

AFE-R750_A101-2 Component change Function Test Report

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Revision History :

Date	Revision	Description	Creator
2025/09/24	V1.0	AFE-R750 update bsp for Automatic update version upgrade issue	Nick Yu

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Product Specification :

Specifications

Processor System	NVIDIA Jetson Series	Optional Orin NX 16GB	Optional AGX Orin 32GB/64GB
	CPU	8-core NVIDIA Arm® Cortex A78AE v8.2	8/12-core NVIDIA Arm® Cortex A78AE v8.2
	GPU	1024-core NVIDIA Ampere GPU with 32 Tensor Cores Maximum Operating Frequency: 918MHz	1792/2048-core NVIDIA Ampere GPU with 56/64 Tensor Cores, Maximum Operating Frequency: 930MHz/1.3GHz
	AI Performance Reference	Up to 100 Sparse TOPs (INT8)	Up to 200/275 Sparse TOPs (INT8)
	TDP	10~25W	15~40/50W
	Memory	16GB 256-bit LPDDR5 DRAM	32/64GB 256-bit LPDDR5 DRAM
	Flash	NA	64GB eMMC5.1
Ethernet	Interface	RJ-45	
	Controller	Intel® i226	
	Speed	4 x GbE	4 x 2.5GbE
Display	HDMI	1 x HDMI 2.0 (Max. resolution 3840 x 2160 @ 24Hz)	
IO Ports	USB	4 x USB 3.2 Type A	
	OTG USB	1 x Type C USB (for system recovery only)	
	CANBus	1 x isolated CANFD 1Mbps/2Mbps	2 x isolated CANFD 1Mbps/2Mbps
	DI/DO	8bit isolated DIO	16bit isolated DIO
	COM	2 x RS232/422/485	
	Remote switch	LED/WDT/PWS/GND/RESET/Debug	
	Fan	1x Fan connector (12V/1A)	
	Switch	AT/ATX	
Expansion	M.2 E key	1 x 2230 (PCIex1, USB2)	
	M.2 B key	1 x 2280/3042/3052 (PCIex1, USB2, SIM)	
	GMSL	4 x FAKRA (Optional)	8 x FAKRA (Optional)
	IMU	BOSCH BMI088 6-axis (Optional), Movella Xsens MTi3 AHRS 9-axis (Only for AGX, optional by AFE-RM05 with AFE-RM04-8PA1)	
Others	TPM	TPM2.0	
	Time Sync	Supports GPS PPS signal (optional)	
Storage	M.2 M key	1 x M.2 2280 (PCIex4)	
Power	Power Supply voltage	20~28V	
	Power Type	ATX/AT mode, ATX default	
Environment	Operational Temperature	-10 ~ 55°C with 0.7 m/s air flow	32GB: -10 ~ 60°C with 0.7 m/s air flow 64GB : -10 ~ 50°C with 0.7 m/s air flow (MaxN MODE_50W on AMK-A0057 fan kit)
	Operating Humidity	95% @ 40 °C (non-condensing)	
	Vibration	3 Grms @ 5 ~ 500 Hz, random, 1 hr/axis	
Mechanical	Dimensions (W x D x H)	177 x 174 x 60 mm	177 x 174 x 80 mm
	Weight	1.83Kg	2.66Kg
	Mounting Support	Wall mounting	
Operating System	Linux	Ubuntu 22.04 LTS with JetPack 6.1	
Software Support	ROS2	Ready by Advantech Robotic Suite	
Certifications	EMC/Safety	CE/FCC Class B, CB, UL, CCC and BSMI (No RED Certificate)	

System Configuration :

NX

Item.	Description.
Project Name.	AFE-R750
M/B Name	Nvidia Jetson NX
Carrier Board Model.	AFE-R750
Carrier Version.	A101-2
CPU Model/Info	Nvidia Jetson NX
Memory Type/Info/Size	16GB 256-bit LPDDR5
Graphic Controller	2 GPC 8 TPC 2048 NVIDIA® CUDA® cores 32 Tensor cores Ray-Tracing cores 170 Sparse TOPS Maximum Operating Frequency: 1.3 GHz
LAN1 Controller	Intel® Ethernet Controller I226-LM
LAN2 Controller	Intel® Ethernet Controller I226-LM
LAN3 Controller	Intel® Ethernet Controller I226-LM
LAN4 Controller	Intel® Ethernet Controller I226-LM
Storage Type/Info.	Advantech SQF-C8MZ4-512GDEDE
Power Supply Model	FSP230-AAAN3 DC 24V/9.58A 230W
Display Monitor	ASUS VA270DQ
Test OS Version	Ubuntu 22.04 with JetPack6.1 afer750a1_ubuntu22.04-jp6.1_v4.0.0_kernel-5.15.148_agx-orin+orin-nx_agx-64g-32g+nx-16g_emmc+nvme+usb_2025-09-23

AGX_32GB

Item.	Description.
Project Name.	AFE-R750
M/B Name	Nvidia Jetson AGX Orin
Carrier Board Model.	AFE-R750
Carrier Version.	A101-2
CPU Model/Info	Nvidia Jetson AGX Orin
Memory Type/Info/Size	32GB 256-bit LPDDR5
Graphic Controller	2 GPC 8 TPC 2048 NVIDIA® CUDA® cores 32 Tensor cores Ray-Tracing cores 170 Sparse TOPS Maximum Operating Frequency: 1.3 GHz
LAN1 Controller	Intel® Ethernet Controller I226-LM
LAN2 Controller	Intel® Ethernet Controller I226-LM
LAN3 Controller	Intel® Ethernet Controller I226-LM
LAN4 Controller	Intel® Ethernet Controller I226-LM
GMSL/IMU Board	AFE-ROM4 A101-1
Storage Type/Info.	32GB eMMC 6.0
Power Supply Model	FSP230-AAAN3 DC 24V/9.58A 230W
Display Monitor	ASUS VA270DQ
Test OS Version	Ubuntu 22.04 with JetPack6.1 afer750a1_ubuntu22.04-jp6.1_v4.0.0_kernel-5.15.148_agx-orin+orin-nx_agx-64g-32g+nx-16g_emmc+nvme+usb_2025-09-23

AGX_64G

Item.	Description.
Project Name.	AFE-R750
M/B Name	Nvidia Jetson AGX Orin
Carrier Board Model.	AFE-R750
Carrier Version.	A101-2
CPU Model/Info	Nvidia Jetson AGX Orin
Memory Type/Info/Size	64GB 256-bit LPDDR5
Graphic Controller	2 GPC 8 TPC 2048 NVIDIA® CUDA® cores 32 Tensor cores Ray-Tracing cores 170 Sparse TOPS Maximum Operating Frequency: 1.3 GHz
LAN1 Controller	Intel® Ethernet Controller I226-LM
LAN2 Controller	Intel® Ethernet Controller I226-LM
LAN3 Controller	Intel® Ethernet Controller I226-LM
LAN4 Controller	Intel® Ethernet Controller I226-LM
GMSL/IMU Board	AFE-ROM4 A101-1
Storage Type/Info.	64GB eMMC 6.0
Power Supply Model	FSP230-AAAN3 DC 24V/9.58A 230W
Display Monitor	ASUS VA270DQ
Test OS Version	Ubuntu 22.04 with JetPack6.1 afer750a1_ubuntu22.04-jp6.1_v4.0.0_kernel-5.15.148_agx-orin+orin-nx_agx-64g-32g+nx-16g_emmc+nvme+usb_2025-09-23

Test Utility and Tool List :

Title	Version	Remark
N/A		

Test Equipment :

Model	Description
N/A	

Test Results Definition :

Criteria	Definition
PASS	Test result pass and function work perfectly.
Fail	Test fail or cannot meet the spec requirement.
Limitation	There are no plans to fix this function.
N/A	Not Available or Not Applicable.
Check Next Version	HW modified circuit and solution verified, and checks the function result has pass. Need to check next version.

Test Results Summary :

Num.	Test Item	Result	Remark
1	Function		
1.01	Disable update bsp for Automatic update version upgrade	PASS	

1. Function

1.01 Disable update bsp for Automatic update version upgrade

1.01.01.01 Test Purpose :

The purpose of this test is to confirm whether the update can be blocked.

1.01.01.01.02 Test Data:

Test Item	Description	Result	Remark
Disable update bsp for Automatic update version upgrade	Use the force verification command to confirm whether the update can be blocked	PASS	