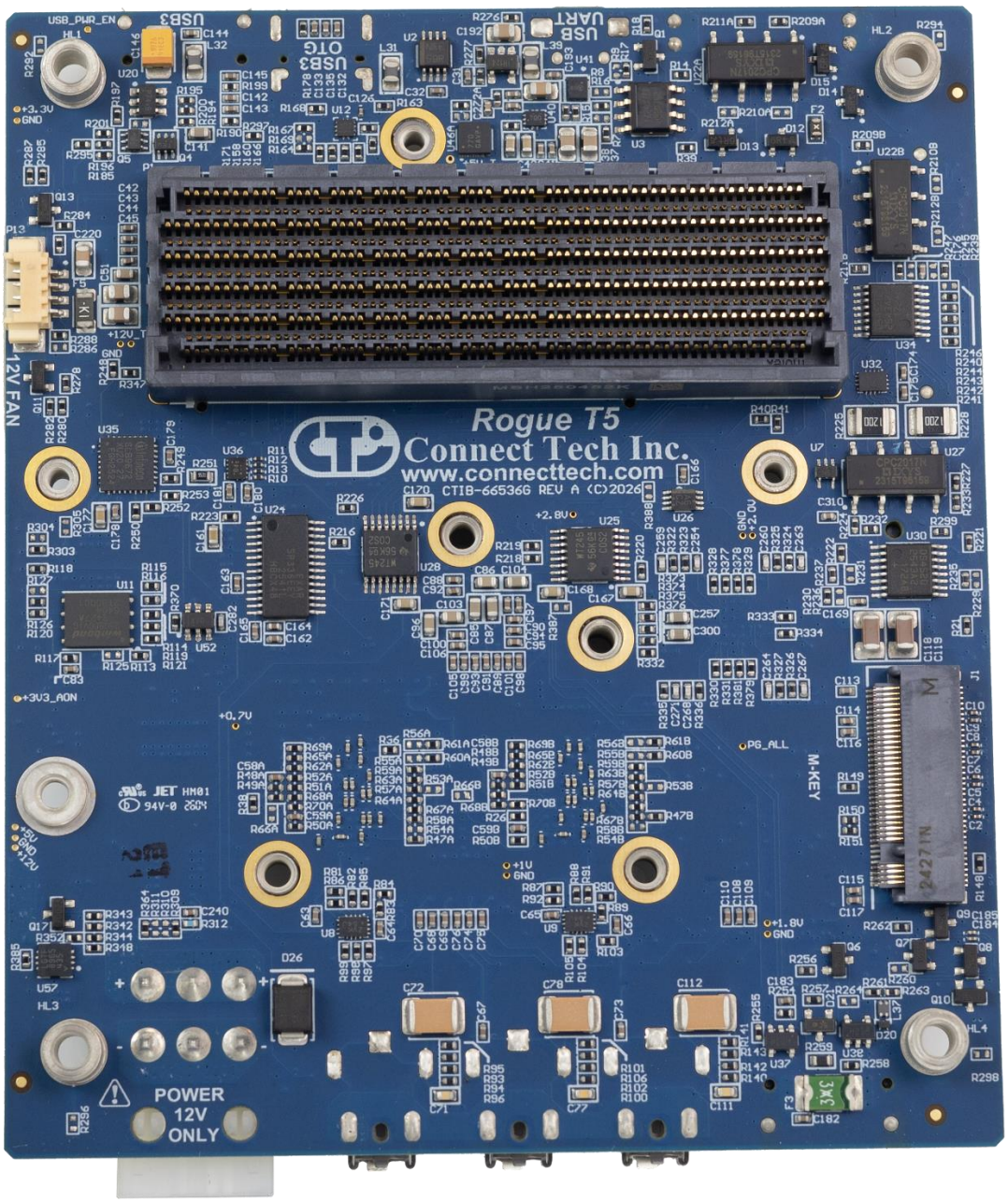
Block Diagram



Board (Top Side)



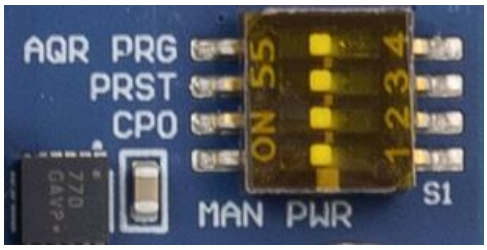
Board (Bottom Side)



Connector Summary & Locations

Designator	Description
P1	Jetson Thor™ connector
P3, P4	10GBase-T Ethernet IX Connector
P5	2.5GBase-T Ethernet IX Connector
P6	M.2 E-Key connector (2230)
P7	USB-C OTG Port
P8	MIPI Camera Expansion connector
P9	CAN/I2S Connector
P10	GPIO/I2C/UART/RS232-485 Connector
P11	Micro-USB Debug UART
P12, P13	12V Fan Connector
P14	RTC Battery Connector
P15	6-pin Mini-Fit Jr Power Connector
P16	PWR, RST and Force Recovery Header
J1	M.2 M-Key (NVMe) Connector
J2	USB3 ARF6 Connector
J3	DisplayPort ARF6 Connector

Dip Switch Summary & Locations

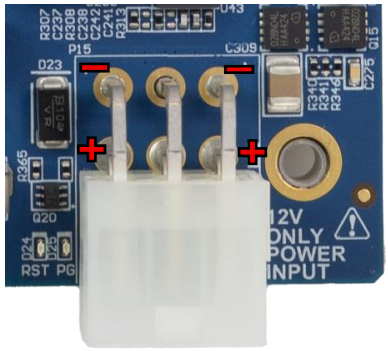
Designator	Description
S1	*Power Selection and MFG settings Dip Switch* 1 – **POWER ON Mode Selection Auto-ON Mode = OFF, Manual Mode = ON** 2 – *Used for Manufacturing test only* 3 – *Used for Manufacturing test only* 4 – *Used for Manufacturing test only* 

DETAILED FEATURE DESCRIPTION

Power Connector

Power Input: 12V ONLY input

Function	Rogue-T5 Power Supply Connector
Location	P15
Type	Mini Fit Jr 2x3 Right Angled
Connector	Part Number: 39301061 Manufacturer: Molex
Mating Connector	Receptacle Housing 5557 series Cable Assembly 45135 series
Pinout	Pin # / Description 1-3 / +12V ONLY 4-6 / GND



Jetson Thor™ Board-to-Board Carrier Connector

With the NVIDIA® Jetson Thor™, the processor and chipset are implemented on the module.

Function	NVIDIA® Jetson Thor™ Module Interface
Location	P1
Type	Molex Mirror Mezz™ Connector
Connector	Part Number: 203456-0003 Manufacturer: Molex
Mating Connector	Same as above.
Pinout	Refer to NVIDIA® Jetson Thor™ System-on-Module datasheet and OEM design guide for pinout details

10G Ethernet (2 Ports)

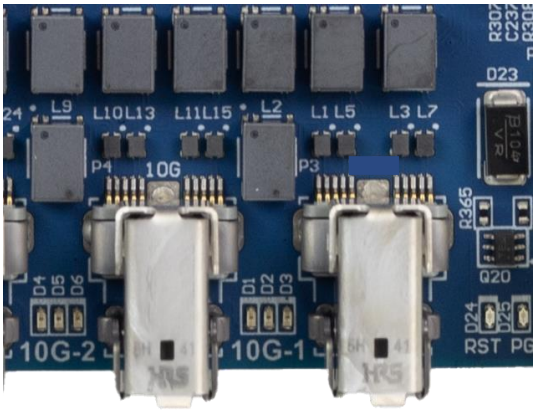
Two ports of 10G BASE-T Ethernet for high-speed networking.

<table>
<tr><th>Function</th><th colspan="3">10 GBE Network Connectivity</th></tr>
<tr><td>Location</td><td colspan="3">P3, P4</td></tr>
<tr><td>Type</td><td colspan="3">10 Pin IX Series Connector</td></tr>
<tr><td>Connector</td><td colspan="3">Part Number: IX61G-A-10P
Manufacturer: Hirose Electric Co Ltd</td></tr>
<tr><td>Mating Cable</td><td colspan="3">Any IX Industrial™ Compliant Cable Assemblies.

CBG695</td></tr>
<tr><td>Pinout</td><td colspan="3"><table>
<tr><th>Pin #</th><th colspan="2">Description</th><th>Pin #</th></tr>
<tr><td>1</td><td>MDI0_P</td><td>MDI0_N</td><td>2</td></tr>
<tr><td>3</td><td>GND</td><td>MDI2_P</td><td>4</td></tr>
<tr><td>5</td><td>MDI2_N</td><td>MDI1_P</td><td>6</td></tr>
<tr><td>7</td><td>MDI1_N</td><td>GND</td><td>8</td></tr>
<tr><td>9</td><td>MDI3_P</td><td>MDI3_N</td><td>10</td></tr>
</table></td></tr>
<tr><td>Notes</td><td colspan="3">Both channels go through AQR113 PHYs originating from MGBE0 and MGBE1 on the Thor™ Module. These ports will support 10GBASE-T, 1000BASE-T and 100BASE-T.

Connection to POE enabled switches or other POE upstream devices is not recommended.

Mechanical Specification:
Mating Durability: 5,000 insertion/extraction cycles
Vibration: 10-500Hz, Half Amplitude 0.35mm, 5.10 G
Shock: 30.6 G, 11ms
For more details on the connector’s mechanical details and testing please see Hirose’s datasheet at the following link:
https://www.hirose.com/product/document?clcode=CL0251-0021-0-00&productname=IX61G-A-10P&series=IX&documenttype=Catalog&lang=en&documentid=D144096_en</td></tr>
</table>



2.5G Ethernet

2.5G BASE-T Ethernet for networking.

<table>
<tr><th>Function</th><th colspan="3">GBE Network Connectivity</th></tr>
<tr><td>Location</td><td colspan="3">P5</td></tr>
<tr><td>Type</td><td colspan="3">10 Pin IX Series Connector</td></tr>
<tr><td>Connector</td><td colspan="3">Part Number: IX61G-A-10P
Manufacturer: Hirose Electric Co Ltd</td></tr>
<tr><td>Mating Cable</td><td colspan="3">Any IX Industrial™ Compliant Cable Assemblies.

CBG695</td></tr>
<tr><td>Pinout</td><td colspan="3"><table>
<tr><th>Pin #</th><th colspan="2">Description</th><th>Pin #</th></tr>
<tr><td>1</td><td>MDI0_P</td><td>MDI0_N</td><td>2</td></tr>
<tr><td>3</td><td>GND</td><td>MDI2_P</td><td>4</td></tr>
<tr><td>5</td><td>MDI2_N</td><td>MDI1_P</td><td>6</td></tr>
<tr><td>7</td><td>MDI1_N</td><td>GND</td><td>8</td></tr>
<tr><td>9</td><td>MDI3_P</td><td>MDI3_N</td><td>10</td></tr>
</table></td></tr>
<tr><td>Notes</td><td colspan="3">The 2.5GBASE-T channel goes through the Intel I226 PHY.

Connection to POE enabled switches or other POE upstream devices is not recommended.

Mechanical Specification:
Mating Durability: 5,000 insertion/extraction cycles
Vibration: 10-500Hz, Half Amplitude 0.35mm, 5.10 G
Shock: 30.6 G, 11ms
For more details on the connector’s mechanical details and testing please see Hirose’s datasheet at the following link:
https://www.hirose.com/product/document?clcode=CL0251-0021-0-00&productname=IX61G-A-10P&series=IX&documenttype=Catalog&lang=en&documentid=D144096_en</td></tr>
</table>

USB 3.2

USB 3.2 Rugged interfaces with 3A at 5V output capable per port.

Function	USB 3.2 General Purpose Ports
Location	J2
Type	ARF6 Connector
Connector	Part Number: ARF6-08-S-RA-TR Manufacturer: Samtec Inc.
Mating Cable	Samtec (ARC6) AcceleRate® Slim Cable Assemblies **CBG691**

Pinout

Pin #	Description		Pin #
1	GND	GND	2
3	+VBUS	USB3_B_RX_P	4
5	+VBUS	USB3_B_RX_N	6
7	GND	GND	8
9	+VBUS	USB3_B_TX_P	10
11	+VBUS	USB3_B_TX_N	12
13	GND	GND	14
15	USB2_D_P	USB3_A_RX_P	16
17	USB2_D_N	USB3_A_RX_N	18
19	GND	GND	20
21	CC1	USB3_A_TX_P	22
23	CC2	USB3_A_TX_N	24
25	GND	GND	26
27	GND	GND	28
29	NC	NC	30

Notes

USB-C OTG

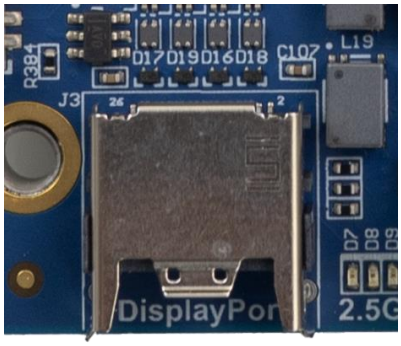
USB3.2 Type C OTG Flashing Port

Function	USB 3.2 General Purpose Ports	
Location	P7	
Type	24 Pin USB Type C	
Connector	Part Number: 2385692-1 Manufacturer: TE Connectivity	
Mating Cable	Any Standard Type C interface cable or device ** Note this port only supports USB devices, it does not include a display interface **	
Pinout	As per the USB 3.2 specification	
Notes	This interface doubles both as a standard Downward Facing Port (DFP) USB 3.2 to support USB 3.2 devices and the Jetson Thor™ Flashing Upward Facing Port (UFP).	

DisplayPort Video Output

The Rogue-T5 supports one DisplayPort capable of 4k output resolution.

Function	Display Output
Location	J3
Type	ARF6 Connector
Connector	Part Number: ARF6-08-S-RA-TR Manufacturer: Samtec Inc.
Mating Cable	ARC6-08-xx.x-LU-LD-2-1 **XBG037**



Pinout

Pin #	Description		Pin #
1	GND	GND	2
3	DP_PWR	DP_L2_P	4
5	NC	DP_L2_N	6
7	GND	GND	8
9	NC	DP_L0_P	10
11	HPD	DP_L0_N	12
13	GND	GND	14
15	DP_AUX'_N	DP_L3_P	16
17	DP_AUX'_P	DP_L3_N	18
19	GND	GND	20
21	DP_CONFIG1	DP_L1_P	22
23	DP_CONFIG2	DP_L1_N	24
25	GND	GND	26
27	GND	GND	28
29	NC	NC	30

Notes	XBG037 Breakout Board is available to convert the rugged ARF6 connector to a standard DisplayPort connector

RTC Battery Connector

The Rogue-T5 allows for an external 3V RTC battery to be connected. For further information about RTC battery selection and life time estimation, see Application Note 00009: https://connecttech.com/pdf/CTIN-00009.pdf.

Function	RTC Battery Connector
Location	P14
Type	3 pin PicoBlade (vertical)
Connector PN	Part Number: 53398-0371 Manufacturer: Molex
Mating PN	Part Number: 51021-0300 Manufacturer: Molex
Pinout	See table below

Pin	Signal	Description
1	+3V	RTC Battery Voltage Input
2	NC	No Connect
3	GND	Ground/Return

Fan Connectors

The Rogue-T5 has 2 Fan connectors available for use with a variety of different fans. One on the bottom (P12) of the card and one on the topside (P13).

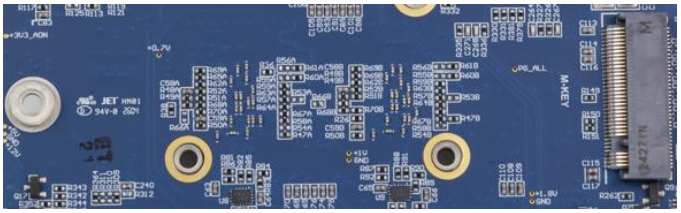
Function	12V Fan Connectors
Location	P12, P13
Type	4 pin PicoBlade
Connector	Part Number: 0532610471 Manufacturer: Molex
Mating Cable	Part Number: 51021-0400 (housing), 50058-8000 (contact) Manufacturer: Molex
Pinout	See table below
Notes	1.5A available on each connector

Pin	Description
1	GND
2	+12V Power
3	TACH Feedback
4	PWM from module to fan

M.2 M-Key 2280 expansion slot

The Rogue-T5 has an M.2 M-Key 2280 sized expansion slot with x4 PCIe interface for use with an NVMe or M-key compatible devices.

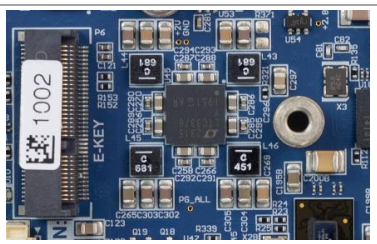
Function	M.2 M-Key 2280 Connectors
Location	J1 (PCIe x4)
Type	M.2 67pin 8.5mm
Connector	1-2199119-5 TE
Pinout	Refer to M.2 M-key specification
Notes	PCIe x4 capable



M.2 E-Key 2230 expansion slot

The Rogue-T5 has one M.2 E-Key 2230 sized expansion slots with USB2 and x1 PCIe interface for use with a WiFi and BT expansion card.

Function	M.2 E-Key 2230 Connector
Location	P6
Type	M.2 67pin 8.5mm E-key
Connector	10128797 series Amphenol
Pinout	Refer to M.2 E-key specification
Notes	PCIe x1 capable, USB 2.0 only



External Power/Reset/Force Recovery Connector

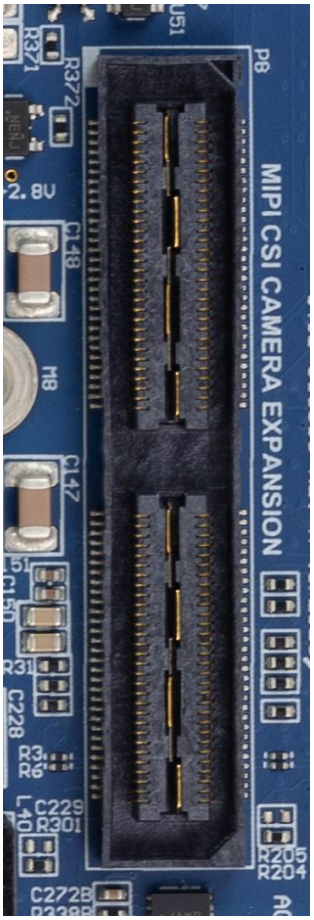
The Rogue-T5 has a connector to provide external connections for PWR, RESET and FORCE RECOVERY.

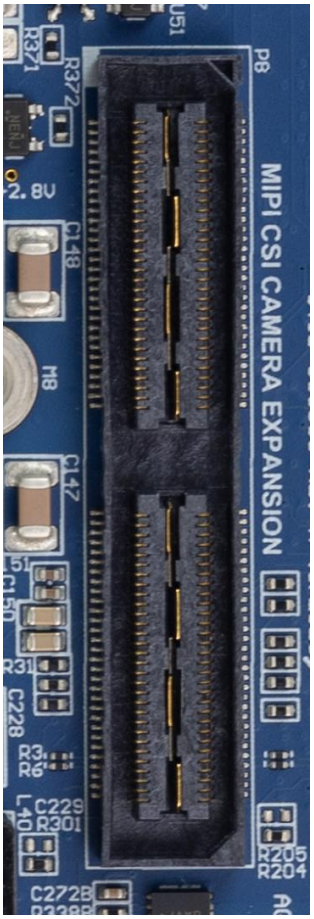
Function	External Power/Reset control
Location	P16
Type	6 pin Pico blade
Connector	0533980671 from Molex
Pinout	See table below
Notes	Note all signals here are active low and have internal 5.0V 10kohm pullups. Connect to GND to activate.

Pin #	Description
1	Force Recovery Button
2	GND
3	Reset Button
4	GND
5	Power Button
6	GND

CAMERA Expansion Connector

Function	8 MIPI CSI-2 Camera Interfaces + I2C and GPIO Control		
Location	P8		
Type	120 Pin QSH with M2.5 mounting standoffs		
Default	Part Number: QSH-060-01-L-D Manufacturer: Samtec		
Mating Connector	QTH		
Pinout	Pin #	Description	Pin #
	1	CSI0_D0_P	CSI1_D0_P	2
	3	CSI0_D0_N	CSI1_D0_N	4
	5	GND	GND	6
	7	CSI0_CLK_P	CSI1_CLK_P	8
	9	CSI0_CLK_N	CSI1_CLK_N	10
	11	GND	GND	12
	13	CSI0_D1_P	CSI1_D1_P	14
	15	CSI0_D1_N	CSI1_D1_N	16
	17	GND	GND	18
	19	CSI2_D0_P	CSI3_D0_P	20
	21	CSI2_D0_N	CSI3_D0_N	22
	23	GND	GND	24
	25	CSI2_CLK_P	CSI3_CLK_P	26
	27	CSI2_CLK_N	CSI3_CLK_N	28
	29	GND	GND	30
	31	CSI2_D1_P	CSI3_D1_P	32
	33	CSI2_D1_N	CSI3_D1_N	34
	35	GND	GND	36
	37	CSI4_D0_P	CSI6_D0_P	38
	39	CSI4_D0_N	CSI6_D0_N	40
	41	GND	GND	42
	43	CSI4_CLK_P	CSI6_CLK_P	44
	45	CSI4_CLK_N	CSI6_CLK_N	46
	47	GND	GND	48
	49	CSI4_D1_P	CSI6_D1_P	50
	51	CSI4_D1_N	CSI6_D1_N	52
	53	GND	GND	54
	55	**+12V**	**+12V**	56
	57	**+12V**	**+12V**	58
	59	CSI5_D0_P	CSI7_D0_P	60



	61	CSI5_D0_N	CSI7_D0_N	62	
	63	GND	GND	64	
	65	CSI5_CLK_P	CSI7_CLK_P	66	
	67	CSI5_CLK_N	CSI7_CLK_N	68	
	69	GND	GND	70	
	71	CSI5_D1_P	CSI7_D1_P	72	
	73	CSI5_D1_N	CSI7_D1_N	74	
	75	I2C3_SCL	CAM_ERROR1	76	
	77	I2C3_SDA	PWM01	78	
	79	GND	GND	80	
	81	+2.8V	+2.8V	82	
	83	+2.8V	CAM_ERROR3	84	
	85	FRSYNC1	PWM02	86	
	87	I2C4_SCL	CAM_MCLK3	88	
	89	I2C4_SDA	CAM1_PWDN	90	
	91	CAM_MCLK2	CAM1_RST#	92	
	93	CAM0_PWDN	CAM_MCLK4	94	
	95	CAM0_RST#	FRSYNC4	96	
	97	FRSYNC3	FRSYNC2	98	
	99	GND	GND	100	
	101	CAM_ERROR4	1.8V	102	
	103	CAM_INT3	CAM_INT4	104	
	105	I2C5_SCL	CAM_INT2	106	
	107	I2C5_SDA	3.3V	108	
	109	CAM_ERROR2	3.3V	110	
	111	CAM_SPI_SCK	CAM_SPI_MOSI	112	
	113	CAM_SPI_CS0	CAM_SPI_MISO	114	
	115	GND	GND	116	
	117	CAM_INT1	3.3V	118	
	119	CAM_VDD_SYS_EN	3.3V	120	

Notes	Only 6 of the CSI2 interfaces can be used at once in 2 lane configurations. Only 4 interfaces when using 4 lane configurations. Note that up to 16 Cameras can be used using virtual channels. All non-CSI-2 I/O **(excluding CAM_FRSYNC[1..4])** are 1.8V levels. Power available on the Camera Connector: 12V => 3A (4 pins) 1.8V => 1A (1 pin) 2.8V => 3A (3 pins) 3.3V => 3A (4 pins)

GPIO/I2C/UART Connector

Several General purpose I/O features are available on this interface including: 1xI2C, 2xUART, 3xGPIO, 1xPWM, 2xRS232/RS-485.

Function	General Purpose I/O
Location	P12
Type	30 pin General Purpose 3.3V I/O Connector (note: All I/O are 3.3V levels except the RS232/RS485 interfaces)
Connector	Samtec TFM-115-02-L-D-WT
Mating Cable	SFSD-15-28-G-12.00SR (SL or DL = Friction Lock required for locking fit)

Pinout

Pin #	Description	Description	Pin #
1	+3.3V	GND	2
3	PWM03	GPIO01	4
5	GPIO02	GPIO03	6
7	GND	GND	8
9	RS232A_TX RS485A_TX_P	RS232A_RTS RS485A_TX_N	10
11	RS232A_RX RS485A_RX_P	RS232A_CTS RS485A_RX_N	12
13	GND	GND	14
15	I2C0_SCL	RS232B_RX RS485B_RX_P	16
17	I2C0_SDA	RS232B_CTS RS485B_RX_N	18
19	GND	GND	20
21	RS232B_TX RS485B_TX_P	UART4_RX	22
23	RS232B_RTS RS485B_TX_N	UART1_RX	24
25	GND	GND	26
27	UART4_TX	GND	28
29	UART1_TX	GND	30

Notes:

- All I/O are 3.3V unless otherwise specified.
- +3.3V Power Output absolute maximum 2A capable
- GPIO direction comes from an onboard DS4520 I2C to GPIO controller located on bus 0 address 0x57. Setting the direction bit as high will configure the GPIO to be an output and setting the direction bit as low will configure the GPIO to be an input.
  Example code:
  $ ds4520 -b 0 -a 0x57 -w 1 (unlock eeprom)
  $ ds4520 -b 0 -a 0x57 4=1 (ds4520 on bus 0, address 0x57, bit 3 (GPIO04) set as output)
  $ ds4520 -b 0 -a 0x57 -w 0 (lock eeprom for permanent configuration)
  For more information on GPIO usage, please click here

SW Cross Reference

Connector Name	Module ID	Controller ID	DS4520 Direction Control Bit
GPIO01	GPIO32	PL.01	4
GPIO02	GPIO18	PL.04	5
GPIO03	GPIO67	PAA.00	6

Connector Name	Module ID	DTB ID
PWM03	pwm5	pwm@810c600000 (PU.07)

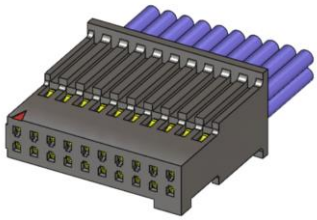
Connector Name	SW /dev ID	DTB ID
I2C0	i2c0	i2c@810c630000
UART1	ttyAMA9	serial@810c530000
UART4	ttyAMA4	serial@810c500000
RS232A	ttyAMA5	serial@810c510000
RS232B	ttyAMA10	serial@810c540000

CAN/I2S Connectors

Four non-isolated CAN Bus interfaces and an I2S audio interface are available on this interface

Function	CAN/I2S Interface
Location	P9
Type	20 pin CAN Bus and I2S Connector
Connector	TFM-110-02-L-DH
Mating Cable	SFSD-10-28-G-12.00SL (SL or DL = Friction Lock required for locking fit)
Pinout	See table below
Notes	I2S interface is +1.8V

Pin #	Description	Description	Pin #
1	CAN0_H	CAN0_L	2
3	GND	GND	4
5	CAN1_H	CAN1_L	6
7	GND	GND	8
9	CAN2_H	CAN2_L	10
11	GND	GND	12
13	CAN3_H	CAN3_L	14
15	GND	+1.8V	16
17	I2S_SDOUT	I2S_SDIN	18
19	I2S_CLK	I2S_FS	20



Breakout Board Details

The Rogue-T5 employs Samtec ARF6 Rugged Latching High-Speed connectors for the USB 3.2 and DisplayPort. These ports utilize Samtec (ARC6) AcceleRate® Slim Cable Assemblies to route out to customer defined IO Panels (MIL Circular, M12, Other) or to Connect Tech breakout boards.

Part Number	Description
XBG037	Rugged IP67 DisplayPort Connector Breakout Board
XBG026	Rugged IP67 USB Connector Breakout Board
CBG691	Rugged High-speed Samtec ARC6 12” Length Cable (For use with USB and DisplayPort breakout boards)

XBG037 Breakout Board for DisplayPort Video

Adapter board for breaking out the ARF6 connector to standard DisplayPort connector

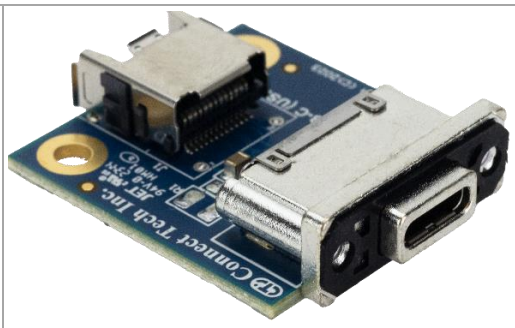
Function	DisplayPort Breakout Board
Location	J3
Type	Breakout board / DisplayPort Adapter
AGX302 facing connector	Part Number: ARF6-08-S-RA-TR Manufacturer: Samtec

Pinout

Pin #	Description	Description	Pin #
1	GND	GND	2
3	DP_PWR	DP_L2_P	4
5	NC	DP_L2_N	6
7	GND	GND	8
9	NC	DP_L0_P	10
11	HPD	DP_L0_N	12
13	GND	GND	14
15	DP_AUX’_N	DP_L3_P	16
17	DP_AUX’_P	DP_L3_N	18
19	GND	GND	20
21	DP_CONFIG1	DP_L1_P	22
23	DP_CONFIG2	DP_L1_N	24
25	GND	GND	26
27	GND	GND	28
29	NC	NC	30

Notes

XBG026 Breakout Board for USB 3.2

<table>
<tr><th>Function</th><th colspan="2">USB 3.2 Breakout Board</th></tr>
<tr><td>Location</td><td colspan="2">J1 (XBG026 USB Breakout Board)</td></tr>
<tr><td>Type</td><td colspan="2">Breakout board / USB Adapter</td></tr>
<tr><td>AGX302 facing connector</td><td colspan="2">Part Number: ARF6-08-S-RA-TR
Manufacturer: Samtec</td></tr>
<tr><td>Pinout</td><td>
<table>
<tr><th>Pin #</th><th>Description</th><th>Description</th><th>Pin #</th></tr>
<tr><td>1</td><td>GND</td><td>GND</td><td>2</td></tr>
<tr><td>3</td><td>USB3_B_RX_P</td><td>+VBUS</td><td>4</td></tr>
<tr><td>5</td><td>USB3_B_RX_N</td><td>+VBUS</td><td>6</td></tr>
<tr><td>7</td><td>GND</td><td>GND</td><td>8</td></tr>
<tr><td>9</td><td>USB3_B_TX_P</td><td>+VBUS</td><td>10</td></tr>
<tr><td>11</td><td>USB3_B_TX_N</td><td>+VBUS</td><td>12</td></tr>
<tr><td>13</td><td>GND</td><td>GND</td><td>14</td></tr>
<tr><td>15</td><td>USB3_A_RX_P</td><td>USB2_D_P</td><td>16</td></tr>
<tr><td>17</td><td>USB3_A_RX_N</td><td>USB2_D_N</td><td>18</td></tr>
<tr><td>19</td><td>GND</td><td>GND</td><td>20</td></tr>
<tr><td>21</td><td>USB3_A_TX_P</td><td>CC1</td><td>22</td></tr>
<tr><td>23</td><td>USB3_A_TX_N</td><td>CC2</td><td>24</td></tr>
<tr><td>25</td><td>GND</td><td>GND</td><td>26</td></tr>
<tr><td>27</td><td>FGND</td><td>FGND</td><td>28</td></tr>
<tr><td>29</td><td>NC</td><td>NC</td><td>30</td></tr>
</table>
</td><td>  </td></tr>
<tr><td>Notes</td><td colspan="2">+VBUS is a standard +5V USB VBUS</td></tr>
</table>

TYPICAL INSTALLATION

The Rogue-T5 is an NVIDIA® Jetson Thor™ based carrier that can be configured in a variety of ways to suit the users environment and feature set. The basic install and power up conditions are as follows:

Ensure all external system power supplies are off.

1. Install the NVIDIA® Jetson Thor™ Module onto the Molex Mirror Mezz™ Connector. Be sure to follow proper installation of mounting hardware, heatsink/heatspreader, and any other applicable requirements from the manufacturer.

2. Install the necessary cables for application. At a minimum these would include:

   a) Power cable to the input power connector on the carrier
   b) Displayport video display cable
   c) Keyboard and mouse via a USB port
      or
   d) Connect only the micro USB debug serial port (no display or keyboard and mouse are necessary) to get a terminal connection from a remote source.

   For additional information on the relevant cables, please see the Cables and Interconnects section of this manual.

3. Connect the Power Cable to the Power Supply.

Switch ON the Power Supply. DO NOT power up your system by plugging in live power.

FORCE RECOVERY MODE

The USB-C OTG P7 of the Rogue-T5 can be used to reprogram the NVIDIA® Jetson Thor™ from another host platform running NVIDIA® Jetpack™.

1) Power down the system completely. The system power MUST be OFF, not in suspend or sleep mode.
2) Connect the DRD USB port to another host device that will be supplying the new system file.
3) Hold down the Force Recovery Button (S5) and then power the board.
4) After three (3) seconds release the Recovery button.
5) The NVIDIA® Jetson Thor™ will show up on the host system USB list as a new NVIDIA® target device.
6) After successfully updating the system software, power off the system. A clean power up will revert the DRD port back into host mode.

POWER CONSUMPTION & THERMALS

Theoretical Maximum System power	Watts
Theoretical maximum system power with T5000 module (MAXN Power Mode): - Module = 130W - 2x USB 3.2 load 5V@3A each = 30W - 2x 10GbE linked = 6W - 1x 2.5GbE linked = 2W - 8x GMSL camera with PoC (12V power over coax) = 40W - 1x NVMe = 10W - 1x Wi-Fi = 3W	221

The typical power consumption will vary depending on the application and use case.

Tested System Power Scenarios	Watts
- Module (MAXN Power Mode) - 1x display - Apps running: video search and summarization + a local LLM - 1x NVMe - 1x 3A USB load - 10G loopback test	TBD
- Idle system - Module in 120W power mode - 1x display	TBD

It is important to note that the NVIDIA® Jetson Thor™ module has its own properties separate to that of the peripherals.

Parameter	Value	Units
Jetson Thor™ SoC maximum operating temperature top of case (TTP)	80	°C
Jetson Thor™ SoC recommended operating temperature	90	°C
Jetson Thor™ SoC maximum temperature	115	°C

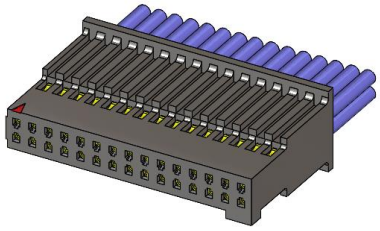
Tested System Thermal Scenarios	Watts	SoC Temperatures
- Module (MAXN Power Mode) - 1x display - LLM doing repetitive Q&A - Stress -c 14 - Thor Active Heatsink with 100% fan PWM - Thermal chamber temperature range: 60 – 65°C	TBD	TBD

WEIGHT

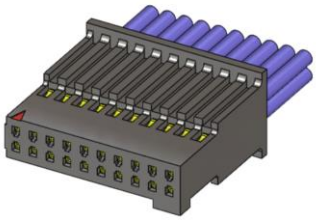
Rogue-T5 configuration	Weight in grams
AGX302 board only (no module) with ethernet phy heat spreader (TTP) attached	136

CABLES

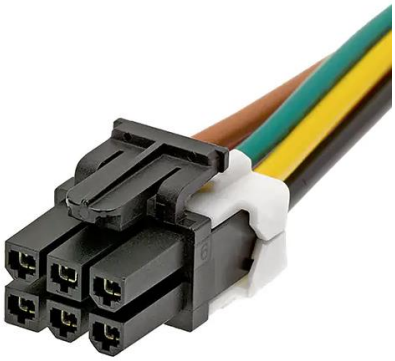
SFSD-15-28-G-x.xx-SL (GPIO connector) – 12” breakout cable with flying leads is supplied with the board purchase.



SFSD-10-28-G-x.xx-SL (CAN/I2S Connector) – 12” breakout cable with flying leads is supplied with the board purchase.



0451350603 (POWER) – 12” 6 pin to 6 pin Mini-Fit Jr for use with power connections.

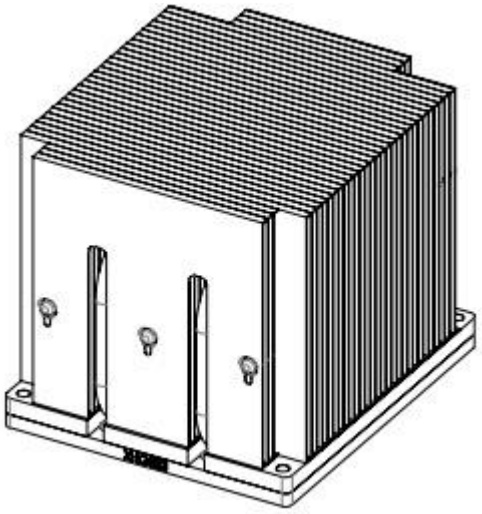


MECHANICAL DRAWINGS & MODELS

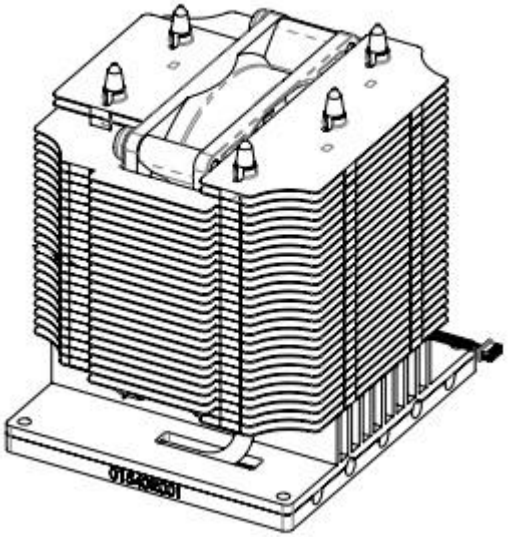
See product page on the Connect Tech Website for latest 3D models or create a support request here:
https://support.connecttech.com/hc/en-us/requests/new

Thermal Options

Passive Heatsink

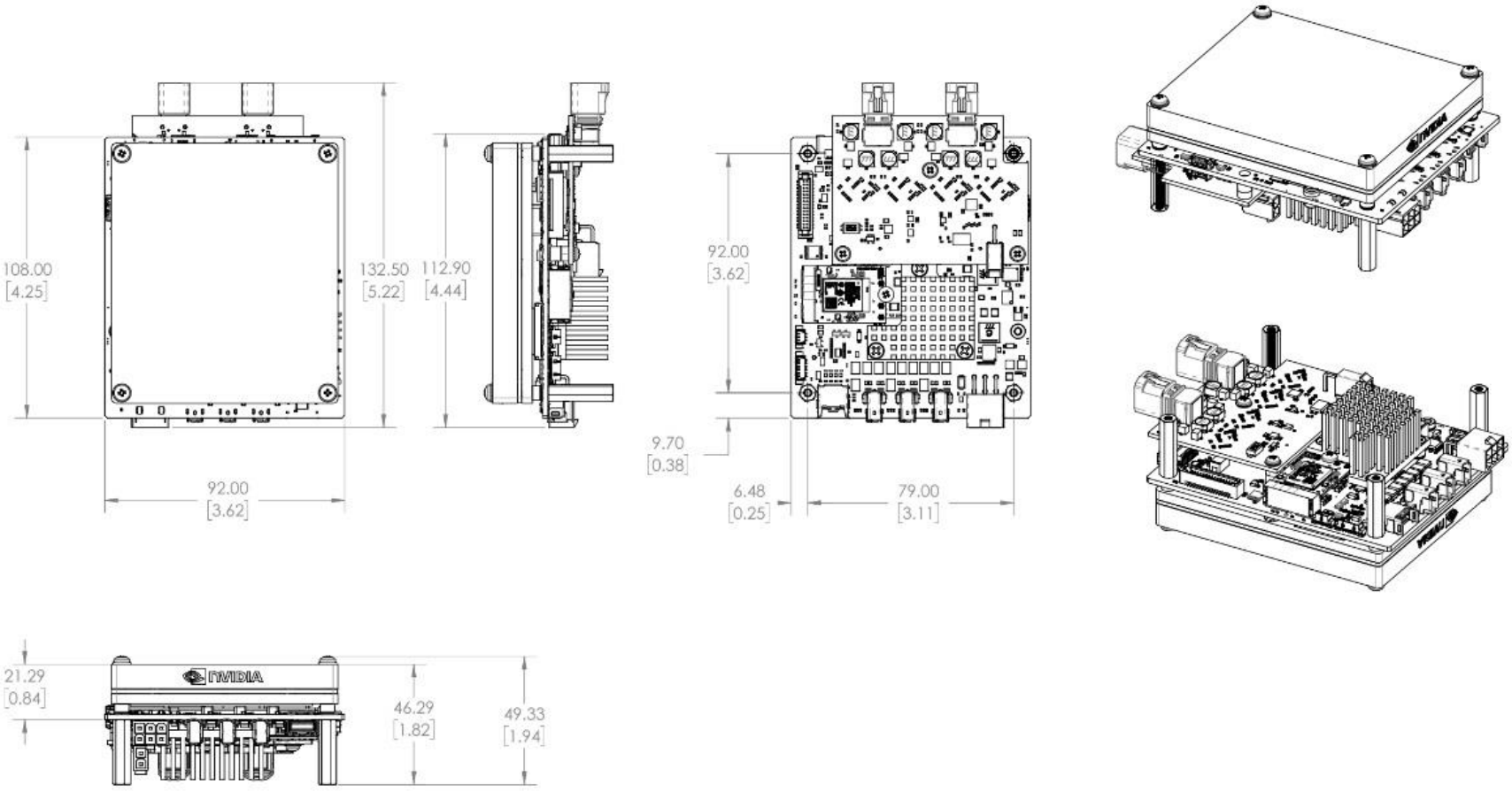


Active Heatsink

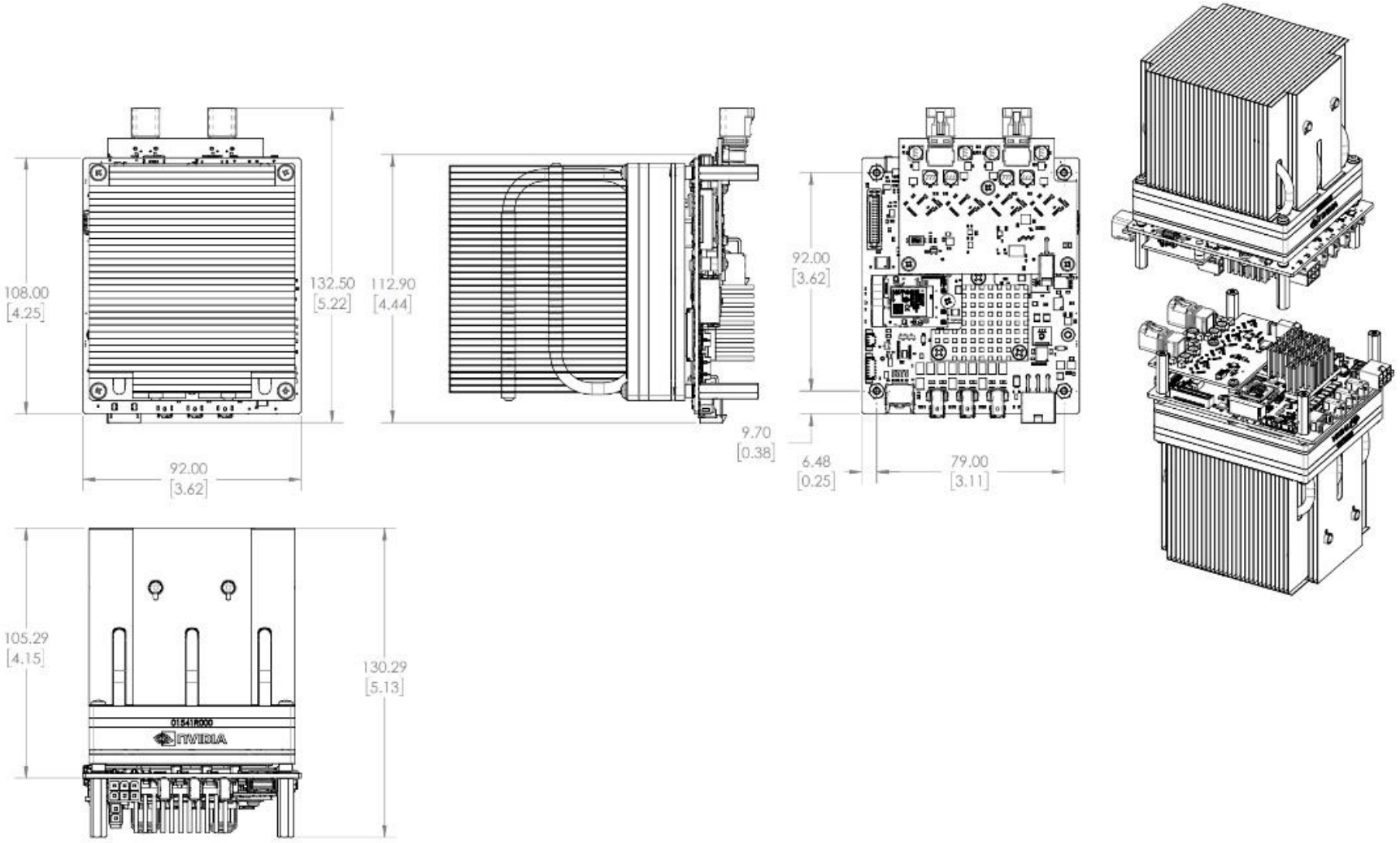


Assembly Drawings

Thermal Transfer Plate



Passive Heatsink



Active Heatsink