



TT312 AGX Thor Controller

For Robotics and Ground Vehicle Applications

Key Features

- ▶ Advanced AI Performance
- ▶ zQSFP+ 4x 25G Ethernet
- ▶ RJ-45 1G Ethernet
- ▶ 2x NVMe M.2 M-Key Slots
- ▶ 14-core ARM Poseidon-AE CPU
- ▶ 2560 CUDA Core NVIDIA GPU
- ▶ 128GB LPDDR5x Memory
- ▶ Hardware Security via SE050 TPM

Applications

- ▶ Autonomous Transportation
- ▶ Robotics
- ▶ Agriculture
- ▶ Mining
- ▶ UAV

Overview

The TT312 AGX Thor is an AI computing platform built around the powerful NVIDIA® Jetson AGX Thor™ module, which integrates a 14-core ARM Poseidon-AE 64-bit CPU, an NVIDIA Blackwell Architecture GPU with 2560 CUDA® cores and 96 4th Gen Tensor Cores, and 128GB LPDDR5x DRAM running at 4266 MHz with 273 GB/s bandwidth. Designed for commercial and industrial deployment.

With up to 1050 FP8 TFLOPs/2100 FP4 TFLOPs of AI compute, the TT312 is ideal for high-performance edge inference and real-time video analytics. TT312 provides access to an impressive list of latest generation interfaces on the Jetson AGX Thor while adding additional interfaces of 4x 25GbE, 1x USB 2.0, 3x protected GPIO, 2x M.2 M-Key Slots (PCIe x2 and x4) and USB Type-C for KVM Interface.

The platform integrates the NXP SE050 Secure Element, providing hardware root of trust, secure credential storage, and cryptographic acceleration. With EAL 6+ certification, it ensures strong protection for security-critical AI and IoT applications.

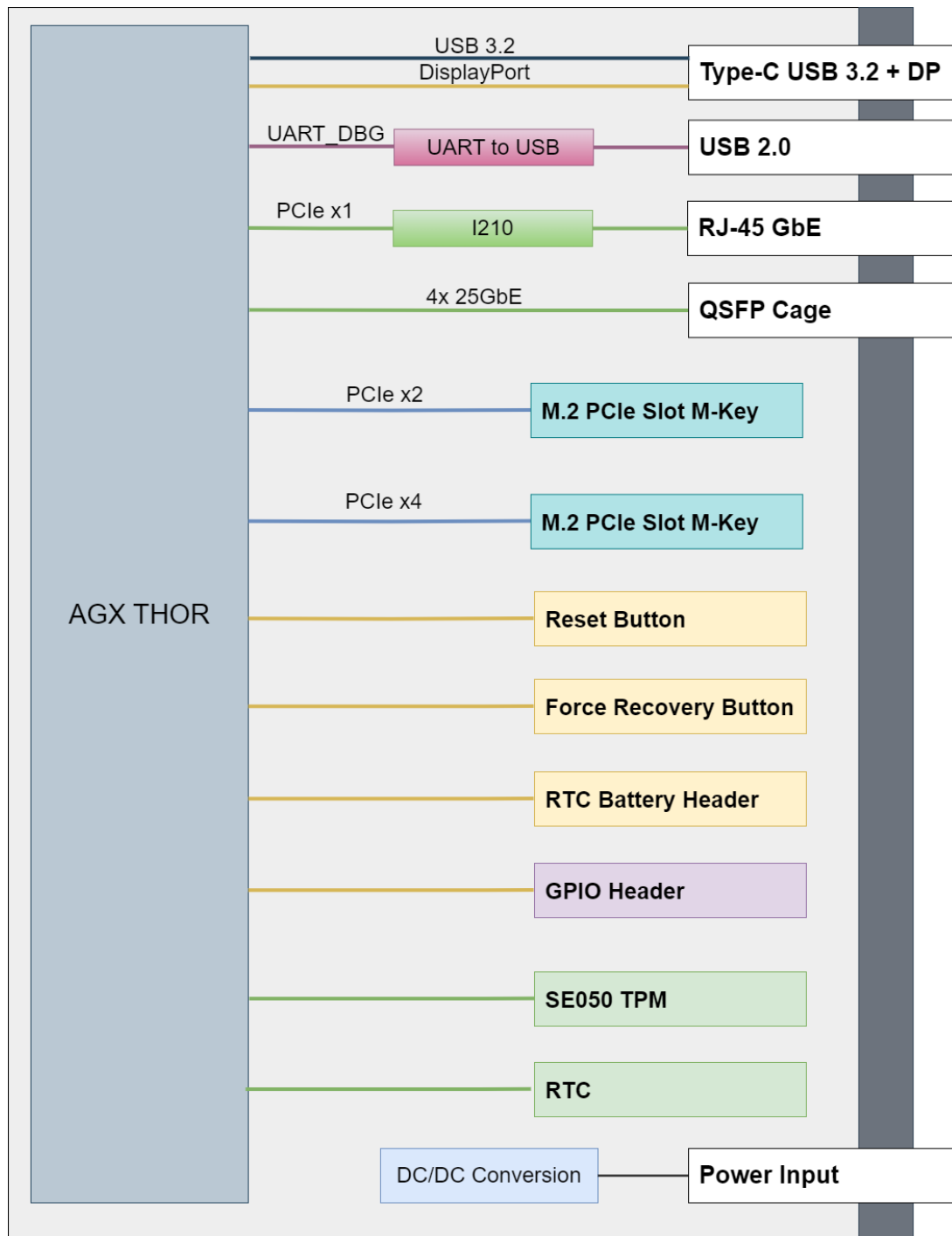
The system supports wide-range 18V–36V DC input and two built-in system control buttons for reset and force recovery.

Key Advantages

- ▶ Powered by NVIDIA Jetson AGX Thor
- ▶ NVIDIA Blackwell GPU with 2560 CUDA® cores and 96 4th Gen Tensor Cores
- ▶ 14-core Arm® Poseidon-AE CPU with 4MB shared L3 Cache
- ▶ 4K Graphics & High-Speed Communication
- ▶ 2x M.2 PCIe Expansion Slots (PCIe x2 and x4) for Storage
- ▶ Built-in Buttons for System Maintenance and Recovery
- ▶ SE050 Secure Element for Secure AI & IoT Operations



Block Diagram



Specifications

SOM	NVIDIA® Jetson AGX Thor up to 1050 FP8 TOPS/2100 FP4 TOPS
SYSTEM MEMORY	128GB LPDDR5x 4266MHz 256-bit, 273GB/s
DISPLAY INTERFACE	USB Type-C Display Port
ETHERNET	4x 25GbE LAN zQSP+ Interface
	RJ-45 GbE Port
I/O	USB 2.0
	USB 3.2 Type-C + DP
	3x Protected General Purpose I/O
EXPANSION	M.2 PCIe Slot M-Key PCIe x2
	M.2 PCIe Slot M-Key PCIe x4
ADDITIONAL FEATURES	SE050 TPM
	I2C-Integrated RTC
INDICATOR	Power LED
BUTTON	Reset
	Force Recovery
OS SUPPORT	Ubuntu 20.04
POWER	18V to 36V DC input
	Maximum 190W total power budget
DIMENSION	82 mm (W) x 112 mm (D) x 20 mm (H)

Environmental

OPERATING TEMPERATURE	-20°C to 60°C
STORAGE TEMPERATURE	-40°C to 85°C
HUMIDITY	10% to 90%, non-condensing
VIBRATION	Operating, MIL-STD-810H, Method 514.8, Category 4
SHOCK	Operating, MIL-STD-810H, Method 516.8, Procedure I
EMC	Designed to meet FCC, CE and UL certifications, where applicable



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Ordering Options

TT312-ABC-000-000		
A = SOM		
0 = RESERVED		
1 = NO SOM (CARRIER BOARD ONLY)		
2 = AGX THOR T5000 128GB		
3 = AGX THOR T4000 64GB		
B = M.2 M-KEY [J1A] (PCIe x4)		
0 = RESERVED		
C = M.2 M-KEY [J1B] (PCIe x2)		
0 = RESERVED		

The system can be customized for specific customer requirements, contact Tauro Technologies sales for details.



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